

Out of Sight, Out of Tax?

Strategic Payment Routing and the Limits of Third-Party Reporting

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Abstract

We examine whether expanded third-party information reporting changes how small businesses route customer payments across digital payment platforms. We exploit the American Rescue Plan Act of 2021 (“ARPA”), which lowered the Form 1099-K reporting threshold for third-party settlement organizations while leaving Zelle outside the reporting regime. Using 1.46 million firm-month observations from small-business bank accounts, we document a discrete increase in the share of payment-app receipts routed through Zelle following ARPA’s anticipated implementation. The increase is concentrated among firms with ex-ante characteristics associated with weaker tax compliance, lower risk aversion, tighter financial constraints, and less transparent information environments. Firms with the largest increase in Zelle usage subsequently exhibit a 1.1 percentage point decline in estimated tax margins, representing approximately 14% of the sample mean. Overall, our findings suggest that taxpayers respond to expanded information reporting not only by adjusting reported income within existing reporting systems, but also by reallocating transactions toward functionally similar channels with lower reporting visibility.

JEL Classification: G28, H25, H26, D22, H26, G28

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1. Introduction

Tax underreporting on timely filed tax returns is the largest source of U.S. tax noncompliance (IRS 2024). For tax year 2022, the IRS estimated it at approximately \$539 billion, representing about 77% of the total U.S. tax noncompliance (IRS 2024). Underreporting is especially pronounced when income is difficult for tax authorities to verify independently (Kleven et al. 2011; IRS 2024). Small businesses constitute an important setting for studying this verification friction, as their income is often self-reported rather than externally observed (U.S. Department of the Treasury 2021; IRS 2024). A central tool for addressing tax underreporting is third-party information reporting, which constrains taxpayers' ability to misreport by requiring independent parties to report income-related transactions to tax authorities (Kleven et al. 2011; Pomeranz 2015; Slemrod et al. 2017; Naritomi 2019). Yet, small businesses can route customer payments through channels that differ in the extent to which they are reported to tax authorities. In this paper, we examine whether expanded third-party information reporting leads small businesses to change how they route customer payments.

To test this research question, we exploit the American Rescue Plan Act of 2021 ("ARPA"), which sought to expand third-party information reporting by lowering the reporting threshold for Form 1099-K, filed by payment settlement entities.¹ Before ARPA, Form 1099-K reporting applied when payments exceeded \$20,000 and 200 transactions. ARPA lowered the threshold to more than \$600 in annual payments, regardless of transaction volume (IRS 2025). This change applies to covered payment platforms such as PayPal, Venmo, and Cash App, but not to Zelle, which facilitates direct bank-to-bank transfers rather than settling transactions on the users' behalf, although all these platforms serve the same peer-to-peer payment function from the users' perspective. This institutional distinction creates a reporting gap across economically similar digital payment channels. ARPA was enacted on March 11, 2021, and the lower threshold was initially scheduled to take effect on January 1, 2022. Although the IRS subsequently delayed implementation, the policy change was highly salient throughout 2021 and 2022 and was widely

¹ Payment settlement entities include the merchant acquiring entity (MAE) for payment-card transactions, or the third-party settlement organization (TPSO) for third-party network transactions (26 U.S. Code § 6050W).

expected to apply to 2022 transactions (e.g., CNBC 2022; CBS News 2022), giving taxpayers reason to expect that covered payment platform receipts would be subject to substantially broader third-party reporting beginning in tax year 2022.²

We predict that increased third-party reporting will affect how small businesses route customer payments. Prior research shows that taxpayers may respond to expanded reporting requirements by substituting toward less transparent jurisdictions, assets, or reporting channels when one channel becomes more visible to tax authorities (De Simone et al. 2020; Ferguson 2023). In our setting, this substitution logic implies that small businesses may reallocate transactions across economically similar payment channels that differ in reporting exposure. Because Zelle is not subject to the same ARPA reporting requirements as covered platforms, we expect small businesses to redirect customer payments toward Zelle, increasing its share of payment-app receipts.³

At the same time, expanded Form 1099-K reporting may not meaningfully change payment routing. Prior research shows that taxpayers can respond to expanded reporting requirements along multiple margins, including increasing reported receipts while offsetting the effect through deductions, costs, or expenses elsewhere on the tax return (Slemrod et al. 2017; Carrillo et al. 2017; Naritomi 2019; Adhikari et al. 2022). Small businesses therefore may respond to ARPA without altering how customer payments are routed across platforms. In addition, small businesses may be unaware that reporting requirements differ across payment platforms. Even when aware, they may face frictions in switching. Payment choices require coordination between small businesses and customers, and prior research shows that adoption depends on both merchant acceptance and consumer use (Rysman 2009; Rochet and Tirole 2003; Bourguignon et al.

² The IRS announced three delays in implementing of ARPA \$600 reporting threshold for TPSO Forms 1099-K, on December 23, 2022, November 21, 2023, and November 26, 2024. In the November 2024 announcement, the IRS adopted a phase-in approach, setting the threshold at \$5,000 for calendar year 2024 and a \$2,500 threshold for 2025, with full implementation of the \$600 threshold in 2026 (IRS, [Notice 2024-85](#)). The \$600 threshold was later repealed by the One Big Beautiful Bill Act, signed into law on July 4, 2025, which reinstated the pre-ARPA reporting threshold. See Figure 3. Form 1099-K Reporting Policy Timeline for more details.

³ This prediction is also consistent with policy concerns that platforms excluded from Form 1099-K reporting, such as Zelle, “may become attractive for filers seeking to hide income and evade tax if not included in information reporting requirements” (Tax Law Center 2024).

2019), with consumer choice shaped by payment characteristics such as cost, speed, and convenience (Schuh and Stavins 2010; Stavins 2018; Greene et al. 2026). Differences in platform features may further limit substitution. For example, Zelle payments are generally near-instant, irreversible, and provide weaker buyer protection than TPSO platforms (Zelle, n.d.).⁴ Finally, small businesses may respond slowly to the reporting change given the complexity, delays, and evolving guidance surrounding Form 1099-K implementation (U.S. Government Accountability Office 2024). Together, these frictions may limit small businesses' ability or willingness to alter the routing of customer receipts.

We test these predictions using transaction-level data from small businesses' bank accounts and credit cards. These transactions allow us to measure receipts by payment platform (i.e., Zelle, PayPal, Venmo, Cash App, Stripe, Apple Pay, and Google Pay) as well as other characteristics of the business, such as tax payments or financial constraints. To investigate payment routing, we construct monthly measures of Zelle's share of total payment-app receipts. We classify Zelle as the non-reporting platform and the remaining platforms as covered platforms. Restricting our analysis to small businesses with meaningful payment-app activity, our sample includes 1,456,349 firm-month observations for 26,445 unique firms from January 2020 through August 2024. We find that payment app usage varies substantially across small businesses, with Zelle accounting for a mean of 51.2% and a median of 58.4% of payment app receipts.

We begin by documenting the aggregate change in Zelle usage around ARPA's scheduled implementation (i.e., January 2022). Our results show a significant increase in small businesses' reliance on Zelle following the ARPA reporting expansion. The average Zelle share rises from 43.2% in 2020 to 57.9% in 2024, with the largest annual increase occurring between 2021 and 2022, the period immediately following ARPA's enactment. We then estimate firm-month regressions and find a significant post-2021 increase in the share of payment-app receipts routed through Zelle. This increase is robust after controlling

⁴ A 2024 U.S. Senate Permanent Subcommittee on Investigations report found that JPMorgan, Bank of America, and Wells Fargo, which together facilitated 73% of Zelle payments in 2023, rejected approximately \$560 million in scam disputes from 2021 to 2023 and reimbursed only 38% of the \$166 million in fraud disputes reported at those banks in 2023. The Consumer Financial Protection Bureau (CFPB) subsequently alleged that consumers lost more than \$870 million to fraud on Zelle. These consumer-facing frictions may discourage customers from using Zelle for transactional payments, limiting small businesses' ability to substitute away from TPSO platforms.

for linear trends. A placebo test using only the pre-period produces no comparable effect, reducing concerns that the results are driven by pre-existing trends in Zelle usage. Although this evidence is consistent with a shift toward the non-reporting channel, aggregate time-series changes in payment behavior could also reflect broader adoption trends.

To distinguish strategic reallocation from broader payment-app adoption, we examine whether the post-ARPA shift toward Zelle is concentrated among small businesses that prior literature identifies as more responsive to changes in reporting visibility. Specifically, those with markers of weaker tax compliance, lower risk aversion, tighter financial constraints, or less transparent information environment. These tests are central to our empirical design because a general increase in Zelle adoption would not be systematically concentrated among firms that benefit most from reduced reporting visibility.

We begin with small businesses that exhibit pre-period markers associated with weaker tax compliance. If firms are strategically responding to expanded reporting, those with weaker tax compliance should exhibit larger increases in Zelle usage (Kleven et al. 2011; Johns and Slemrod 2010; Slemrod et al. 2017; DeBacker et al. 2018). Consistent with this view, we find that small businesses with below-median pre-period estimated tax margins experience an additional 0.6 percentage point increase in Zelle's share of payment-app receipts following the expected reporting expansion under ARPA, relative to other businesses in the same period. Similarly, businesses with social ties to inmates show an even larger response, with an incremental increase of 2.8 percentage points.

