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ABSTRACT

In recent years, policy makers have adopted many measures to incentivize the establishment of employer-sponsored retirement plans (ESRPs). One such measure – implemented in the early 2000s and made more generous in recent years – allows smaller firms that establish an ESRP to claim a tax credit to offset part of their costs during the initial years. We examine firm take-up of this credit. We find that only 1 percent (pre-policy expansion) to 5.5 percent (post-policy expansion) of apparently eligible firms claim the credit. We document heterogeneity in credit take-up rates by industry, firm owner education, and use of tax preparation services. We also document evidence of "tax preparer learning," whereby take-up among a tax preparer's clients increases after that preparer files their first credit. Finally, we document that most firms only claim the credit for one year despite being eligible to do so for up to three years.

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I. Introduction

In recent years, policy makers have aimed to increase the number of workers covered by employer-sponsored retirement plans (ESRPs) by adopting measures that incentivize their formation. One such measure is the tax credit established under Section 45E of the Internal Revenue Code (hereafter, the "Section 45E credit"). The credit, which was introduced in the early 2000s and made more generous in recent years, is designed to offset a portion of the expenses incurred by firms that establish new ESRPs. This measure is premised on the assumption that startup and administrative costs are a key barrier preventing small employers from offering ESRPs. In this paper, we provide new empirical evidence on how small firms respond to the tax credit. We generally find very low take-up of the credit: depending on the year, only about 1 to 5 percent of apparently eligible firms claim it. This low take-up rate suggests that the credit has a limited impact on ESRP formation among small firms. We explore reasons for low take-up, including a lack of awareness and paperwork burdens. These findings contribute more broadly to our understanding of the factors underlying the establishment of new ESRPs and business decisions regarding tax credits.

To analyze firm behavior surrounding the credit and retirement plan formation, we use administrative tax data to observe employer plan offers across the near-universe of U.S. firms. Our main analysis reveals several insights. First, even after the SECURE and SECURE 2.0 Acts substantially increased the credit's value in 2020 and 2023, respectively, take-up remains very modest. Take-up ranges from 1% of eligible firms (pre-policy expansion) to 5.5% (after full policy expansion). We argue that these take-up rates provide an upper bound on the impact of the startup tax credit on ESRP formation: so long as firms induced to form an ESRP by the credit always claim the credit, the number of firms induced to form an ESRP is less than or equal to the number

of firms that claim the credit. Second, we find that take-up is correlated with using a credentialed tax preparer, such as Certified Public Accountant (CPA); we also find evidence that firms with more highly educated owners are more likely to claim the credit. Third, we observe evidence of "preparer learning," whereby credit take-up among a tax preparer's *other* clients increases after that preparer files their first credit. Finally, we find that most employers who claim the credit fail to do so for more than one year, despite the credit covering costs for at least three. Overall, our results suggest that the startup credit's influence on employers is modest at best, calling into question the effectiveness of current tax-based strategies to expand ESRP coverage. Even among eligible firms working with tax preparers who have prior experience with this credit, take-up rates remain low.

This paper contributes to several strands of literature. First, our findings add to a relatively small and recent literature documenting incomplete take-up of tax benefits by firms (Cui et al. 2022; Pham 2019; Zwick 2021; Kitchen and Knittel 2016).[1] To our knowledge, we are the first to explore firm take-up of the Section 45E credit. The incomplete take-up rates we find for this credit are much lower than those documented in the literature for net operating loss refunds (Zwick 2021), bonus depreciation provisions (Kitchen and Knittel 2016; Cui et al. 2022), and corporate income tax liability reduction (Pham 2019).

Second, there is a large literature exploring how tax incentives influence individual saving decisions, including the take-up of individual-level tax credits for saving. For example, many studies have documented incomplete take-up of the Savers Credit, which is designed to incentivize saving among lower-income individuals (e.g., Koenig and Harvey 2005; Bryant 2020). Other related studies examine how reported earnings and saving behavior respond to the incentives

[1] In contrast, there is a large body of evidence examining incomplete take-up of *individual* tax and other public benefits (see Ko and Moffitt 2024 for a review).

embedded in the Saver's Credit (e.g., Ramnath 2013; Duflo et al. 2006; Duflo et al. 2007; Heim and Lurie 2014; Bryant 2020). Another strand of this literature has examined whether tax preferences for retirement saving increase overall saving or merely divert it from taxable to tax-preferred forms (e.g., Poterba et al. 1996; Engen et al. 1996; Hubbard and Skinner 1996; Gelber 2011; Attanasio and DeLeire 2002; Chetty et al. 2014; Bernheim 2002). We contribute to this literature by instead examining the role that firms play in utilizing tax incentives related to retirement saving.

Third, there is a body of research examining the role that tax incentives play in employers' decisions to offer fringe benefits. Previous studies in this area have generally focused on the income tax exclusion for employer-sponsored health insurance and related tax preferences for ESRPs (Long and Scott 1982; 1984; Pauly 1986; Turner 1987a; 1987b; Woodbury and Huang 1991; Gentry and Peress 1994; Mulligan 2021). These papers have broadly argued that favorable tax treatment incentivizes employers to shift employee compensation from cash wages to health and retirement benefits. We contribute to this literature by exploring employer responsiveness to a relatively new and targeted tax incentive for starting a new ESRP.

