Arbeitskreis Quantitative Steuerlehre
Quantitative Research in Taxation – Discussion Papers

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arqus Discussion Paper No. 322
April 2026

www.arqus.info
ISSN 1861-8944

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April 2026

Acknowledgements:
We thank Daphne Armstrong, John Barrios (discussant), Andrew Belnap, Carly Bird, Kay Blaufus, Patricia Breuer, Brayden Bulloch, Elisa Casi-Eberhard, Sabrina Chi, Katie Daugherty, Christine Dobrige, Sebastian Eichfelder (discussant), Stephen Glaeser, Nathan Goldman, Jeffrey Gramlich, Bradford Hepfer, Lisa Hillmann, Martin Jacob, Mehmet Kara (discussant), David Kenchington, Allison Koester, Kaitlyn Kroeger, Eva Labro, Nico Lehmann, Christina Lewellen, Eva Matthaei (discussant), Tyler Menzer, Devan Mescall, Alyssa Moore, Michelle Mullaney, Benjamin Osswald, Anh Persson, Max Pflitsch, Jochen Pierk, Sonja Rego, Leslie Robinson, Richard Sansing, Robert Schade, Barbara Stage, Bridget Stomberg, Jeroen Suijs, Maximilian Todtenhaupt, Benjamin Toedtmann (discussant), Laurence van Lent, Mary Vernon, Christoph Watrin, Anthony Welsch, Kelly Wentland, Benjamin Yost, and participants at the 2025 University of North Carolina Tax Symposium, arqus Annual Meeting 2024, ATA Midyear Meeting 2025, WHU Brownbag in Tax & Financial Accounting 2023, Erasmus School of Economics Research Retreat 2024, Frankfurt School of Finance Brown Bag 2025, HARC Hawai'i Accounting Research Conference 2025, Indiana University Workshop 2025, Leibniz University Hanover Brown Bag in Tax & Public Finance 2025, Paderborn University TAF Brownbag 2024, 2nd Tax Transparency Conference Research Workshop on the Latest in Tax Research 2024, Texas Tech University Workshop 2024, TRR 266 ARCTIC Workshop 2024, and University of Kentucky Workshop 2025 for helpful comments and suggestions. We thank Teresa Bachmann, Finn Breitmeier, Lucy Meik, and Gina Wildfang for excellent research assistance. Henning Giese, Dan Lynch, Kim Alina Schulz, and Caren Sureth-Sloane have no conflicts of interest to disclose, except that Caren Sureth-Sloane discloses that she is a member of the Supervisory Board of Deloitte Germany. This is a purely supervisory role under the German two-tier system and involves no executive responsibilities. She confirms that this research was neither influenced by anyone from Deloitte nor subject to any related conflict of interest. Henning Giese, Kim Alina Schulz, and Caren Sureth-Sloane gratefully acknowledge financial support from the German Research Foundation (DFG) through the Collaborative Research Center (SFB/TRR) Project-ID 403041268 – TRR 266 Accounting for Transparency. The authors also thank the National High-Performance Computing Center (NHR) at the Paderborn Center for Parallel Computing for providing computing time on the high-performance computers Noctua 1 and 2. The NHR is jointly supported by the German Federal Ministry of Education and Research and the German federal states participating in the NHR.

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The Effects of Tax Reform on Labor Demand within Tax Departments

ABSTRACT

This study examines the effect of a major tax reform on firms' demand for internal tax department employees. Specifically, we analyze the effects of the Tax Cuts and Jobs Act (TCJA) on the number of job postings and skill profiles for tax department positions. We employ machine learning techniques to identify and classify approximately 13,500 tax-related job postings posted by 1,251 firms from 2016–2019. Using a difference-in-differences research design, we find a 32% increase in the number of tax-related job postings in the two years following TCJA enactment among U.S. treatment firms relative to U.K. control firms. LinkedIn-based employment data show that tax department size increased after the TCJA, confirming actual hiring. We also find that firms increase demand especially for tax compliance employees. Overall, our findings provide evidence that major tax reforms are associated with economically meaningful changes in the scale and composition of internal tax functions.