A similar pattern emerges among small businesses exhibiting markers of lower risk aversion. If the migration toward Zelle reflects strategic behavior, the response should be stronger among those that are more willing to bear enforcement or compliance risk (Allingham and Sandmo 1972; Yitzhaki 1974; Pestieau and Posseu 1991). Prior research shows that tax compliance decisions reflect a tradeoff between expected benefits and enforcement risk, with more risk-tolerant agents being more willing to engage in aggressive tax avoidance (Slemrod 2007). Consistent with this evidence, we find that small businesses with higher pre-period cryptocurrency, sports-betting, and Robinhood activity exhibit systematically larger increases in Zelle usage after the expected reporting expansion, with the incremental effects ranging from

1.0 to 1.8 percentage points.

We also expect a stronger response among small businesses with financial constraints. Under strategic-routing interpretation, these businesses should have greater incentives to reduce tax reporting, for whom the liquidity benefits of lower expected tax remittances may be more valuable (Edwards et al. 2016; Law and Mills 2015; Hanlon et al. 2017). Consistent with this prediction, we find that small businesses with high debt-servicing payments exhibit an additional 0.7 percentage point increase in Zelle usage following the expected reporting expansion, while small businesses with overdraft charges exhibit an additional 1.6 percentage point increase.

Firms' information environments provide another source of variation, as they affect their practical ability to shift receipts toward a less visible payment channel. If the observed migration reflects an effort to limit reporting exposure, the response should be stronger among small businesses that already operate in less transparent settings and weaker among those with more formal reporting infrastructure (Hope et al. 2013; Kerr 2019). Consistent with this prediction, cash-intensive firms, whose transactions are less visible to the tax authority, exhibit an additional 1.0 percentage point increase in Zelle usage following the expected reporting expansion. In contrast, firms that rely on external payroll-processing services show a relative decline of 1.7 percentage point in Zelle adoption in the post period.

Finally, we examine whether the migration toward Zelle is associated with tax payments. If the shift reflects strategic avoidance of third-party reporting, small businesses that increase their reliance on Zelle the most should subsequently report lower estimated tax margins, all else equal. Consistent with this prediction, we find that firms with above-median growth in Zelle usage experience a 1.1 percentage-point decline in their estimated annual tax margins following ARPA, relative to other firms. Given an average estimated tax margin of approximately 7.9%, this corresponds to a reduction of about 14% and is economically substantial.

Taken together, the evidence suggests that expanding third-party reporting can change how small businesses route customer payments. Rather than only increasing compliance within covered payment channels, the expected reporting expansion appears to induce some small businesses to switch to an

uncovered channel, especially those with greater financial incentives or capacity to operate in a less transparent information environment, and is associated with lower estimated tax margins. These findings highlight an important limitation of partial third-party information-reporting regimes: taxpayers may reallocate transactions toward less visible channels, attenuating the intended compliance benefits of expanded reporting.

This paper makes several contributions. First, it contributes to the literature on tax compliance and information reporting. Existing research on tax compliance has focused on the incentives behind underreporting and on the efficacy of enforcement (Andreoni et al. 1998; Slemrod 2019). In contrast, much less attention is paid to the role of tax administration. A growing literature shows that tax administration can effectively reduce noncompliance by changing the information environment via third-party reporting (Kleven et al. 2011; Slemrod et al. 2017; DeBacker et al. 2018; De Simone et al. 2020; Ferguson 2023). We extend this literature by showing that small businesses can influence how visible their transactions are to tax authorities by altering payment routing. Our findings highlight that the effectiveness of information reporting depends not only on the scope of formal reporting rules, but also on taxpayers' ability to substitute toward functionally similar channels that regulators treat differently.

Second, this paper contributes to the accounting literature on private firms and small businesses. Much of the empirical accounting literature focuses on public firms, in part because researchers can observe financial statements, disclosures, and market-based outcomes, while small and privately held firms are more difficult to study due to limited data availability (Bernard and Sutherland 2026). Prior research emphasizes that private firms operate in distinct and more opaque information environments, where accounting information and external monitoring is limited (e.g., Minnis 2011; Minnis and Sutherland 2017; Beatty and Harris 1998; Bernard et al. 2018). Our transaction-level, bank-account, and credit-card data shed light into small businesses that are typically difficult to observe, allowing us to examine both payment-channel choices and related firm characteristics. Our findings show that tax-reporting regimes can alter small businesses' operational choices, revealing how firms in opaque information environments actively shape the visibility of their economic activity.

Third, this paper contributes to the literature on financial technology and digital payments. Prior research highlights several benefits of digital payment adoption, including lower transaction costs, reduced reliance on cash, improved financial inclusion, and richer electronic records of economic activity (Ferguson 2023; Bourveau et al. 2024; deHaan et al. 2024; Chen et al. 2025; Anderson et al. 2026). We add to this literature by showing that the transparency benefits of digital payments depend on platform design and reporting rules. When economically similar payment platforms differ in third-party reporting requirements, digital payment need not uniformly increase transparency and may instead facilitate substitution toward less visible channels.

2. Institutional Background

2.1 Third-party Reporting under § 6050W and the ARPA Expansion

Third-party information reporting is a central feature of the U.S. tax enforcement system. Taxpayers report income with substantially greater accuracy when it is independently reported to the IRS by a third party, because verification through cross-referencing makes discrepancies easier to detect and harder to conceal (Kleven et al. 2011; Pomeranz 2015; Slemrod 2007). Common examples include wages reported on Form W-2, interest reported on Form 1099-INT, dividends reported on Form 1099-DIV, and non-employee income reported on Form 1099-NEC.⁵ By contrast, income that is not subject to third-party reporting is more easily underreported and accounts for a disproportionate share of the federal tax gap. The IRS's most recent estimate attributes approximately \$539 billion, or 77%, of the \$696 billion gross tax gap for tax year 2022 to underreporting on timely filed returns, with much of the underreporting concentrated in self-reported business and self-employment income (IRS 2024).

The Housing Assistance Tax Act of 2008 (P.L. 110-289, § 3091) added Internal Revenue Code § 6050W and introduced Form 1099-K to cover payments received through certain electronic payment channels. Under § 6050W, payment settlement entities are required to file Form 1099-K, reporting the gross

⁵ Until tax year 2019, nonemployee compensation was reported in Box 7 of Form 1099-MISC. Beginning with tax year 2020, IRS reintroduced Form 1099-NEC, separating nonemployee compensation from other types of miscellaneous income.

amount of reportable payment transactions settled to each participating payee. The statute distinguishes between two types of settlement entities. First, payment-card transactions, processed by merchant acquiring entities (MAEs) such as credit-card network processors, are reportable for any positive gross payment amount. Second, third-party network transactions, processed by third-party settlement organizations (TPSOs) such as PayPal, were reportable only when a payee received more than \$20,000 in gross payments and more than 200 transactions within a calendar year.

This distinction became increasingly important as peer-to-peer (P2P) payment platforms expanded into commercial activity. Slemrod et al. (2017) examine the introduction of § 6050W and document evidence consistent with increased reporting compliance among small businesses on the intensive margin of reported receipts. However, the relatively high TPSO reporting threshold left a substantial fraction of small business receipts outside the reporting system.

ARPA, enacted on March 11, 2021 (P.L. 117-2, § 9674), substantially expanded Form 1099-K reporting for TPSOs by lowering the statutory reporting threshold to \$600 in annual payments, regardless of transaction volume (ARPA § 9674). The lower threshold was initially scheduled to apply beginning January 1, 2022, and was expected to substantially increase the number of small businesses and platform users whose digital payment receipts would be reported to the IRS. The IRS then announced three delays in implementing of ARPA \$600 reporting threshold for TPSO Forms 1099-K, on December 23, 2022 (IRS, Notice 2023-10), November 21, 2023 (IRS, Notice 2023-74), and November 26, 2024 (IRS, Notice 2024-85). In Notice 2024-85, the IRS adopted a phase-in approach, setting the threshold at \$5,000 for calendar year 2024 and a \$2,500 threshold for 2025, with full implementation of the \$600 threshold in 2026. The \$600 threshold was later repealed by the One Big Beautiful Bill Act, signed into law on July 4, 2025, which reinstated the pre-ARPA reporting threshold. For a detailed timeline, see Figure 3.

The policy became highly salient beginning in 2021 and was widely expected to apply to transactions beginning on January 1st, 2022. Media coverage and platform communications throughout 2021 and 2022 informed users that payment-platform receipts exceeding \$600 could be reported to the IRS, increasing awareness of the forthcoming reporting expansion even before implementation was postponed

(e.g., CBS News 2022; CNBC 2022). Consistent with the heightened awareness, Google Trends show a spike in search interest for terms such as Venmo tax, PayPal tax, Zelle tax around January 2022 (see Figure 1). Thus, taxpayers had reason to expect substantially broader third-party reporting of covered digital payment receipts beginning in 2022.