Fourth, there is a small but growing literature on the behavioral economics of firms (e.g., Gertler et al. 2025), which suggests that firms may exhibit the same kinds of cognitive biases and knowledge gaps that have been widely documented among workers and consumers. Heidhues and Koszegi (2018) and Malmendier (2018) provide reviews. Our work extends this literature by documenting another area in which the observed behavior of small firms deviates from the predictions of a standard neoclassical model.

Finally, many existing studies indicate that professional intermediaries, such as tax preparers, financial advisors, and broker-dealers affect financial choices. Much of this literature

has focused on individual behavior. For example, Chetty and Saez (2013) examine whether preparer-provided information about the EITC changes individuals' subsequent earnings. In a securities market context, Foerster et al (2017) show that financial advisors substantially influence investor asset allocation but limit individual portfolio customization. Similarly, Von Gaudecker (2015) and Hoechle et al (2017) respectively find that financial advisors increase investor diversification and hurt trading performance. Our work contributes to this body of knowledge by suggesting that intermediaries significantly shape firm responses to tax incentives.

II. Background

Over the past two decades, policymakers have implemented a series of legislative measures aimed at increasing retirement plan coverage among workers employed by small businesses, who are among the least likely to have access to an ESRP. A central tool in these efforts has been the Section 45E credit, which was first introduced under the Economic Growth and Tax Relief Reconciliation Act of 2001. The original provision offered eligible employers a non-refundable tax credit equal to 50 percent of the administrative costs incurred in establishing and operating a new retirement plan, capped at $500 per year for up to three years. Qualified costs included expenses related to setting up the plan, maintaining its operations, and educating employees about its features.

Despite its intended purpose, the original credit had limited reach, potentially due to its relatively modest value and strict eligibility requirements. Policymakers subsequently sought to expand the credit's impact, culminating in substantial changes enacted through the Setting Every Community Up for Retirement Enhancement (SECURE) Act of 2019. The SECURE Act increased the maximum annual credit to the lesser of $5,000 or $250 multiplied by the number of non-highly

compensated employees eligible to participate in the plan. This expansion significantly raised the potential value of the credit for the smallest employers and maintained the three-year window for claiming it. The SECURE Act also introduced an additional component of the Section 45E credit, equal to $500 per year for employers that included an automatic enrollment feature in their new or existing retirement plans. This additional incentive, which took effect in 2020, was designed to encourage adoption of plan structures shown to increase worker participation and contribution rates. We refer to the original component of the credit – that is, the amount designed to offset the administrative costs of establishing and operating a new retirement plan, as the "startup cost component," while we use the term "automatic enrollment component" to refer to the component added in the SECURE Act.

These expansions were followed by further and more generous provisions under the SECURE 2.0 Act of 2022, which took effect in 2023. The legislation increased the generosity of the startup cost component for employers with 50 or fewer employees by raising the reimbursement rate to 100 percent of qualified expenses (subject to the $5,000 annual cap), effectively eliminating startup costs for many small businesses. Employers with between 51 and 100 employees remained eligible for a 50 percent reimbursement rate under the same cap. SECURE 2.0 also introduced a new component of the Section 45E credit for employer contributions to newly established plans (the "employer contribution component"). Under this provision, firms with no more than 50 employees may claim a credit equal to 100 percent of employer contributions—up to $1,000 per employee—in the first year of the plan, with the credit phased down over the subsequent four years. Firms with 51 to 100 employees are eligible for a reduced version of the credit, subject to phase-outs based on firm size. This new incentive marked

a significant shift by subsidizing not only the administrative setup of plans but also the employer contributions that are often a key component of plan generosity and participation incentives.[2]

These reforms were paired with other policy shifts aimed at expanding retirement plan access and improving plan design. Beginning in 2025, SECURE 2.0 mandates automatic enrollment features in new 401(k) and 403(b) plans, with default contribution rates between 3 and 10 percent and automatic annual increases of 1 percentage point up to a maximum of 15 percent. While certain small and young businesses are exempt from this requirement, the policy reflects a broader legislative intent to promote higher rates of employee saving through plan design features shown to be effective in behavioral economics research. Additionally, beginning with Oregon in 2017, several states have implemented "auto-IRA" policies, in which some firms were generally required to either (a) offer a plan such as a 401(k) to their employees or (b) facilitate employee contributions to a payroll-deduction IRA established by the state. Prior research has shown that these policies substantially increased employer offers of retirement plans (Bloomfield et al. 2025a; Bloomfield et al. 2025b).

Together, these policy developments reflect a sustained legislative effort to incentivize plan formation among small employers. Yet, the extent to which these incentives have influenced firm behavior remains an open empirical question, particularly given prior research showing limited behavioral response to tax incentives in individual saving contexts. The present study evaluates this question using a detailed and comprehensive set of administrative tax records that allow for more precise measurement of employer plan formation and tax credit use than has been possible with public data sources.

[2] Additionally, SECURE 2.0 added a "military spouse component" to the Section 45E credit for small employers that enroll spouses of active-duty members of the U.S. military. The credit is equal to $200 per eligible military spouse, plus up to $300 of employer contributions on their behalf, for up to three successive years for each employee. We show later that this component of the credit is small in aggregate.