Keywords: tax department structure; tax reform; TCJA; tax risk; tax complexity, tax employees

JEL Classifications: H25, H26, M12

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this work, the authors used ChatGPT, Refine, and Claude-Opus-4.6 in order to ensure grammatical accuracy, improve sentence structure, refine sentence clarity, identify error corrections in the Python machine learning code, and enhance the overall coherence of the text. After using these tools/services, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

I. INTRODUCTION

This study investigates how a major tax reform affects firms' demand for internal tax department employees. Specifically, we examine how the Tax Cuts and Jobs Act (TCJA) of 2017 affects the volume and skill requirements of tax-related job postings. Recent tax reforms, such as the TCJA, incorporate a complex set of objectives aimed at incentivizing domestic investment, curbing specific types of tax avoidance, improving overall tax compliance, and increasing tax revenues (OECD 2023). These goals, and the complexity they create, pose important challenges for firms. Although tax reform may allow for greater tax planning, either by introducing new tax incentives or generating complexity that firms can exploit (Slemrod 2018; Wilde and Wilson 2018), it also increases the time, effort, and risks of tax compliance and tax planning. Tax reforms often exacerbate tax complexity (Hoppe, Schanz, Sturm, and Sureth-Sloane 2023), which increases corporate tax uncertainty and compliance costs (Amberger, Gallemore, and Wilde 2025). Firms face uncertainty regarding how new tax laws will be applied, how individual provisions will interact and be accounted for, and how both the new provisions and the additional mandated disclosures will affect tax audits and payments (Mills, Robinson, and Sansing 2010; Lisowsky, Robinson, and Schmidt 2013; Neuman, Omer, and Schmidt 2020; Diller, Lorenz, Schneider, and Sureth-Sloane 2025). One way to respond to this increase in tax complexity is by investing in internal tax department employees.

Neoclassical labor demand theory suggests that tax reform can shift the marginal costs and benefits of hiring, thereby increasing firms' demand for in-house tax professionals, particularly when firm-specific knowledge is important (Barrios, Ho Choi, Deller, Pacelli, and Packard 2025; Beardsley, Donohoe, Fischer, and Lisowsky 2026). However, frictions in the labor market and firms' ability to match with qualified candidates introduce uncertainty regarding the timing and scale of this response (Stiglitz 2002; Choi, Choi, McNichols, and Zhou 2025). Although research shows that firms adjust their tax compliance and tax planning capacity in response to tax reforms (Hanlon and Heitzman 2010; Wilde and Wilson 2018; Bischof,

Gassen, Rohlfing-Bastian, Rostam-Afschar, and Sureth-Sloane 2024; Lester and Olbert 2024), and that tax enforcement can also increase firms' demand for internal accounting personnel (DePaul, Krupa, and Mullaney 2026), little is known about when and how firms adjust their demand for internal tax employees in response to tax reform. We address this gap by examining whether tax reform changes both the number and qualifications of tax department personnel.

To answer this research question, we use a unique dataset of job postings. These data allow us to assess whether and to what extent firms experience increased demand for internal tax department employees following tax reform. Our findings also illuminate the qualifications tax department employees need to navigate increased tax complexity following major tax reform, while firms make greater use of technological tools and external advisors (Krüger 1996; van Reenen 1997; Kroeger 2024; Thomson Reuters Institute 2023; Krupa and Mullaney 2024). Our results also provide valuable insights for educators and practitioners by highlighting the skills in demand. This is especially relevant given the shortage of qualified talent in taxation and related fields of accounting (Fore 2025; Thomson Reuters 2025).

The TCJA provides an excellent setting to examine our research question. As a major tax reform and a plausibly exogenous shock to firms, it allows us to employ a quasi-experimental design. The TCJA is the most significant U.S. tax reform since 1986, combining multiple domestic and international provisions, including a decreased corporate tax rate, immediate expensing of certain assets, and a shift from a worldwide to a quasi-territorial tax system (Slemrod 2018; Beyer, Downes, Mathis, and Rapley 2023). Beyond changes to existing tax rules, the law includes many novel and complex foreign tax provisions, such as the Global Intangible Low-Taxed Income (GILTI), Base Erosion Anti-Abuse Tax (BEAT), and Foreign-Derived Intangible Income (FDII). These regulations interact with each other and create complex and potentially circular calculations (Donohoe, Jang, and Lisowsky 2022). Accordingly, the TCJA represents a substantial shock to firms' tax environments by increasing tax complexity, compliance burdens, and tax planning costs. The TCJA was also introduced

and passed quickly, with its ultimate passage being uncertain until late 2017 (Wagner, Zeckhauser, and Ziegler 2018). This makes it unlikely that firms changed their hiring in anticipation of the TCJA, thereby allowing us to identify clear treatment and control periods.