2.2 Payment Apps, Zelle, and the Reporting Gap

The rapid growth of digital payment platforms provides a useful setting to examine whether expanded third-party reporting affects how small businesses route customer receipts across payment channels. For small businesses, payment apps serve similar transactional functions as low-friction alternatives to traditional merchant-acquirer card processing, offering lower fixed costs, faster settlement, and customer-facing interfaces that do not require a point-of-sale terminal or dedicated merchant account (Stripe 2025; NerdWallet 2026; Federal Reserve Board n.d.; Fit Small Business 2026). Their broad consumer adoption further lowers the cost of switching to, or adding, new payment channels. According to Pew Research Center (2022), 76% of U.S. adults reported using at least one major payment platform, including PayPal, Venmo, Zelle, or Cash App. These features are particularly relevant in our setting because many of the small businesses in our sample are sole proprietorships or small partnerships that operate on the margin of adopting non-traditional payment channels and lack the back-office infrastructure of larger firms (Lisowsky and Minnis 2020; Bernard and Sutherland 2026).

At the same time, this setting is empirically interesting because payment routing is not determined by merchants alone. Payment platforms operate as two-sided networks in which the value to merchants depends on consumer participation, while the value to consumers depends on merchant acceptance (Rochet and Tirole 2003; Rysman 2009). On the consumer side, the choice reflects demographics, technology preferences, and platform attributes such as speed, convenience, cost, and security (Hayashi and Klee 2003; Schuh and Stavins 2010). This implies that the composition of a small business's payment-app receipts is

partly demand-driven, which sits in tension with the strategic-routing prediction we test.⁶

Most major payment platforms, including PayPal, Venmo, Cash App, Stripe, Apple Pay, and Google Pay, qualify as TPSOs within the meaning of § 6050W and therefore fall within the scope of the ARPA reporting expansion. These platforms generally take custody of funds during settlement, file Form 1099-K reports for participating payees, and maintain user-facing tax-reporting infrastructure that collects taxpayer identification information and generates year-end tax forms.

Zelle differs institutionally from these platforms. Zelle is a real-time bank-to-bank payment network owned by Early Warning Services, LLC, a consortium of seven large U.S. retail banks. The network is integrated directly into the mobile banking applications of approximately 2,000 partner financial institutions and processed over \$1 trillion in payments in 2024 (Early Warning Services 2025). When a consumer initiates a Zelle payment, funds move directly between the sender's and recipient's deposit accounts through participating banks. Unlike TPSOs, Zelle facilitates direct account-to-account transfers without taking custody of customer funds during settlement. Because of this institutional structure, transactions processed through Zelle are generally not subject to Form 1099-K reporting and were therefore unaffected by the ARPA reporting expansion.⁷

This institutional asymmetry is central to our setting. Zelle and covered TPSOs may serve similar payment functions from the consumer's perspective, but they differ sharply in the reporting visibility and expected tax-compliance costs they impose on the receiving merchant. Prior literature shows that merchants are not passive even in two-sided markets. When otherwise comparable payment instruments differ in merchant-facing costs, such as interchange fees, processing costs, or expected tax costs, merchants can influence payment choice by deciding which instruments to accept or by steering customers toward

⁶ Survey evidence from the Federal Reserve's Diary of Consumer Payment Choice indicates that consumers typically pay with their preferred method when given a choice, and that pricing incentives shift only a portion of transactions away from that preference (Stavins 2018; Greene et al. 2026).

⁷ The IRS has not, to our knowledge, issued a formal ruling that Zelle is not a third-party settlement organization under § 6050W. The conclusion follows from the statutory definition in § 6050W(b)(3) and the fact that Zelle does not take custody of customer funds during settlement; Zelle has stated publicly that it does not issue Form 1099-K (see [Zelle FAQ website](#)). We therefore treat Zelle as outside the 1099-K reporting system throughout the paper.

preferred options (Rochet and Tirole 2011; Edelman and Wright 2015; Stavins 2018; Bourguignon et al. 2019). At the same time, payment choices require coordination between merchants and consumers, and platform-specific frictions may limit substitution. For example, Zelle payments are generally near-instant and irreversible and provide weaker buyer protection than TPSO platforms (Zelle n.d.). Whether the reporting asymmetry between Zelle and covered TPSOs is large enough to overcome these frictions and produce a measurable shift in payment routing is the empirical question that motivates our tests.

2.3 Prior Literature and Hypothesis Development

Our analysis builds on a long tradition of research that models tax compliance as a decision under uncertainty. Allingham and Sandmo (1972) extend the choice-under-risk framework developed by Mossin (1968) and others to the tax compliance setting, modeling evasion as a portfolio choice in which taxpayers trade off the benefits of underreporting against the expected costs of detection. Yitzhaki (1974) refines the model by specifying penalties as a fraction of evaded tax rather than evaded income, eliminating the ambiguous substitution effect of tax-rate changes. Together, these models predict that compliance increases with detection probability and penalty severity and, under decreasing absolute risk aversion, with income. This framework provides the conceptual basis for viewing third-party information reporting as a compliance-enhancing technology: by increasing the visibility of transactions to tax authorities, third-party reporting raises the expected cost of underreporting and shifts taxpayer behavior toward greater compliance (Slemrod and Yitzhaki 2002; Slemrod 2007, 2019).

Subsequent empirical research quantifies the importance of third-party reporting for tax compliance. Kleven et al. (2011) document an evasion rate of only 0.3% for third-party-reported income in Denmark, compared to approximately 42% for self-reported income. Related evidence in Pomeranz (2015), Best et al. (2015), and Naritomi (2019) similarly shows that information reporting and transaction visibility substantially improve tax compliance. At the same time, a growing literature demonstrates that taxpayers respond strategically across multiple reporting margins. Carrillo et al. (2017) show that compliance gains can be offset when taxpayers shift misreporting to less-monitored dimensions. De Simone et al. (2020) document cross-jurisdictional substitution following the implementation of FATCA. Ferguson (2023)

examines a 2017 IRS rule that reduced third-party reporting requirements for certain pari-mutuel wagers and finds a 27% increase in investment in the less-reported wager types, providing direct evidence that taxpayers strategically migrate toward economically similar transactions with lower reporting visibility.

Our study also relates to research examining third-party reporting in the U.S. small-business setting. Slemrod et al. (2017) document an approximately 24% increase in reported receipts following the introduction of Form 1099-K reporting requirements under § 6050W, with the effects concentrated among cash-intensive small firms. Adhikari et al. (2021) and Adhikari et al. (2022) extend this evidence to business-to-consumer firms and the taxicab industry, respectively. A parallel literature further shows that proprietorship income is misreported at substantially higher rates than wage income (Joulfaian and Rider 1996, 1998; Bruce 2002), consistent with occupational-choice models emphasizing differential opportunities for evasion among self-employed taxpayers (Kesselman 1989; Pestieau and Possen 1991). Collectively, this literature suggests that small, owner-operated firms are both sensitive to third-party reporting requirements and particularly capable of shifting activity toward lower-visibility channels.

Building on the Allingham-Sandmo-Yitzhaki framework and the empirical evidence on third-party reporting and substitution behavior, we predict that small businesses anticipating the expansion of Form 1099-K reporting requirements under ARPA will reallocate customer receipts toward Zelle, a functionally similar but uncovered payment channel. We further expect this response to be concentrated among firms with stronger ex ante incentives or greater capacity to operate in lower-visibility environments, including firms exhibiting weaker tax compliance, lower risk aversion, tighter financial constraints, and less transparent information environments. We formalize this prediction in our maintained hypothesis:

H1 (Strategic Routing). Small businesses' Zelle share of payment-app receipts increases following the announcement of the ARPA Form 1099-K reporting expansion, with the increase concentrated among firms that have greater ex-ante incentives or capacity to operate in lower-visibility environments.

3. Sample Construction and Descriptive Statistics

3.1. Sample Construction

We use detailed bank-account and credit-card transaction data that track financial activity for U.S.

consumers and small business (e.g., deHaan et al. 2024). For each transaction, the data include that amount, date, direction (inflow or outflow), transaction category designated by the data vendor, counterparty information, and a brief transaction description with sensitive personal information removed by the data vendor. The data also include anonymous user identifiers that allow transactions across multiple bank accounts and credit cards to be linked to the same user. Following the data vendor's recommendation, we restrict the sample to users with high vendor-constructed activity scores, corresponding to users averaging at least 50 transactions per month.

We identify transactions associated with major payment platforms subject to Form 1099-K reporting, including Venmo, PayPal, Cash App, Apple Pay, Apple Cash, Google Pay, and Stripe, as well as Zelle, which serves as the focal non-reporting platform in our setting. We identify payment-app transactions using regular-expression matches based on platform-specific keywords appearing in transaction counterparties and descriptions.

We begin with 24,627,270 bank account-month observations from January 2020 through August 2024. This sample is obtained after imposing two requirements. First, accounts must be active both before January 2020 and after December 2022 to ensure sufficient pre- and post-period coverage. Second, accounts must have annual payment-app receipts above \$10,000 in both 2020 and 2021, which excludes accounts with limited or incidental payment-app activity. To identify accounts likely associated with small-business activity, we further require recurring tax-related transactions, defined as either four tax payments or at least three tax payments and one tax refund in both 2020 and 2021. Our final sample consists of 1,456,349 account-month observations, representing 26,445 unique accounts.