III. Data and Summary Statistics:

This study leverages detailed administrative tax records from the U.S. Internal Revenue Service (IRS) from 2014 to 2023 to examine the relationship between tax incentives and employer retirement plan formation and credit take-up. These data offer a near-universe view of private sector employment and plan activity and enable a more comprehensive analysis than is possible with publicly available datasets alone.

a. Employer-Level Data

We construct our primary dataset as follows. First, we identify all businesses that file Form 1120, 1120S, or 1065 – the annual tax returns for C corporations, S corporations, and partnerships, respectively. We merge in information from Form 8881, which firms use to claim the Section 45E Credit, attached to those returns. Next, we retrieve information from the Forms W-2 sent by those firms to their employees, which report wages and retirement plan contributions, among other things, made by each employee. Specifically, we identify whether any employee contributes to that employer's retirement plan. We can also identify whether any of these contributors would be categorized as a highly-compensated employee (HCE).[3] We use the presence of any contributions as a proxy for whether a firm offers a plan in a given year. We also compute the total number of W-2's sent in each year, as well as the number of employees who received $5,000 or more in wages, as the latter is used in the computation of the startup credit.

For computational tractability, we take a stratified random sample. We sample at a rate of 100% for firms that either (a) ever file Form 8881 or (b) appear to have started an ESRP in 2015

[3] In general, HCEs are those employees who receive compensation in excess of an inflation-adjusted threshold ($150,000 in 2023) or who own more than 5 percent of the company. To determine whether an individual is an owner, we use ownership links implied by Schedule G of Form 1120, and Schedule K-1 of Forms 1120S and 1065.

or later. For all other firms, we sample at a declining rate as a function of average firm size; our lowest sample rate is 10 percent for firms under 5 employees and 100% for firms with over 20 employees. Finally, we also merge in information from several additional tax forms, which we discuss further below.

b. Defining Eligibility and Credit Exposure

A key variable in our analysis is whether a firm is "apparently eligible" to claim the startup credit in a given year. The statutory definition of eligibility is complex, depending on, (i) whether the firm has established a new plan within the previous three years, (ii) the firm's size in the prior year, and (iii) whether at least one non-HCE is eligible for the plan.

Using our administrative records, we define apparent eligibility as follows. The first step is to determine if and when an employer started offering a plan. To do so, we assign the "tentative first plan year" to be the first year when we observe any employee making a contribution, which is missing if that year is 2014 (since 2014 is our first data year) or if the firm never offers a plan.[4] A plan is not considered new if a firm's employees were "substantially the same" as those covered by a plan sponsored by a related or predecessor firm.[5] Thus, we override this determination (i.e., set the first plan year to be missing) in situations where the apparent plan initiation may reflect a simple EIN change, rather than an actual new plan. Specifically, we recode the first plan year as missing for EIN j when (a) EIN j did not issue any W-2's in the year prior to the tentative first plan year and (b) more than half the EIN j's employees in the tentative first plan year worked for a given EIN $j' \neq j$ in the year prior to the tentative first plan year.[6] The number of new plans per year over our study period range from 76,000 to 116,000.

[4] Because our panel starts in 2014, we consider only instances where the tentative first plan year is 2015 or later.
[5] See https://www.irs.gov/retirement-plans/retirement-plans-startup-costs-tax-credit.
[6] For employers with fewer than 5 employees, we apply only test (a); that is, we recode as missing if the firm did not issue any W-2's in the year prior to the tentative first plan year.

Next, we impose the remaining two tests. We require that the firm employed no more than 100 individuals receiving at least $5,000 in wages in the year prior to the first plan year. And we require that at least one non-HCE contribute to the plan in a given year (as a proxy for eligibility of non-HCEs). With all of this information, we can compute eligibility for the startup credit.

c. Other variable definitions

Finally, we create two variables to measure the firm owner's education level, which may serve as a proxy for financial sophistication. The first variable is an indicator for the share of a firm's owners who have some graduate education. To create this variable, we link owners to Form 1098-T, which reports tuition and scholarship payments between individuals and educational institutions, including an indicator for whether the education in question is undergraduate or graduate. For each firm, we compute the share of owners with at least one year of graduate education. To compute this variable, we must impose a severe data restriction: because we observe Form 1098-T only from 1999 onwards, we restrict the sample to firms whose owners who would have been no older than 22 in 1999. Our analysis using this variable focuses on 2023 alone; thus, combined with the age restriction, we focus on firms whose owners were born in 1977 or later. This restriction drops 57% of the 2023 observations.

Given the restricted sample for which we can directly observe education, we create a second variable that imputes owner education by the industry of the firm. In particular, we identify all self-employed persons in the American Community Survey from 2013 to 2023. We then compute the share within each three-digit industry that have at least a bachelor's degree, and we assign that value to each firm in the tax data in that three-digit industry. This variable has the advantage of being defined for the majority of the tax data sample (i.e., for all but those firms with

invalid or uncommon industry codes), but comes at the cost of using industry-based means rather than using the actual education of any particular firms' owners.[7]

d. Summary Statistics

Table 1 provides a summary of firm and tax preparer characteristics for firms that appear eligible for the Section 45E credit in 2023. The table highlights several key facts. First, essentially all such firms use a tax preparer (94%), and around three-quarters of these tax preparers are CPAs. Second, apparently eligible firms are most commonly organized as S corporations (67%), with 19% organized as partnerships and 14% organized as C corporations.[8] Given the eligibility criteria, as expected, most firms report having less than 50 employees (86%). The average annual wage earned by employees at these firms is around $34,000. Conditional on restricting to firms whose owners were born in 1977 or later, 32 percent of owners have some graduate education.