To examine our research question, we employ textual analysis and machine learning techniques to identify and classify approximately 13,500 tax-related job postings from the LinkUp database spanning the years 2016 and 2019. LinkUp provides a comprehensive census of job postings directly collected from firms' career websites, which reduces concerns about duplicate postings and reposting behavior that can arise on aggregator platforms (Campello, Kankanhalli, and Muthukrishnan 2024). This feature is particularly important for our setting, as it allows us to more accurately capture firms' labor demand for tax professionals.

To identify tax department job postings, we follow a two-step process. First, we use a keyword-based search within job titles and descriptions to generate an initial set of tax-related postings. Second, we refine and expand this sample using a bag-of-words (BoW) machine learning approach. Specifically, we train a BoW model on two labeled samples: postings identified as tax-related through the keyword search and postings that contain the term "tax" but unrelated to tax functions (e.g., referencing "tax-free income"). The resulting classifier model achieves an overall accuracy rate of 93% within a 95% confidence interval. For approximately 70,000 postings falling outside this interval, we conduct a manual review and correction of misclassifications to ensure the reliability of our final dataset.

Using a difference-in-differences research design, we investigate the effects of the TCJA on the job postings of a sample of 1,251 firms. We employ a tight window around the reform (2016-2019) to better attribute the results to the policy shock (Bertrand et al. 2004) and avoid confounding events (e.g. Covid-19 and Brexit in 2020).[1] We include firm-level controls as well as firm and year fixed effects to control for time-invariant firm characteristics and time-

[1] We note that our results are robust to extending the sample period (2015-2020) Figure 3 Panel B.

varying factors (e.g. economic shocks). Our primary analysis compares job postings of U.S. firms (treatment) to those of United Kingdom (U.K.) firms (control). We also use a within-U.S. comparisons of multinational firms (treatment) and domestic firms (control), among others, to alleviate concerns that differences between U.S. and U.K. firms drive our results.[2]

Across all specifications, we document an increase in the number of job postings in the two years after the TCJA. In our primary specification, the documented increase in postings of approximately 32% corresponds to an increase in demand of, on average, approximately 1.3 additional tax department employees over the two years. We find that the effect is concentrated in the second year after the tax reform, consistent with labor market frictions (Stiglitz 2002). Consistent with interpreting the increase in postings as realized hiring, we also find no evidence that posting duration increased after the reform. We also confirm these findings using LinkedIn-based employment data from Revelio Labs, which suggest that tax department size increased by approximately 1.9 employees per firm, or 11%, compared to the average pre-reform department size of our U.S. sample firms, after the TCJA. These tests alleviate concerns that our results only capture increased demand rather than replacement hiring or employees moving between tax departments across firms suggesting the TCJA results in increases in tax department positions.

In cross-sectional analyses, the increase in tax hiring is stronger for multinational firms and firms with greater levels of pre-reform tax risk, but weaker for firms with greater pre-reform tax department expertise. In additional analyses, we find a decrease in auditor-provided tax services in the years following the TCJA (2018 to 2019) for firms that hired in the respective year. This pattern is consistent with firms investing in internal tax expertise rather than relying on external providers, consistent with a substitution effect in response to major tax reform that

[2] We provide evidence consistent with parallel trends in the number of job postings for treatment versus control firms for our baseline specification in Figure 3 and all alternative measures of treatment employed (untabulated) (Roberts and Whited 2013).

may require firm-specific knowledge.

To rule out that broader trends in economic growth drive our findings, we conduct placebo tests using alternative job posting measures. Specifically, we examine the number of overall nontax job postings as well as customer service and white-collar job postings. Again, comparing U.S. and U.K. firms over our sample period, we find no evidence that our results were driven by a general trend in hiring.[3]

We next examine the qualifications listed in tax employee job postings. It is unclear how tax reform affects the types of positions posted and the qualifications firms seek in tax department employees. Consistent with tax complexity imposing compliance costs on firms (Laplante, Lewellen, Lynch, and Samuel 2021; Zwick 2021; Euler, Harst, Schanz, Sureth-Sloane, and Voget 2024), we expect that the new regulations, new reporting requirements, and uncertainty about how tax authorities will implement the new rules increase firms' demand for tax employees in compliance-focused roles. However, firms may also seek to exploit the increase in complexity and uncertainty around new tax laws and may thus invest in tax planning positions.