3.2. Descriptive Statistics

Table 1 reports descriptive statistics. Our primary dependent variable, *Zelle Share*, measures the share of monthly payment-app receipts received through Zelle. The mean and median values are 0.512 and 0.584, respectively, with a standard deviation of 0.456, indicating substantial variation in firms' reliance on Zelle relative to other payment platforms. The remaining variables in Table 1 summarize the four categories of account characteristics used in our heterogeneity analyses: (i) weaker tax compliance, (ii) lower risk

aversion, iii) financial constraints, and (iv) information environment. We construct each measure using pre-period transaction activity from 2020 through 2021 and dichotomize variables at the sample median where appropriate.

First, we construct two proxies for weak tax compliance, one based on the estimated tax margin, and one based on social ties with inmates. There is a large accounting literature that uses the estimated tax margin as a measure of tax avoidance (e.g., Dyreng et al. 2008). Accordingly, we construct *Low_Tax* as an indicator equal to one if the account's pre-period estimated tax margin, computed as net tax payments to the IRS scaled by total inflows observed from the bank account transactions, is below the sample median.⁸

Our second proxy for weaker tax compliance captures social ties to incarcerated individuals. The measure is motivated by differential association and social-compliance theories, which suggest that exposure to rule-breaking networks can normalize noncompliance (Sutherland 1947). The proxy is further supported by recent evidence of high non-filing rates among incarcerated defendants with W-2 earnings (Garin et al. 2025) and evidence that tax evasion can spill over through social networks (Mannan et al. 2021). Specifically, we construct *Inmate_Tie* as an indicator equal to one if the account has spending on inmate-related communication, financial, or commissary services, such as GTL, Securus, and JPay. The mean of *Inmate_Tie* is 0.052, indicating that 5.2% of small businesses in our sample have at least one such inmate-related transaction.

Second, we proxy for risk aversion using investment, cryptocurrency, and online betting activities. Our first proxy identifies Robinhood users (*Robinhood_User*, mean = 0.274), who prior research shows tend to display more aggressive, attention-induced trading behavior (Barber et al. 2022). Our second proxy identifies cryptocurrency investors based on transactions with cryptocurrency platforms, such as Coinbase, Binance, and Kraken (*Crypto_Trader*, mean = 0.22), as Hackethal et al. (2022) document that crypto investors hold concentrated and relatively risky portfolios and tilt toward riskier securities after adoption.

⁸ Tax refunds and payments identified from inflow and outflow transactions involving the Internal Revenue Service and the U.S. Department of the Treasury, using regular expression matches on transaction counterparty tags and description fields (following the approach in Chen et al. 2026; see also in Baugh et al. 2021 and Gelman et al. 2022).

Our third proxy identifies gamblers using expenditures on casinos and online betting platforms, such as DraftKings and FanDuel (*Gambling*, mean = 0.12). Kumar (2009) finds that gambling propensity is a behavioral marker of preferences for skewed, high-variance payoffs.

Third, we construct two proxies for financial constraint. Following prior research on consumer financial health (deHaan et al. 2024), we first use an indicator for overdraft or insufficient-funds charges in the bank account (*Overdraft*, mean = 0.514). The second proxy is an indicator for debt repayments, including loan, mortgage, and credit-card payments (*Debt_Payer*, mean = 0.479). The rationale is that debt obligations limit individuals' financial flexibility and heighten financial pressure (Di Maggio et al. 2017).

Lastly, we construct two proxies for the information environment based on cash receipts and payroll service usage. Because cash and check transactions are less transparent and may facilitate tax underreporting (e.g., Slemrod et al. 2017; Adhikari et al. 2021; Chan et al. 2023), we construct an indicator for cash or check deposits into the bank account (*Cash_Reliant*, mean = 0.518). Our second proxy, payroll service usage, is based on the premise that professional payroll services create a stronger documentation trail. Specifically, we construct *Payroll_Service* as an indicator for payments to payroll-processing software, such as ADP and Gusto. This variable has a mean of 0.136, indicating that although most accounts do not use external payroll services, a nontrivial subset does.

4. Research Design and Results

4.1. Descriptive Evidence: Zelle Share Over Time

We begin by examining the time-series pattern in small businesses' Zelle usage over the sample period. Table 2 reports the annual mean of *Zelle Share* for each calendar year from 2020 through 2024. The mean Zelle share increases from 0.43 in 2020 to 0.48 in 2021, 0.53 in 2022, 0.57 in 2023, and 0.58 in 2024. Overall, Zelle's share of payment-app receipts increases by roughly 14.7 percentage points over the sample period, representing a 34% increase relative to the 2020 baseline.

We acknowledge that this descriptive pattern could reflect broader trends in payment-platform adoption rather than a response to ARPA. However, the timing of the largest increase is consistent with the

reporting expansion. Specifically, the largest single-year increase, 5.1 percentage points, occurs between 2021 and 2022, immediately following ARPA’s March 2021 enactment, which originally scheduled to implement the reporting expansion on January 1st, 2022. Zelle usage continues to increase in 2023 and 2024, though at a slower pace, consistent with the prolonged implementation timeline, including successive IRS delays and the transitional \$5,000 threshold for tax year 2024. We next examine graphical evidence around January 2022 and estimate regression specifications that control for secular trends and time-invariant differences across small businesses.

4.2. Main Results

4.2.1. Effect of ARPA on Zelle Share

To formally examine whether the increase in Zelle’s usage reflects a response to the expansion of Form 1099-K reporting, we estimate the following specification at the small business-month level:

$$Zelle\ Share_{it} = \alpha + \beta_1 Post_t + \gamma X_t + \mu_i + \varepsilon_{it} \quad (1)$$

where $Zelle\ Share_{it}$ is the share of monthly payment-app receipts received through Zelle for small business i in month t . $Post$ is an indicator equal to one for months after January 1, 2022 (i.e., the initially scheduled implementation date of the ARPA reporting expansion), and zero otherwise. X denotes time-trend controls designed to absorb secular growth in Zelle adoption. The specification includes small business fixed effects, μ_i . Standard errors are clustered at the account level.

Table 3 reports the regression results from Equation (1). Column (1) presents the baseline specification with small business fixed effects and no time-trend controls. The coefficient on $Post$ is 0.088 (t-stat = 66.941), indicating that Zelle's share of payment-app receipts increases by 8.8 percentage points on average after January 1, 2022. Relative to the 2020 mean Zelle share of 0.432, this represents a 20.4% increase and is economically substantial. Column (2) adds a linear monthly time trend and its interaction with $Post$. The coefficient on $Post$ attenuates to 0.005 (t-stat = 3.469) but remains positive and statistically significant at the 1% level, indicating that the level shift in Zelle usage following ARPA is robust to controlling for linear trends.

To examine payment routing dynamics in more detail, we present graphical evidence around the initially scheduled implementation date in Figure 2. The figure plots the mean Zelle usage among our sample small businesses after removing a linear trend in payment-app adoption and individual fixed effects (i.e., the residual plus the respective pre- and post-period constant estimates from Column (2)). The horizontal axis indicates months relative to January 2022, the originally scheduled effective date of ARPA's Form 1099-K reporting expansion, with negative values denoting pre-event months and non-negative values denoting post-event months. The sample window spans January 2020 (month -24) through August 2024 (month $+32$). The vertical axis reports the *detrended* monthly mean of Zelle's share of payment-app receipts.

Prior to the anticipated reporting expansion in January 2022, the detrended Zelle share remains relatively stable, over the 24 months from January 2020 through December 2021. Then it exhibits a discrete upward shift following the anticipated expansion over the 32 months from January 2022 through August 2024. This significant increase in Zelle usage around the policy-relevant date, followed by persistently higher usage, is consistent with a *structural break* in payment-routing behavior following the anticipated reporting expansion.

To further mitigate the concern that our estimate simply reflects confounding trends, we follow prior literature (e.g., Cuny et al. 2021) and conduct a placebo test. Column (3) reports the results of this test, in which we restrict the sample to the pre-period and define *Placebo Post* as an indicator equal to one for months in 2021 and zero for months in 2020. The coefficient on *Placebo Post* is -0.002 (t-stat = 0.652), and the coefficient on *Placebo Post* $\times$ *Trend* is -0.000 (t-stat = -0.481). Both estimates are economically negligible and statistically insignificant, reducing concerns about spurious confounding trends.

Overall, the graphic evidence in Figure 2 and the regression results in Table 3 suggest that the expansion of Form 1099-K reporting requirements is associated with a meaningful increase in small business's reliance on Zelle, consistent with migration toward a non-reporting payment channel.

4.2.2. Heterogeneity Across Small Businesses

If the migration toward Zelle reflects a strategic avoidance of third-party reporting, the response

should be stronger among small businesses with ex-ante characteristics associated with weaker tax compliance, lower risk aversion, tighter financial constraints, or less transparent information environments. To examine heterogeneity in the response to ARPA, we estimate variants of Equation (1) that interact *Post* and with pre-period indicators across four categories: (i) weaker tax compliance, (ii) lower risk aversion, (iii) financial constraints, and (iv) information environment.