We begin by describing aggregate patterns in the use of the Section 45E credit. Panel (a) of Figure 1 shows the counts of firms claiming the Section 45E credit in our sample and the share of apparently eligible firms that took up the credit. We separately measure claiming of *any* Section 45E credit and claiming the startup cost component by itself.[9] Take-up rates are persistently low throughout the period, starting at around 1 percent and rising notably in 2023, which coincides with the effective date of the SECURE 2.0 Act's substantial expansion of the credit.

As discussed above, the Section 45E credit has several components: the startup component, the employer contribution component, the military spouse component, and the automatic enrollment component. The lower panel of Figure 1 (Panel B) shows how the dollars of credit are allocated across these different components. Prior to 2020, the startup component encompassed

[7] In the sample for which both variables are defined, the two variables have a correlation coefficient of 0.49.
[8] Recall that we exclude sole proprietorships from our sample construction.
[9] Prior to 2020, the startup cost credit was the only component of the credit; thus the "total" series begin in 2020.

the entire credit. In 2020, the automatic enrollment component was added; from 2020 to 2022, the automatic enrollment component was about 15% of the total credit. In 2023, the employer contribution component and the military spouse component were added; the employer contribution component reflected 71% of the 2023 total credit, while the military spouse component (not visible in the figure) was under 0.1%. Overall, Figure 1 illustrates that while the 2023 increase in credit take-up is measurable, the level remains modest: no more than 5 percent of eligible firms—approximately 18,000 firms[10]—claimed the credit in 2023, suggesting that awareness or salience of the incentive remains low even after legislative enhancements.

These low take-up rates suggest that despite policy makers' intentions, the Section 45E credit has likely had a limited impact on new ESRP formation among firms. Firms that take up the credit include both firms that are induced by the credit to start an ESRP ("compliers") as well as firms that would have started an ESRP anyway ("always takers"). So long as compliers always claim the credit, our measured take-up rates impose upper bounds on the number of compliers.

IV. Factors Impacting Credit Take-up

We investigate the role that both firm owners and tax preparers play in mediating incomplete take-up. To do so, we estimate a probit model among apparently eligible firms predicting the probability of claiming the Section 45E credit on various firm and tax preparer characteristics. In columns (3) and (5), the probit is estimated solely on tax year 2023 data and the sample is restricted to firms with at least one owner born in 1977 or later. In all other columns, the probit is estimated using all available years of data (2016-2023). However, for interpretation, we

[10] The *counts* in this figure are unconditional: they do not restrict to the firms that we identify as being eligible for the startup component of the credit. These estimates may differ from other official IRS estimates because they restrict to 1120, 1120S, and 1065 filers, and thus exclude sole proprietorships and other more specialized types of firms.

report the implied average marginal effects in 2023 for each specification in Table 2. For regressions spanning multiple tax years, we include year fixed effects to account for the large differences in take-up over time.

The first three covariates are indicators that a tax preparer was used and the credential that he or she holds, relative to a base category of using a preparer with no credential. Relative to this group, firms with a CPA as preparer are about 1.1 percentage points more likely to claim the credit. Firms with preparers who hold credentials other than a CPA (such as an Enrolled Agent) show a slightly smaller marginal effect (0.8 percentage points). The small subset of firms with no preparer are 1.5 percentage points more likely to claim the Section 45E credit, possibly because firms that elect to forego a preparer are especially sophisticated themselves in tax matters. Next, the size of the preparer – measured as the natural log of the number of apparently eligible taxpayers who use that preparer in the current year – has no statistically significant association with take-up.

Next, we include in the regression a proxy for the preparer's awareness of the Section 45E credit. Specifically, if a firm's preparer has *ever* claimed the Section 45E credit for a different client in some year prior to the current year – suggesting that the preparer is aware of the credit's existence – take-up is higher by about 11 percentage points. The effect of preparer awareness is much larger than the effect of the preparer having a credential, suggesting that lack of awareness may play a substantial role in incomplete take-up. At the same time, take-up is still very far from 100 percent even after the 11 percentage-point boost from having a preparer with such experience.

In column (2), we consider several additional control variables related to firm size and form of business entity. First, we find that the inclusion of the control variables does not qualitatively affect the coefficients on any of the preparer variables. Second, the impacts of these control variables are interesting in their own right. We find that average firm wage levels (log of average

W-2 wages) are positively associated with credit take-up, although the marginal effects are modest in size. Compared to firms with fewer than five employees (the omitted group), firms with 6–20 employees are about 0.9 percentage points more likely to claim the credit while firms with 21–50 employees are 0.4 percentage points more likely to claim the credit. Interestingly, firms with 50 or more employees are less likely to claim relative to the smallest firms, with marginal effects of –0.5 percentage points. The firm's organizational structure is also associated with substantial differences in credit claiming. Compared to S corporations (the omitted group), C corporations and partnerships are 2.6 and 1.8 percentage points, respectively, less likely to claim the credit.