We use the JobSpanBERT model of Zhang et al. (2022), a pre-trained specialized machine learning model that extracts sought skills and knowledge from English-language job postings. This model identifies and interprets continuous word sequences (text spans) to capture and identify job requirements, categorizing them into two groups: (i) knowledge, referring to fact-based expertise (i.e., hard skills), and (ii) skills, referring to attitudes (i.e., soft skills) and the ability to apply knowledge (Zhang et al. 2022). We combine the requirements of both groups to identify qualifications in the job postings. Building on the topic modeling results, we classify each job posting as primarily pertaining to tax compliance or planning. We validate this

[3] Comparisons of workforce age distributions (untabulated) show that the U.K. workforce is slightly older, making retirement-driven hiring an unlikely explanation for the increase in U.S. tax job postings.

classification by surveying tax professionals and academic tax experts, and use their responses to construct a measure that captures the extent to which each job posting is oriented toward tax compliance or tax planning. We find that firms primarily seek tax department employees for compliance-related roles following the TCJA. Demand centers on expertise in tax return preparation, the ability to manage multiple responsibilities, and proficiency in data analysis skills, consistent with increased compliance requirements.

Our study makes several contributions to research and practice. First, we add to research on the compliance costs of tax regulation by examining firms' internal labor demand. The literature that investigates aggregate on-average effects finds that the complexity of a tax system raises compliance costs (Slemrod 1989; Mills 1996; Giese, Koch, and Sureth-Sloane 2024). Our study contributes to this literature by documenting how firms adjust their internal hiring after tax reform and which qualifications they seek in new tax employees. Our results suggest that major tax reform requires firm-specific knowledge and leads firms to invest internally rather than rely on outsourcing. Importantly, by controlling for firm characteristics and including firm fixed effects, we show that these patterns reflect not merely firm heterogeneity but rather a broader shift in hiring.

Second, we extend the literature on the effects of the TCJA by examining the internal costs of this major tax reform. Studies suggest that the TCJA significantly lowered firms' explicit tax burdens (Wagner, Zeckhauser, and Ziegler 2020; Dyreng, Gaertner, Hoopes, and Vernon 2023). However, to the best of our knowledge, no research examines the internal compliance costs related to the TCJA. Although our estimates capture only some of these potential costs, they offer insights into the reform's broader economic implications. Furthermore, a substantial body of research examines how firms adjusted their investments and tax planning in response to the TCJA (Amberger and Robinson 2024; Kelley, Lewellen, Lynch, and Samuel 2024; Samuel 2023; Lester and Olbert 2024; Pflitsch 2024). Concurrent evidence also indicates an increase in the demand for tax professionals at public accounting firms

following the reform (Daugherty 2025). However, relatively little is known about firms' internal responses. Our study addresses this gap by documenting increased demand for internal tax department employees with specialized qualifications. Notably, we observe this shift, despite firms' access to external advisory services and advancements in tax technology, highlighting the importance of in-house expertise.

Third, we contribute more broadly to the literature on responses to regulatory changes beyond changes in tax regulation. New regulations can reduce efficiency and impose political, litigation, adoption, or planning costs (Watts and Zimmerman 1978; Marneffe and Vereeck 2011). From a labor demand perspective, Huang et al. (2025) find an increase in the number of accounting job postings after the enactment of lease accounting and revenue recognition standards in the United States, suggesting an increase in labor costs. Furthermore, Le (2026) finds that restrictive GAAP accounting rules lead to fewer accounting students and accountants and auditors overall. We extend this literature by investigating tax department labor demand and shifts in qualification requirements in job postings. To our knowledge, we are the first to document an economically significant increase in firms' demand for tax department employees following a major tax reform.

Our findings inform practitioners, policymakers, and educators. For practitioners, we identify the qualifications firms demand in tax department employees in response to major tax reform. For policymakers, we provide evidence on one dimension of the internal labor costs associated with major tax reform. For educators and students, we offer large-sample evidence on the skills tax department employees need to succeed amid ongoing global tax reforms and rapid technological change.