4.2.2.1 Weaker Tax Compliance

To sharpen our identification, we examine whether the shift toward Zelle is concentrated among firms with ex-ante markers of weaker compliance. We use two pre-ARPA, firm-level indicators. First, low estimated tax margins follow a well-established accounting literature that uses the estimated tax margin as a measure of tax avoidance (Dyreng et al. 2008; Hanlon and Heitzman 2010). Second, social ties with inmates is a novel firm-level measure that we construct from bank-transaction data to capture social ties to inmates; it is motivated by differential association theory (Sutherland 1947), and is supported by evidence that tax behavior spills over through social networks (Alstadsæter et al. 2019) and that incarcerated individuals exhibit unusually high rates of tax non-filing (Garin et al. 2025). If the increase in Zelle usage reflects avoidance of expanded third-party reporting, rather than a general shift in payment preferences, it should be stronger among firms with ex-ante markers of weaker tax compliance.

Table 4 reports the results. Column (1) interacts *Post* with *Low_Tax*, an indicator equal to one for small businesses with below-median pre-period estimated tax margins. The coefficient on $Post \times Low_Tax$ is 0.006 (t-stat = 2.027), significant at the 5% level. This indicates that small businesses with below-median estimated tax margins exhibit a 0.6 percentage point larger increase in Zelle's share of payment-app receipts following ARPA, relative to other small businesses. This pattern is consistent with a stronger shift toward Zelle among firms with ex-ante markers of weaker tax compliance.

Column (2) interacts *Post* with *Inmate_Tie*, an indicator equal to one for small businesses with inmate-related transactions. The coefficient on $Post \times Inmate_Tie$ is 0.028 (t-stat = 4.400), significant at the 1% level. This indicates that small businesses with inmate-related transactions experience a 2.8 percentage point increase in Zelle usage following ARPA. Overall, the results in Table 4 indicate that

migration toward Zelle increase disproportionately among small businesses with ex-ante characteristics associated with weaker tax compliance.

4.2.2.2 Lower Risk Aversion

We then examine heterogeneity in the payment routing response based on small businesses' revealed risk preferences. The motivation is that small businesses with lower risk aversion may be more willing to bear compliance and enforcement risk at the margin in tax-related decisions. The Allingham-Sandmo-Yitzhaki framework (Allingham and Sandmo 1972; Yitzhaki 1974) models tax evasion as a portfolio choice under uncertainty, with the taxpayer's degree of risk aversion governing the optimal level of underreporting. Building on this framework, Slemrod (2007) reviews evidence that individual heterogeneity in attitudes toward risk contributes to cross-sectional variation in noncompliance. Empirically, we therefore expect the Zelle response to be stronger among small businesses whose pre-period transaction activity reveals lower risk aversion, proxied by Robinhood, cryptocurrency, and gambling transactions.

Table 5 presents the results with each column reporting a separate regression that interacts *Post* with a different indicator of risk aversion proxy constructed from pre-period transaction activity. In Column (1), we interact *Post* with *Robinhood_User*, an indicator equal to one for small businesses with pre-period Robinhood-related transactions. The coefficient on $Post \times Robinhood_User$ is 0.018 (t-stat = 4.590), statistically significant at the 1% level. In Column (2), we interact *Post* with *Crypto_Trader*, an indicator equal to one for small businesses with pre-period with cryptocurrency-related transactions. The coefficient on $Post \times Crypto_Trader$ is 0.013 (t-stat = 4.033), statistically significant at the 1% level. In Column (3), we interact *Post* with *Gambling*, an indicator equal to one for small businesses with pre-period gambling transactions. The coefficient on $Post \times Gambling$ is 0.010 (t-stat = 2.363), statistically significant at the 5% level.

Overall, the results in Table 5 indicate that the post-ARPA increase in Zelle usage is concentrated among small businesses exhibiting pre-period markers of lower risk aversion, a pattern consistent across multiple proxies. The findings further support the interpretation that the migration toward Zelle reflects

intentional responses to changes in third-party reporting visibility rather than passive technology adoption.

4.2.2.3 Financial Constraints

This subsection examines whether payment routing responses vary with small businesses' prior financial constraints. The motivation is that financially constrained firms may assign greater value to strategies that preserve cash by reducing tax-related outflows. Prior studies support this idea. Edwards et al. (2016) show that firms exhibit increases in cash tax planning when financial constraints tighten, consistent with avoidance functioning as a substitute for costly external finance. Law and Mills (2015) similarly find that constrained firms engage in more aggressive tax planning, consistent with tax avoidance serving as a substitute source of liquidity. Hanlon et al. (2017) further show that firms manage cash holdings in response to expected tax-related cash needs. Taken together, this evidence supports the prediction that financially constrained small businesses may have stronger incentives to respond to increased reporting visibility by shifting receipts toward non-payment channels.

Table 6 reports heterogeneity results using two pre-period proxies for financial constraints based on debt obligations and overdraft charges, respectively. In Column (1), we interact *Post* with *Debt_Payer*, an indicator equal to one for small businesses with pre-period debt-payment transactions. The coefficient on $Post \times Debt_Payer$ is 0.007 (t-stat = 2.426), statistically significant at the 5% level. In Column (2), we interact *Post* with *Overdraft*, an indicator equal to one for small businesses with pre-period overdraft or insufficient-fund charges. The coefficient on $Post \times Overdraft$ is 0.016 (t-stat = 6.215), statistically significant at the 1% level. Both magnitudes are statistically significant and economically meaningful relative to the average post-period level shift documented in Table 3.

Overall, the results in Table 6 indicate that small businesses facing financial constraints exhibit systematically larger post-ARPA shifts toward Zelle. These findings are consistent with prior evidence that financially constrained taxpayers are more responsive to changes in tax-compliance technology (e.g., Edwards et al. 2016; Law and Mills 2015; Hanlon et al., 2017).

4.2.2.4 Information Environment

In the final heterogeneity analysis, we examine whether the Zelle response varies with small businesses' information environments. The idea is that firms differ in both their incentives and their ability to redirect receipts toward lower-visibility payment channels. When a firm operates in a relatively transparent environment, its transactions may already be subject to greater scrutiny, limiting the incremental benefit of reallocating payments to an uncovered channel. In contrast, firms in weaker information environments may face fewer external constraints and gain more from reducing the visibility of receipts to tax authorities. Related work in the corporate setting shows that information environments shape firms' tax-reducing behavior (Gallemore and Labro 2015; Kerr 2019). Thus, if the shift toward Zelle reflects an attempt to avoid expanded reporting, the response should be more pronounced among firms operating in less transparent information environments.

We use two proxies for small businesses' information environments: cash activity and external payroll-processing use. Businesses with greater cash activity operate in a lower-visibility environment because cash receipts leave fewer third-party records. These firms may therefore have both greater experiences operating outside formal reporting channels and stronger ability to substitute toward lower-visibility payment methods. In contrast, businesses that use external payroll processors operate in a higher-visibility environment because payroll providers create third-party wage and employment records. These firms may have less scope, and potentially less willingness, to shift receipts toward payment channels with lower reporting exposure.

In Column (1) of Table 7, we interact *Post* with *Cash_Reliant*, an indicator equal to one for small businesses with pre-period cash or check deposits. The coefficient on $Post \times Cash_Reliant$ is 0.010 (t-stat = 3.976), statistically significant at the 1% level. Thus, cash-intensive small businesses, who already have a lower portion of their gross receipts visible to the IRS, exhibit an additional 1.0 percentage point increase in Zelle's share of payment-app receipts following ARPA. This pattern is consistent with firms already operating in lower-visibility environments responding more strongly to expanded third-party reporting.

In Column (2), we interact *Post* with *Payroll_Service*, an indicator equal to one for small businesses with pre-period payments to payroll-processing service providers. The coefficient on $Post \times$

Payroll_Service is -0.017 ($t\text{-stat} = 1.771$), statistically significant at the 10% level. Unlike the other heterogeneity proxies, the coefficient is negative, indicating that firms with more formalized payroll infrastructure experience a smaller shift toward Zelle following ARPA. This result suggests that small businesses already operating in more transparent environments have fewer opportunities or less practical ability to migrate to a non-reporting channel.

Overall, the heterogeneity evidence indicates that the post-ARPA shift toward Zelle is concentrated among small businesses with markers of weaker tax compliance (Table 4), lower risk aversion (Table 5), tighter financial constraint (Table 6), and less transparent information environment (Table 7).

4.3. Consequences for Estimated Tax Margins

The results in Tables 3 through 7 show that the ARPA reporting expansion induced a meaningful migration toward Zelle, particularly among small businesses with pre-period markers of weaker tax compliance, lower risk aversion, tighter financial constraint, and less transparent information environment. However, these results do not directly establish whether Zelle migration has consequences for tax payments. If the shift toward Zelle merely reflects convenience or technology adoption, we would not expect it to be associated with lower estimated tax margins. We therefore examine whether small businesses that migrate most aggressively toward Zelle subsequently exhibit lower estimated tax margins.