This difference across organizational form may be related to the ability of firms/owners to "use" the credit (i.e., actually reduce tax liability) in a given year. For C corporations, general business credits (a class of credits including the Section 45E credit) can offset only the entity-level tax; if the C corporation has negative net income, for instance, the credit cannot be used immediately and must be carried over to a different year. By contrast, for S corporations and partnerships, general business credits are passed through to owners; so long as the owners have positive tax liability (e.g., related to other sources of income), they will generally be able to use the credit immediately.[11] Furthermore, because partnership structures can be more complicated than S corporations, the burden of tracking general business credits across ownership tiers may increase the cost of claiming the Section 45E credit, perhaps explaining why partnerships also take up the credit at a lower rate.

In columns (3) and (4) we test the hypothesis that more financially sophisticated owners – as best as we can proxy – are more likely to claim the credit. In column (3), we use a "direct"

[11] One possible explanation for low overall take-up of the Section 45E credit is that firms/owners might often be unable to use the credit immediately. However, we do not find this to be the case. If we restrict the sample to (a) C corporations with positive tax liability and (b) pass-throughs where all owners are individuals with positive tax liability, we find that the take-up rate in 2023 was 5.8%.

measure: the share of owners of each firm that have some graduate education, as observed on Form 1098-T. These regressions are restricted to firms with at least one owner born in 1977 or later, and to observations from 2023. We find that this sophistication proxy is indeed related to take-up. Firms whose owners all have some graduate education are about 4 percentage points more likely to claim the Section 45E credit in 2023. In column (4), we use an industry-based imputation strategy, where we assign to each three-digit industry the share of entrepreneurs in that industry who report having at least a bachelor's degree in the American Community Survey. We find that this proxy is also positively correlated with take-up, and broadly similar in magnitude.[12] In columns (5) and (6), we include the full battery of control variables (including the preparer variables); results are qualitatively similar.

Overall, the findings from Table 2 reinforce the puzzle introduced in the introduction: even after a dramatic increase in the generosity of the credit, take-up remains low but varies substantially by firm and tax preparer characteristics. This suggests that factors other than financial cost—such as administrative burden, awareness, or the influence of third-party intermediaries—may be more central in determining employer participation.

a. Tax Preparer Learning

The results in Table 2 suggest that tax preparers play a meaningful role in shaping firm take-up of the startup tax credit. To evaluate whether preparer experience influences subsequent filing behavior, we construct a simple measure of "preparer learning." For each preparer, we identify the first year in which they claim the Section 45E credit on behalf of any client; we refer

[12] In supplementary analysis (not shown), we examine variation in take-up rates across narrower 4-digit industries, restricting to industries with sufficient sample sizes in 2023. As anticipated, take-up is highest in professional service industries such as accounting (approximately 13%) and dentistry, while industries such as agriculture and livestock production—including cattle ranching—exhibit some of the lowest take-up rates (around 1%).

to this year as the "preparer exposure year." We then track the credit take-up rate among the preparer's other eligible clients after this initial claim.[13]

Figure 2 shows the dynamics of preparer learning by preparer exposure year. By construction, the take-up rate for a preparer's non-reference clients is zero before the initial filing year. In each cohort, take-up among other clients rises in subsequent years, consistent with the idea that preparers learn about the credit and begin applying it more broadly. However, even in the years after first exposure, take-up among that preparer's other eligible clients rarely exceeds 10–15%, suggesting that although preparer awareness is highly influential, it still does not lead to widespread credit use.

These patterns point to several possible frictions. For example, preparers may not consistently inquire about new retirement plans, particularly if clients themselves do not volunteer this information. Alternatively, some preparers may determine that the credit is not worth the hassle of claiming, given the perceived administrative burden or ambiguity in eligibility.

Furthermore, even if preparers were to quickly adopt a very high take-up rate after being first exposed to the credit, the role of preparer learning would still be limited by the fact that the credit is claimed by relatively few taxpayers in the baseline – that is, there are relatively few opportunities for learning. In Table 2, for instance, we see that only 13% of apparently eligible firms in 2023 used a preparer that had claimed the Section 45E credit in a prior year for a different client. This low rate reflects both the low credit take-up conditional on eligibility is low, as well as the fact that the average preparer does not have many eligible clients. We compute this as follows. For all pairs of firms (j) and preparers (k) in 2023, we compute the number of clients other than j for whom preparer k could have claimed the credit *prior* to 2022. We find that the median firm used a

[13] If a preparer claims a credit for more than one client in the preparer exposure year, we randomly choose one as the reference firm and compute take-up among all other clients of that preparer.

preparer that was exposed to only six such clients, limiting the opportunities for preparers to learn about this credit.

b. Persistence in Credit Claiming

We have thus far focused only on whether firms ever claimed the startup tax credit. However, an important feature of the startup tax credit is that it is explicitly structured to be claimed over multiple years—typically up to three—following the initiation of a retirement plan. If firms were responding to the policy as intended, we might expect to observe recurring claims across this three-year window. In this subsection, we analyze the persistence of claiming behavior over time.