II. HYPOTHESES DEVELOPMENT

Tax reforms significantly increase firms' tax compliance costs, such as tax calculations, return preparation, and documentation (Slemrod and Blumenthal 1996; Slemrod and Venkatesh 2002; Eichfelder and Vaillancourt 2014). Prior studies primarily examine aggregate compliance

costs and focus largely on external costs. These costs increase during tax audits (Mills 1996) and are higher for firms with greater international operations (Blumenthal and Slemrod 1995) but decrease relative to firm size (Slemrod and Venkatesh 2002; Eichfelder and Hechtner 2018). Beyond compliance, some research suggests that increased tax complexity and uncertainty resulting from reforms lead firms to engage more in tax planning (Boynton, Dobbins, and Plesko 1992; Guenther 1994; Dyreng, Hanlon, and Maydew 2019; Kelley et al. 2024; Lee and Shevlin 2026). Other literature provides mixed evidence on the effects of tax complexity and compliance costs on overall investment. For example, Amberger et al. (2025) and Euler et al. (2024) find that multinationals increase their investment in countries with high tax complexity. Moreover, Zwick (2021) and Euler et al. (2024) demonstrate that firms' responses to tax complexity vary, depending on firm characteristics or the type of tax complexity faced. We extend these streams of literature by examining how firms adjust their demand for internal tax department employees in response to tax reform, focusing on changes in the number and qualifications of employees.

To examine this research question, we use one of the largest tax reforms in U.S. history, the TCJA. The TCJA substantially changed the U.S. corporate tax system. Key provisions include reducing the corporate tax rate from 35% to 21%, offering immediate expensing of certain assets, and restricting interest deductions. The TCJA also repealed several tax provisions, such as the performance-based exception for the deductibility of executive compensation, the corporate alternative minimum tax, and the domestic producers' activity deduction. Additionally, the reform transitioned the taxation of foreign-sourced income from a worldwide to a quasi-territorial tax system (Donohoe et al. 2022), introducing a one-time repatriation tax on previously untaxed foreign earnings and creating mechanisms to limit income-shifting (Markle 2009), such as the Global Intangible Low-Taxed Income (GILTI) tax and the Base Erosion and Anti-Abuse Tax (BEAT). The TCJA also introduced the Foreign-Derived Intangible Income (FDII) provision to incentivize domestic operations, offering

preferential tax rates on U.S.-based intangible income.

The complexity of the TCJA also represents a significant shock to the complexity of accounting for income taxes. Despite limited regulatory guidance and complex interactions among provisions, firms had to account for the TCJA's effects in their 2017 financial statements, leading to widespread reliance on provisional estimates under SAB 118.[4] These estimates often contain substantial errors, even for basic provisions (Chen, Erickson, Harding, Stomberg, and Xia 2023; Dyreng et al. 2023). Internal tax department employees are heavily involved in the accounting for and financial statement disclosures related to the income tax provision and, therefore, are directly affected by this significant shock.

The increase in tax complexity due to the TCJA is likely to require firms to invest in the tax function. One plausible response is hiring additional internal tax department employees. Drawing on transaction cost economics and labor market theory, firms are expected to internalize these functions when the required or generated knowledge is firm-specific, rather than industry-generic (Williamson 1975; Barrios et al. 2025; DePaul et al. 2026). Accordingly, internal hiring becomes a rational choice when specialized tax expertise cannot be efficiently sourced through external providers. Given the documented difficulties firms faced in producing even provisional estimates, we posit that certain skills and knowledge required to comply with tax reform are inherently firm-specific. Although hiring and training employees with firm-specific skills entails substantial investment, these investments can strengthen employee-firm attachment and reduce turnover (Hashimoto 1981). Consistent with this reasoning, prior research demonstrates that firms adjust their internal staffing in response to regulatory changes in accounting (Huang et al. 2025). Thus, we propose our hypothesis in the alternative form:

H1: The number of tax-related job postings increases after the TCJA.

[4] SAB 118 is an SEC Staff Accounting Bulletin that permits firms to use provisional estimates when accounting for the tax effects of the TCJA is incomplete.