To test this prediction, we estimate the following firm-year regression:

$$Tax_Rate_{it} = \alpha + \beta_1 Post_t \times High_Zelle_i + \beta_2 High_Zelle_i + \mu_i + \tau_t + \varepsilon_{it} \quad (2)$$

where Tax_Rate_{it} is the small business's annual estimated tax margin, computed as net tax payments to the IRS and U.S Treasury scaled by total annual income. $High_Zelle_i$ is an indicator equal to one for small businesses with above-median post-period growth in Zelle share. The post-period growth in Zelle is calculated as the difference between the mean Zelle usage in 2022 and that in 2021. $Post$ equals one for months after January 1, 2022. The specification includes small business and year fixed effects, and standard errors are clustered at the business level. The sample is substantially smaller than in the main analyses because this test is conducted at the business-year level instead of the business-month level. We dropped

2024 because full-year data are unavailable. In addition, estimating *Tax_Rate* requires tax-related transactions for each sample year, which further reduces the sample size and leaves us with 79,775 business-year observations.

Table 8 reports the regression results. The coefficient on $Post \times High_Zelle$ is -0.011 (t-stat = 4.529), statistically significant at the 1% level. Economically, this estimate indicates that small business with above-median post-period Zelle-share growth experience a 1.1 percentage point reduction in annual estimated tax margins following ARPA, relative to other small businesses. Relative to the average estimated tax margin of 7.9% reported in Table 1, this represents a 13.9% ($=0.011/0.079$) reduction. The variable *High_Zelle_i* drops out due to small business fixed effects.

Taken together with the heterogeneity results in Tables 4 through 7, the evidence in Table 8 supports the interpretation that migration toward Zelle reflects strategic responses to expanded third-party reporting. Small businesses that shift most aggressively toward Zelle are also those with pre-period markers associated with weaker compliance and subsequently exhibit economically meaningful reductions in estimated tax margins. We acknowledge that the analysis in Table 8 is associational rather than strictly causal, since Zelle migration and estimated tax margins may be jointly determined. Nonetheless, the overall pattern is consistent with incomplete Form 1099-K coverage, specifically the exclusion of Zelle from the reporting regime, facilitating substitution toward a lower-visibility payment channel and attenuating the compliance gains intended by ARPA's reporting expansion.

5. Conclusions

This paper examines whether expanded third-party information reporting affects how small businesses route customer payments across digital payment platforms. We study the American Rescue Plan Act of 2021 ("ARPA"), which lowered the Form 1099-K reporting threshold for covered third-party settlement organizations while leaving Zelle outside the reporting regime. Using transaction-level bank-account data from more than 26,000 small businesses, we document an increase in the share of payment-app receipts routed through Zelle following ARPA's anticipated implementation. The increase is concentrated among firms with ex-ante characteristics associated with weaker tax compliance, lower risk

aversion, tighter financial constraints, and less transparent information environments. We further find that firms with larger increases in Zelle usage subsequently exhibit lower estimated tax margins.

Our findings contribute to the literature on tax compliance and information reporting by highlighting a substitution response margin through which taxpayers can attenuate the effects of expanded reporting regimes. Prior research primarily examines reporting responses within existing reporting systems, such as changes in reported income or deductions following increases in third-party visibility. Building on evidence that taxpayers adjust behavior in response to third-party reporting (De Simone et al. 2020; Ferguson 2023), we show that they also reallocate transactions across economically similar payment channels that differ in reporting exposure. More broadly, our findings suggest that the effectiveness of information-reporting regimes depends not only on formal reporting requirements, but also on taxpayers' ability to substitute toward economically similar channels with lower reporting visibility. Future research could examine whether similar substitution responses arise in other fragmented reporting environments and how platform design and enforcement policies jointly shape transaction visibility.

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Appendix A. Variable definitions

This appendix defines the variables used in the empirical analyses. The sample period spans January 2020 through August 2024. All transaction-based variables are constructed using the bank-account and credit-card transaction panels.

Variable	Description
<i>Zelle Share</i>	The share of monthly payment-app receipts received via Zelle, defined Zelle inflows scaled by the total payment-app inflows from all payment apps (Zelle, Venmo, PayPal, Cash App, Apple Pay, Google Pay, Stripe).
<i>Post</i>	An indicator variable equal to one for months after January 1, 2022, the initially scheduled implementation date of the ARPA-expanded Form 1099-K reporting threshold, and zero otherwise.
<i>Trend</i>	A monthly time trend starting at one in January 2020 and increasing by one each month.
<i>Placebo Post</i>	An indicator variable equal to one for months in 2021, and zero for months in 2020.
<i>Low_Tax</i>	An indicator variable equal to one if the small business's pre-period estimated tax margin, measured through 2021, is below the sample median, and zero otherwise. We estimate tax margin as net tax payments to the IRS and U.S. Treasury (tax payments less tax refund) scaled by total income during the year (all the fund inflows into the bank account).
<i>Inmate_Tie</i>	An indicator variable equal to one if the small business has any pre-period inmate-related transactions, and zero otherwise. Inmate-related transactions include payments to communication, financial, or commissary services for incarcerated individuals, such as GTL, Securus, and JPay (the list is available upon request).
<i>Robinhood_User</i>	An indicator variable equal to one if the small business has any pre-period debit transactions with Robinhood, and zero otherwise.
<i>Crypto_Trader</i>	An indicator variable equal to one if the small business has any pre-period cryptocurrency-related debit transactions, and zero otherwise. Cryptocurrency-related debit transactions are transfers from the bank account to any of 37 popular crypto exchange platforms (the list is available upon request) such as Coinbase, Binance, and Kraken.
<i>Gambling</i>	An indicator variable equal to one if the small business has any pre-period gambling activities, and zero otherwise. Gambling activities are identified as spendings in casinos or major online betting platforms, such as DraftKings and FanDuel (the list is available upon request).
<i>Overdraft</i>	An indicator variable equal to one if the small business has any pre-period overdraft or insufficient funds charges, and zero otherwise.
<i>Debt_Payer</i>	An indicator variable equal to one if the small business has any pre-period debt-payment transactions (loans repayment and credit-card payments), and zero otherwise.
<i>Cash_Reliant</i>	An indicator variable equal to one if the small business has at least one pre-period cash or check deposits into its bank account, and zero otherwise.
<i>Payroll_Service</i>	An indicator variable equal to one if the small business has any pre-period payments to payroll-processing service providers, and zero otherwise. Payroll-processing service providers include ADP, Gusto, Paychex, and similar providers (the list is available upon request).
<i>Tax_Rate</i>	The small business's annual estimated tax margin, defined as net tax payments to the IRS and U.S. Treasury (tax payments less tax refund) scaled by total income during the year (estimated as the all the fund inflows into the bank account).
<i>High_Zelle</i>	An indicator variable equal to one if the small business exhibits above-median growth in Zelle share during the post period, and zero otherwise. The post-period growth in Zelle is calculated as the difference between mean Zelle usage in 2022 and mean Zelle usage in 2021.

Figure 1. Google Trends

This figure plots Google Trends search interest in the United States for “Venmo tax,” “PayPal tax,” and “Zelle tax”, the three most popular P2P payment platforms, during our sample period from January 2020 through August 2024. Search interest remains relatively low before 2022 but spikes sharply around January 2022, when ARPA’s lower Form 1099-K reporting threshold was initially scheduled to apply. The increase is especially pronounced for “Venmo tax,” with smaller but visible increases for “PayPal tax” and “Zelle tax.” This pattern suggests heightened taxpayer awareness of the reporting expansion at the beginning of 2022, consistent with the policy’s salience during the expected implementation period.

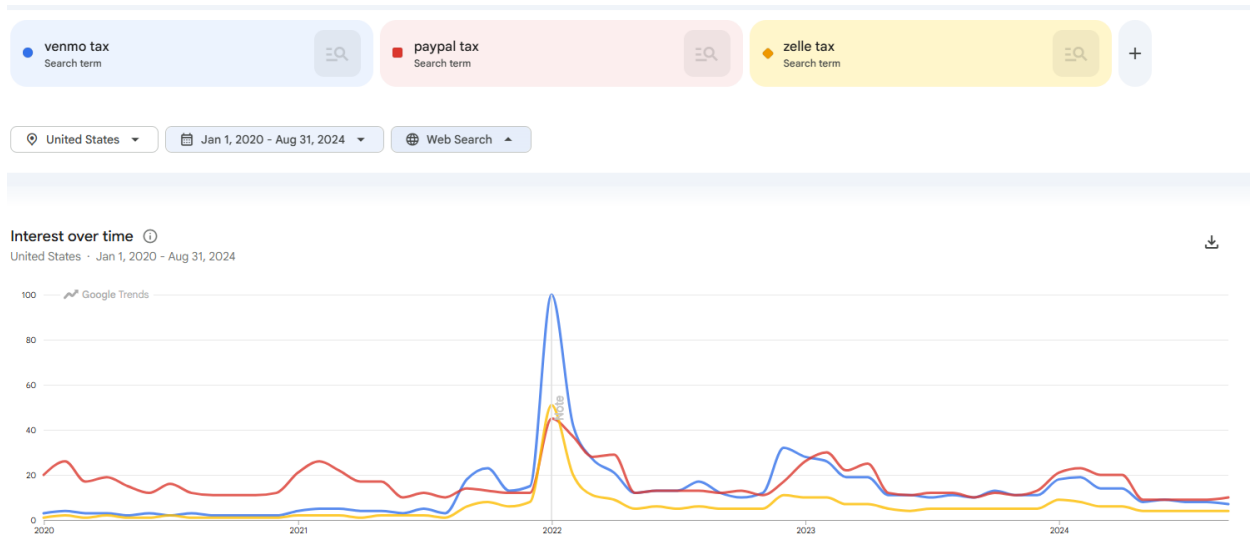


Figure 2. Structural Break in Zelle Share Around the Expected ARPA Reporting Expansion

This figure plots the detrended monthly mean share of payment-app receipts received through Zelle, centered around January 2022, the month when the ARPA-expanded Form 1099-K reporting threshold was initially scheduled to take effect. The dashed vertical line marks January 2022. Fitted trend lines are estimated separately before and after January 2022. The figure shows a discrete increase in Zelle's share at the threshold date, consistent with a shift toward Zelle following the anticipated expansion of third-party reporting.