To do so, we track cohorts of firms defined by the year in which they first claim the startup credit (the "first credit year"). For each such cohort, we plot the probability that they claim the credit in each of the following and preceding years. Figure 4 illustrates this pattern for five such cohorts. In all years, take-up is mechanically 100% in the first credit year by construction. In the subsequent year (event time +1), the probability of claiming the credit drops sharply—typically to well below 50%—and continues to decline in the following years. Still, the second-year take-up rate remains much higher than the baseline probability observed among all eligible firms, indicating degree of persistence.

This drop-off is unlikely to reflect a true reduction in eligible expenses. Most firms can be expected to face both startup-related and ongoing administrative costs across all three eligible years; yet most choose not to claim the credit after the first year. Several explanations for the drop-off are possible. First, firms may simply be unaware of their eligibility for the credit beyond year one. Second, the perceived hassle or cost of filing an additional Form 8881 may deter follow-up claims, especially if the expected or realized value is lower in later years. Third, tax preparers may

deprioritize the credit in subsequent years, particularly if clients do not explicitly raise it. Finally, firms may only become aware of the credit a year or two after plan formation.

Together, these findings suggest that persistent claiming of the credit across multiple years is the exception rather than the norm. The structure of the credit is intended to subsidize administrative costs over a three-year horizon, but in practice most firms appear to claim it only once. It is difficult to discern the extent to which the drop-off reflects declining eligible costs, a misunderstanding of the credit's multi-year structure, or intentional inaction. Nonetheless, the steep drop in claiming behavior after year one underscores the broader theme that financial incentives—even generous ones—may be underutilized due to a combination of low salience, administrative inertia, and behavioral frictions.

V. Conclusion

In summary, we have shown that take-up of the Section 45E credit remains low despite recent increases in generosity. Firms with more highly educated owners and whose tax preparer is a CPA are more likely to take up the credit. Our results further suggest that tax preparer learning plays a role in credit take-up. Once a tax preparer files for the credit on behalf of one client, the subsequent credit take-up rate increases among that tax preparer's other clients. Although the credit is designed to offset startup costs for three years, most firms only claim the credit for one year.

Our results suggest that knowledge about the credit – among firms and tax preparers – may be limited. Recent survey evidence suggests that 72 percent of small firms that do not offer ESRPs are unaware of the Section 45E credit (Copeland 2024). While we do not have a corresponding figure for firms that do offer ESRPs, our results suggest that lack of awareness may be high in this group as well. However, lack of awareness is not the whole story. Our results suggest that even

when a firm or preparer has knowledge of the credit, there seem to be frictions that result in incomplete take-up. Even clients of knowledgeable preparers have a take-up rate that is far from 100 percent, and even firms that take up the credit in one year are unlikely to do so in subsequent years. Future research to identify the exact mechanism behind these behavioral frictions could be valuable.

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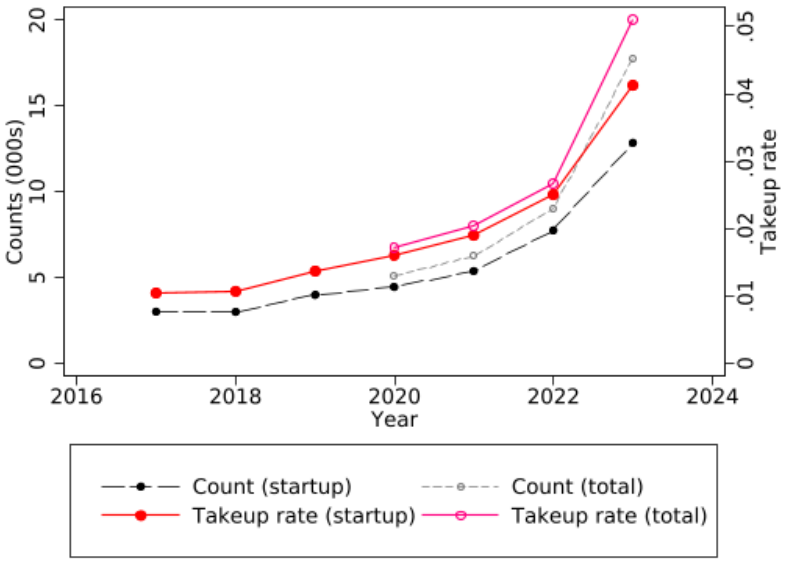
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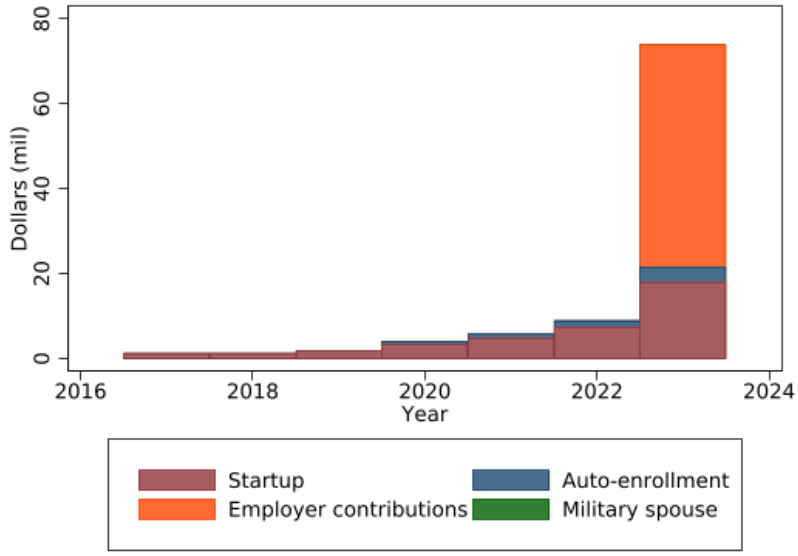
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Tables and Figures