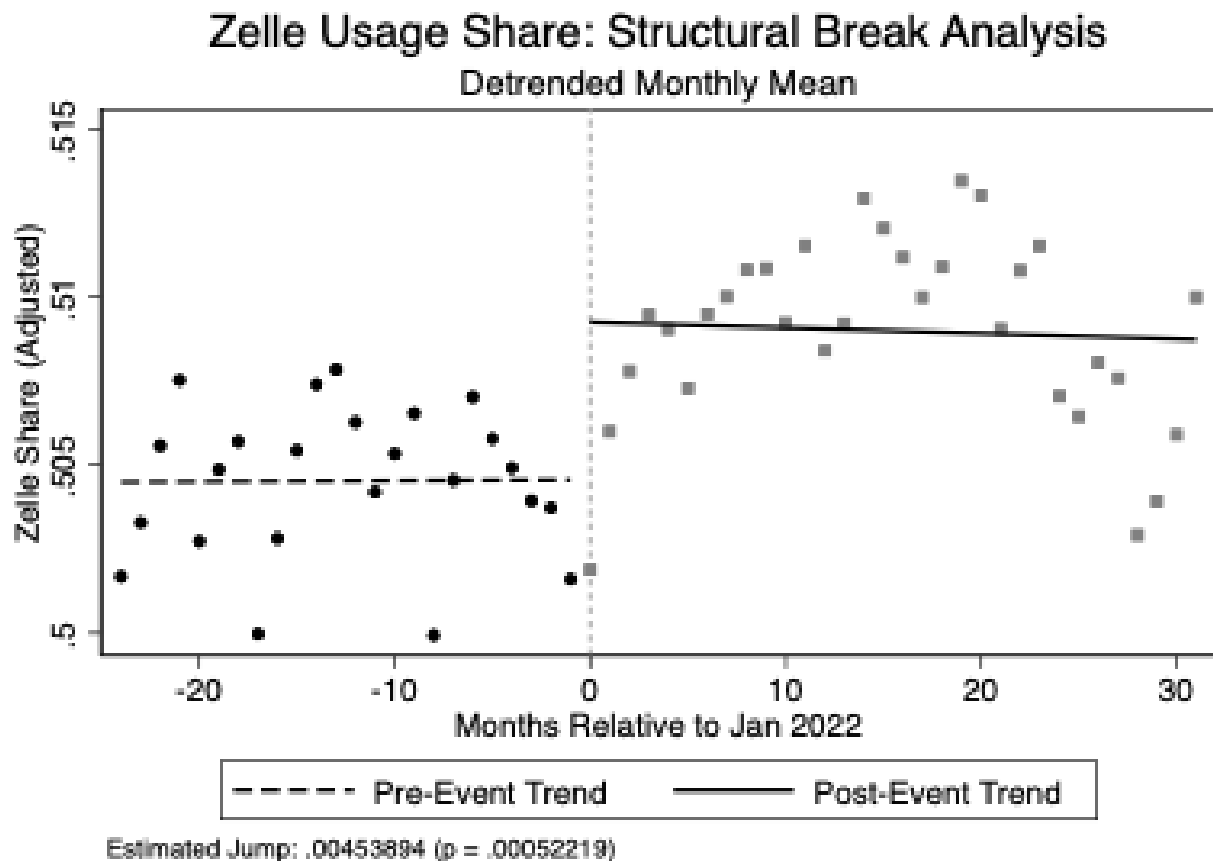
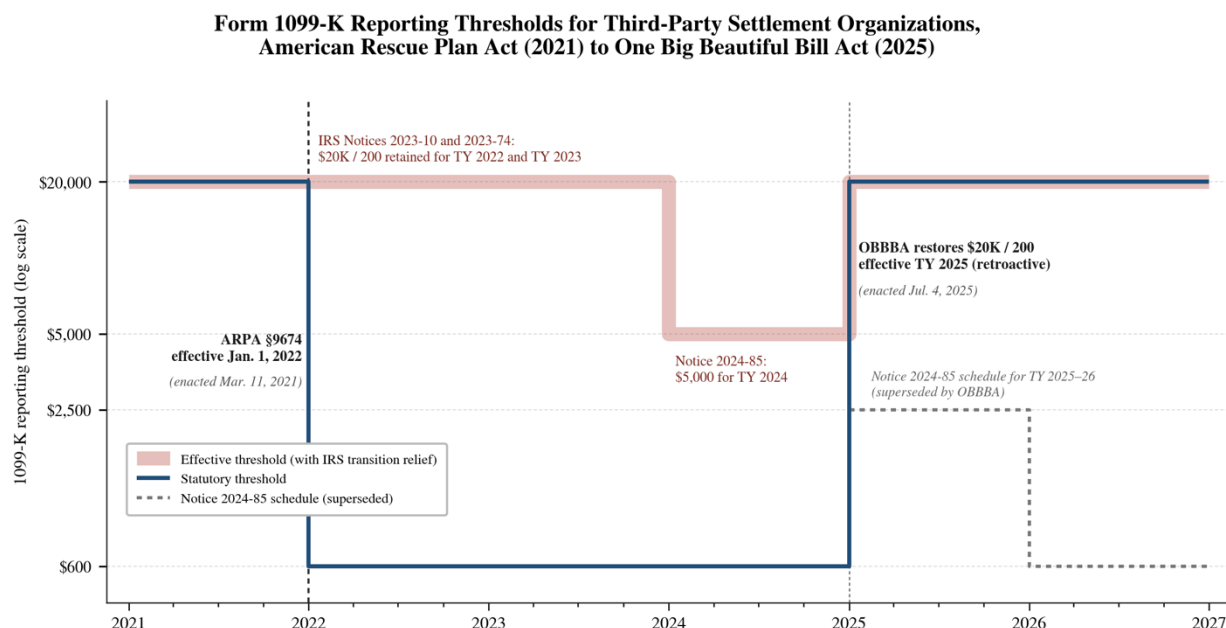


Figure 3. Form 1099-K Reporting Policy Timeline

This figure plots the gross-payment threshold at which third-party settlement organizations (TPSO) must issue Form 1099-K, distinguishing the statutory threshold (blue solid line) from the threshold actually in force after administrative relief (red shaded band). The American Rescue Plan Act of 2021 lowered the statutory threshold from \$20,000 in payments and 200 transactions to \$600 effective for tax year 2022, but the IRS deferred enforcement through a succession of notices, retaining the prior threshold for 2022 and 2023 and phasing in the lower threshold with interim figures of \$5,000 for 2024 and \$2,500 for 2025, with the goal of fully implementing the \$600 threshold for 2026. The One Big Beautiful Bill Act of 2025, enacted on July 4, 2025, then repealed the lower threshold retroactively, restoring the \$20,000/200 rule as if it had never changed. The effective reporting requirement thus departed from the statute throughout 2022–2025, even as the statutory threshold stood at \$600. The vertical axis is on a log scale for ease of presentation, and thresholds are dated by the tax year to which they apply. Claude, an AI-assisted tool, was used to create this image.



Notes: Thresholds are shown by the tax year to which they apply; statutory changes are plotted at effective dates. "\$20K / 200" = over \$20,000 and over 200 transactions. The wide shaded band is the effective threshold; the statutory line coincides with it where they overlap. OBBBA's repeal is retroactive (as if ARPA §9674 were never enacted). Sources: American Rescue Plan Act of 2021, Pub. L. No. 117-2, §9674; IRS Notices 2023-10, 2023-74, and 2024-85; One Big Beautiful Bill Act of 2025, Pub. L. No. 119-21.

Table 1. Summary statistics

This table reports summary statistics for our sample, which includes 1,456,349 small business-month observations for 26,445 unique businesses from January 2020 through August 2024. The primary dependent variable, *Zelle Share*, is the share of monthly payment-app receipts received through Zelle. The remaining variables capture pre-period account characteristics, measured using activity before 2022, and are used in the heterogeneity analyses. All variables are defined in Appendix A.

Variable	Mean	Std. Dev.	P25	Median	P75
<i>Zelle share (Zelle Share)</i>	0.512	0.456	0.000	0.584	1.000
<i>Tax_Rate</i>	0.079	0.144	0.009	0.030	0.083
Low-tax indicator (<i>Low_Tax</i>)	0.500	0.500	0	0	1
Inmate relation indicator (<i>Inmate_Tie</i>)	0.052	0.223	0	0	0
Crypto activities indicator (<i>Crypto_Trader</i>)	0.220	0.415	0	0	0
Robinhood indicator (<i>Robinhood_User</i>)	0.274	0.446	0	0	1
Gambling indicator (<i>Gambling</i>)	0.120	0.325	0	0	0
Overdraft indicator (<i>Overdraft</i>)	0.514	0.500	0	1	1
Debt-payment indicator (<i>Debt_Payer</i>)	0.479	0.500	0	0	1
Cash-deposit indicator (<i>Cash_Reliant</i>)	0.518	0.500	0	1	1
Payroll service indicator (<i>Payroll_Service</i>)	0.136	0.343	0	0	0

Table 2. Average Zelle Share by Year

This table reports the annual mean of *Zelle Share*, defined as the share of monthly payment-app receipts through Zelle. The sample consists of 1,456,349 small business-months observations across 26,445 unique businesses from January 2020 through August 2024. ARPA was enacted on March 11, 2021, and the lower reporting threshold for Form 1099-K was initially scheduled to apply beginning in 2022. The final row reports the pooled mean over the sample period.

Year	<i>Mean Zelle share</i>
2020	0.432
2021	0.480
2022	0.531
2023	0.567
2024*	0.579
Pooled 2020–2024	0.512

* The 2024 observation includes January through August.

Table 3. Effect of ARPA on Zelle Share

This table estimates the effect of the ARPA 1099-K reporting expansion on Zelle usage. The dependent variable is *Zelle Share*, defined as the share of monthly payment-app receipts received through Zelle. *Post* equals one for months after January 2022 and zero otherwise. Column (1) reports the baseline specification with small business fixed Effects. Column (2) adds a linear time trend and its interaction with *Post*. Column (3) restricts the sample to January 2020 through December 2021, and reports a placebo test in which we assign the middle point of this placebo sample as the placebo event. Accordingly, *Placebo Post* is an indicator equal to one for months in 2021 and zero for months in 2020. All regressions include small business fixed effects. Robust t-statistics, clustered at the firm level, are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. All variables are defined in Appendix A.

	(1)	(2)	(3)
	<i>Zelle Share</i>		
	<i>Baseline</i>	<i>Linear trend</i>	<i>Placebo</i>
<i>Post</i>	0.088*** (66.941)	0.005*** (3.469)	
<i>Trend</i>		0.003*** (38.270)	0.004*** (20.223)
<i>Trend</i> × <i>Post</i>		−0.001*** (5.360)	
<i>Placebo Post</i>			−0.002 (0.652)
<i>Trend</i> × <i>Placebo Post</i>			−0.000 (0.481)
Small Business Fixed Effects	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
Observations	1,456,349	1,456,349	636,181
Adjusted R-squared	0.667	0.670	0.737

Table 4. Heterogeneity in the Effect of ARPA: Weak Tax Compliance

This table reports cross-sectional variation in the Zelle-usage response to the ARPA Form 1099-K reporting expansion using ex-ante proxies for weaker tax compliance. The dependent variable is *Zelle Share*, defined as the share of monthly payment-app receipts received through Zelle. Column (1) interacts *Post* with *Low_Tax*, an indicator that equals one if the retailer's pre-period (≤ 2021) estimated tax margin is below the sample median, and zero otherwise. Column (2) interacts *Post* with *Inmate_Tie*, an indicator for the presence of inmate-related transactions during the pre-period. All regressions include small business and year-month fixed effects. Robust t-statistics clustered at the firm level, are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. All variables are defined in Appendix A.

	(1)	(2)
	<i>Zelle Share</i>	
	<i>Low tax</i>	<i>Inmate-related</i>
<i>Post</i> $\times$ <i>Low_Tax</i>	0.006** (2.027)	
<i>Post</i> $\times$ <i>Inmate_Tie</i>		0.028*** (4.400)
Small Business Fixed Effects	Yes	Yes
Year-Month Fixed Effects	Yes	Yes
Clustering	Firm	Firm
Observations	1,183,455	1,456,349
Adjusted R-squared	0.669	0.670

Table 5. Heterogeneity in the Effect of ARPA: Risk Aversion Proxies

This table reports cross-sectional variation in the Zelle-usage response to the ARPA Form 1099-K reporting expansion using ex-ante proxies for risk aversion. The dependent variable is *Zelle Share*, defined as the share of monthly payment-app receipts received through Zelle. Column (1) interacts *Post* with *Robinhood_User*, an indicator for small businesses that use Robinhood for investment purposes during the pre-period. Column (2) interacts *Post* with *Crypto_Trader*, an indicator for small businesses that use cryptocurrency exchange platforms during the pre-period. Column (3) interacts *Post* with *Gambling*, an indicator for small businesses that engage in gambling activity during the pre-period. All regressions include small business and year-month fixed effects. Robust t-statistics clustered at the firm level are in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10%. All variables are defined in Appendix A.

	(1)	(2)	(3)
	<i>Zelle Share</i>		
	<i>Robinhood</i>	<i>Crypto activity</i>	<i>Gambling</i>
<i>Post</i> × <i>Robinhood_User</i>	0.018*** (4.590)		
<i>Post</i> × <i>Crypto_Trader</i>		0.013*** (4.033)	
<i>Post</i> × <i>Gambling</i>			0.010** (2.363)
Small Business Fixed Effects	Yes	Yes	Yes
Year-Month Fixed Effects	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
Observations	1,456,349	1,456,349	1,456,349
Adjusted R-squared	0.670	0.670	0.670

Table 6. Heterogeneity in the Effect of ARPA: Financial Constraints

This table reports cross-sectional variation in the Zelle-usage response to the ARPA Form 1099-K reporting expansion using ex-ante proxies for financial constraints. The dependent variable is *Zelle Share*, defined as the share of monthly payment-app receipts received through Zelle. Column (1) interacts *Post* with *Debt_Payer*, an indicator variable for debt-payment activity, including loan and credit card repayments, during the pre-period. Column (2) interacts *Post* with *Overdraft*, an indicator for overdraft or insufficient-fund charges during the pre-period. All regressions include small business and year-month fixed effects. Robust t-statistics clustered at the firm level, are reported in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10%. All variables are defined in Appendix A.

	(1)	(2)
	<i>Zelle Share</i>	
	<i>Debt Obligations</i>	<i>Overdraft Charges</i>
<i>Post</i> × <i>Debt_Payer</i>	0.007** (2.426)	
<i>Post</i> × <i>Overdraft</i>		0.016*** (6.215)
Small Business Fixed Effects	Yes	Yes
Year-Month Fixed Effects	Yes	Yes
Clustering	Firm	Firm
Observations	1,456,349	1,456,349
Adjusted R-squared	0.671	0.670

Table 7. Heterogeneity in the Effect of ARPA: Information Environment

This table reports cross-sectional variation in the Zelle-usage response to the ARPA Form 1099-K reporting expansion using ex-ante proxies for firms' information environments. The dependent variable is *Zelle Share*, defined as the share of monthly payment-app receipts received through Zelle. Column (1) interacts *Post* with *Cash_Reliant*, an indicator for small businesses with at least one cash or check deposit transactions during the pre-period. Column (2) interacts *Post* with *Payroll_Service*, an indicator for small businesses with payments to payroll-processing service providers (e.g., ADP, Gusto) during the pre-period. All regressions include small business and year-month fixed effects. Robust t-statistics, clustered at the firm level, are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. All variables are defined in Appendix A.

	(1)	(2)
	<i>Zelle Share</i>	
	<i>High cash deposits</i>	<i>Payroll software</i>
<i>Post</i> × <i>Cash_Reliant</i>	0.010*** (3.976)	
<i>Post</i> × <i>Payroll_Service</i>		-0.017* (1.771)
Small Business Fixed Effects	Yes	Yes
Year-Month Fixed Effects	Yes	Yes
Clustering	Firm	Firm
Observations	1,456,349	1,456,349
Adjusted R-squared	0.670	0.670

Table 8. Consequences of Zelle Migration on Estimated Tax Margins

This table reports the association between Zelle migration and small businesses' estimated tax margins. The dependent variable is *Tax_Rate*, defined as the business' annual estimated tax margin, computed from IRS and U.S. Treasury transactions observed in the bank and credit-card panels. *High_Zelle* is an indicator equal to one for firms with above-median Zelle share growth in the post period relative to the pre-period. The regression includes small business and year fixed effects. Robust t-statistics, clustered at the firm level, are reported in parentheses. The sample is smaller than in the main analyses because this test is conducted at the business-year level, excluding 2024 due to unavailable full-year data, and requires tax-related transactions to estimate *Tax_Rate*. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. All variables are defined in Appendix A.

	(1)
	<i>Annual estimated tax margin (Tax_Rate)</i>
<i>Post</i> × <i>High_Zelle</i>	−0.011*** (4.529)
Small Business Fixed Effects	Yes
Year Fixed Effects	Yes
Clustering	Firm
Observations	79,775
Adjusted R-squared	0.348