Figure 1: Tax Credit for Small Employer Pension Plan Startup Costs, by year



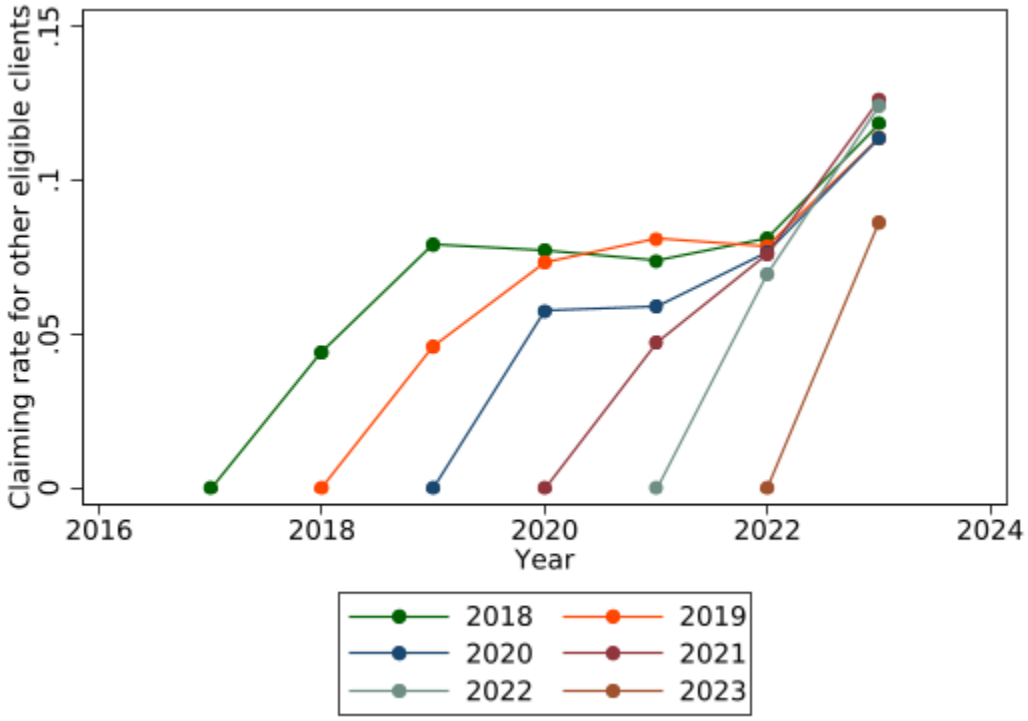
Panel A. Counts and Take-up Rates



Panel B. Amount Allocated to Each Credit Component

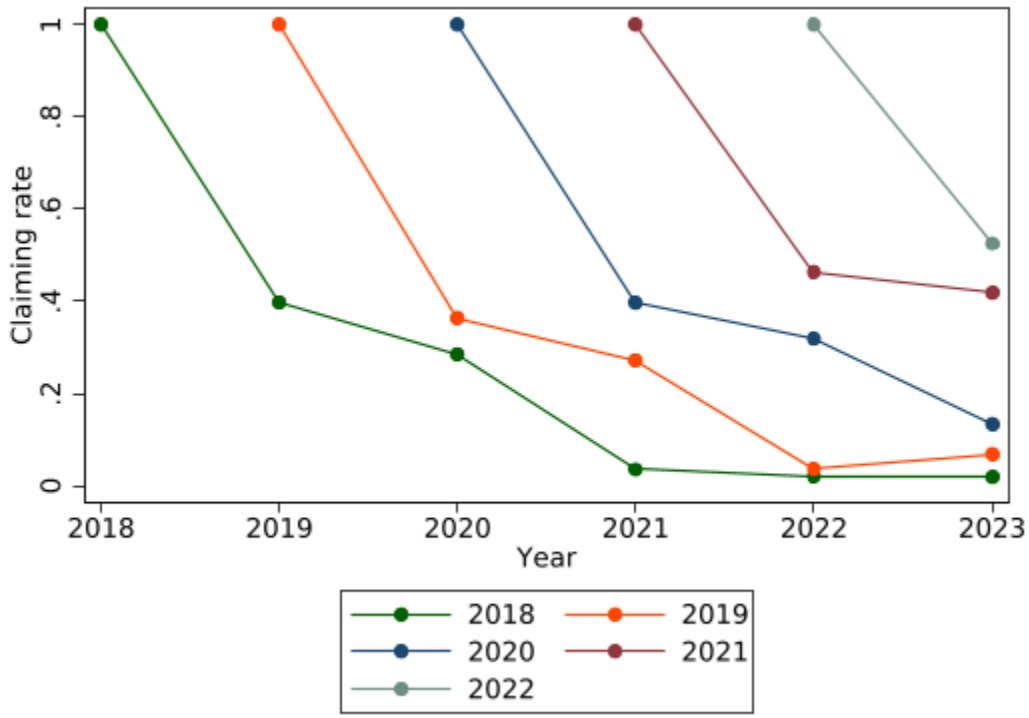
Notes: Panel A: The series with the dotted lines (left axis) plot the counts of firms taking up the Section 45E credit. The darker line plots those taking up the startup component, while the lighter line plots those taking up any component of the Section 45E credit. (Prior to 2020, the startup component was the only component of the Section 45E credit.) The series with the solid lines (right axis) analogously plot the take-up rate: that is, the share of apparently eligible firms that take up any component of the Section 45E credit (lighter line) or the startup component (darker line). See text for definition of apparently eligible firms.
Panel B: Panel B shows the aggregate dollar amounts associated with each component. Note that the military spouse component is not visible in the figure.

Figure 2: Tax Preparer Learning



Notes: Each series plots the take-up rate (measured at the tax preparer level) for a different "cohort" of tax preparers. A cohort is defined by the first year when the preparer claimed the Section 45E credit for any client. The take-up rate is computed with respect to the preparer's *other* clients (that is, clients other than the one it claimed for first). In the case of multiple clients claiming in the same initial year, one is chosen at random as the "reference" client.

Figure 3: Persistence in Credit Claims



Notes: This figure plots claim rates for different "cohorts" of firms, where each cohort is defined by the first year when it claims the Section 45E credit.

Table 1. Summary Statistics

	Mean
Tax preparer types	
Preparer, no credential	0.079
No preparer	0.057
Preparer, credential other than CPA	0.137
Preparer, CPA	0.727
Log preparer size	1.819
Prior credit claim by tax preparer	0.127
Share of firm owner with post-graduate schooling	0.323
Share with at least a bachelor's degree (from ACS)	0.468
Log average wages at firm	10.446
Firm Size	
<= 5 employees	0.170
6-20 employees	0.470
21-50 employees	0.222
> 50 employees	0.138
Business form	
S Corporation	0.674
C Corporation	0.139
Partnership	0.187
Number of observations	214,600

Notes: This table reports means for apparently eligible firms in 2023. Preparer size refers to the number of apparently eligible clients served by the preparer in 2023. See text for discussion of "Share of firm owner with post-graduate schooling" and "share with at least a bachelor's degree (from ACS)," including the sample restrictions made when using those variables.

Table 2. Regression Results, Probability of Credit Take-up

Marginal Effect on Take-up, 2023	(1)	(2)	(3)	(4)	(5)	(6)
Tax preparer types (Ref: Preparer, no credential)						
No preparer	**0.015**	**0.012**			**0.028**	**0.013**
	(0.003)	(0.003)			(0.009)	(0.004)
Preparer, credential other than CPA	**0.008**	**0.007**			**0.008**	**0.007**
	(0.001)	(0.001)			(0.003)	(0.001)
Preparer, CPA	**0.011**	**0.011**			**0.019**	**0.010**
	(0.001)	(0.001)			(0.003)	(0.001)
Log preparer size	**-0.0002**	**0.0005**			**0.0001**	**0.0003**
	(0.0003)	(0.0003)			(0.0009)	(0.0004)
Prior credit claim by tax preparer	**0.111**	**0.105**			**0.100**	**0.108**
	(0.002)	(0.000)			(0.003)	(0.002)
Share of firm owner with post-graduate schooling			**0.040**		**0.030**	
			(0.002)		(0.002)	
Share with at least a bachelor's degree (from ACS)				**0.053**		**0.033**
				(0.002)		(0.002)
Log average wages at firm		**0.005**			**0.003**	**0.002**
		(0.000)			(0.001)	(0.000)
Firm Size (Ref: ≤ 5 employees)						
6-20 employees		**0.009**			**0.009**	**0.011**
		(0.001)			(0.002)	(0.001)
21-50 employees		**0.004**			**0.002**	**0.018**
		(0.001)			(0.003)	(0.001)
> 50 employees		**-0.005**			**-0.009**	**0.000**
		(0.001)			(0.004)	(0.001)
Business form (Ref: S Corp)						
C Corp		**-0.026**			**-0.028**	**-0.027**
		(0.001)			(0.003)	(0.001)
Partnership		**-0.018**			**-0.023**	**-0.020**
		(0.001)			(0.002)	(0.001)
Year fixed effects	X	X		X		X
Restricted sample			X		X	
Baseline mean	0.051	0.051	0.063	0.053	0.063	0.053
Firm-year observations (000s)	1,234	1,234	93	960	93	960
Firm observations (000s)	599	599	93	474	93	474

Notes: This table reports marginal effects from a probit regression on take-up of the Section 45E credit among apparently eligible firms. In columns (3) and (5), the probit is estimated solely for 2023, and the sample is restricted to firms with at least one owner born in 1977 or later. In all other columns, the probit is estimated using all available years of data (2016-2023). However, for interpretation, we compute the marginal effects solely in 2023. See text and notes to Table 1 for discussion of variable definitions. Standard errors are clustered by firm.