However, firms may choose alternatives to hiring new employees to manage increased tax complexity. Firms may rely on external advisors for temporary compliance needs to avoid the long-term costs of expanding internal staff (Lankford and Parsa 1999). Indeed, Daugherty (2025) finds a significant increase in tax job postings at public accounting firms following the TCJA. Alternatively, firms could invest in technology or provide current employees with additional training. Furthermore, given labor market constraints and a shortage of qualified tax professionals (Fore 2025), which may contribute to an inelastic labor supply (Hall 1991), firms may need to rely on technology or upskill existing staff, even if they prefer to hire additional internal employees. Finally, given frictions in job search and matching, including information asymmetries between firms and job seekers, it is unclear whether firms will choose to hire internally and, if they do, whether there could be a lag between the enactment of tax reform and job postings (Barrios and Gallemore 2024; Barrios et al. 2025).

In addition to increasing the demand for internal tax employees, the TCJA likely influenced the specific qualifications sought in tax department hires. Compliance with complex provisions, such as GILTI, BEAT, and FDII, requires expertise in international tax law, data analysis, and technology implementation (Thomson Reuters Institute 2023). Moreover, research indicates that firms prioritize hiring employees with advanced qualifications to minimize implementation errors during regulatory changes (Loyeung, Matolcsy, Weber, and Wells 2016), and larger tax departments are associated with better tax compliance and planning (Chen, Cheng, Chow, and Liu 2021). The reduction in the corporate tax rate coupled with higher income-shifting costs may reduce incentives for certain types of tax planning strategies, prompting firms to redirect their focus toward compliance and newly available planning opportunities. Accordingly, we expect the TCJA to increase demand for both tax compliance and tax planning qualifications, with the relative emphasis on each depending on how firms respond to the reform's compliance burdens and planning opportunities. Based on these considerations, we propose the following hypothesis:

H2: The demand for tax compliance and tax planning skills increases after the TCJA.

III. RESEARCH DESIGN

To investigate whether the TCJA led to an increased demand for tax department employees (H1), we apply a difference-in-differences research design (Roberts and Whited 2013) and compare job postings by U.S. S&P 1500 firms (treatment) to those of U.K.[5] FTSE All Shares Index firms (control). To account for a general increase in job postings among U.S. firms, we also conduct placebo tests using our baseline U.S.–U.K. setting, examining changes in the total number of nontax job postings as well as postings for customer service, and white-collar roles, which reflect hiring in internal staff and professional functions but should not be directly affected by the reform. Finally, we differentiate within the U.S. between firms more affected by the TCJA (i.e., multinationals) and those less affected (i.e., domestic firms). Formally, we estimate the following regression model:

$$JobPostings_{it} = \beta_0 + \beta_1\, post_t * treated_i + \beta_2\, post_t + \beta_3\, treated_i + \beta_x * x_{it} + \delta\, firm_i + \gamma\, year_t + \varepsilon_{it}. \quad (1)$$

The dependent variable $JobPostings_{it}$ is the number of job postings by firm i in year t. $treated_i$ is an indicator variable equal to one for U.S. firms and zero for U.K. firms or alternative control firms. The post indicator takes the value of one for years after the enactment of the TCJA (2018-2019) and zero otherwise.[6] We control for firm properties with vector x_{it}. Following Chen et al. (2021), these controls include size, using the natural logarithm of total assets ($SIZE_{it}$); the complexity of the firm's operating structure, using the natural logarithm of the number of segments (SEG_{it}); losses ($LOSS_{it}$); return on assets (ROA_{it}); inventory (INV_{it});

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[5] Using U.K. firms as the control group offers several advantages. First, the shared language ensures comparability of job postings. Second, while the U.S. is the largest English-speaking economy, the U.K. is the second largest, making it a relevant benchmark. Third, the age distributions in both countries are similar, with 12.5% (U.S.) and 13.6% (U.K.) of the population aged 50–59, and 10.4% (U.S.) and 10.7% (U.K.) aged 60–69. The slightly older population in the U.K. reduces the likelihood that retirement trends drive our results.

[6] The *treated* indicator variable as well as the *post* variable drop out of the model, as they are perfectly collinear with our fixed effects structure.

and leverage (LEV_{it}). We also control for firm characteristics related to tax management. We include the firm's intangible intensity (INT_{it}); investment in production, plant, and equipment (PPE_{it}); research and development expenses (RD_{it}); and the tax fees paid to the auditor scaled by total assets ($APTS_{it}$). We also include the total number of job postings of firm i in year t ($FirmJobPostings_{it}$). We define all variables in the Appendix. We report descriptive statistics for the variables of Equation 1 in Table 2.

We also control for time-invariant firm-specific properties using firm fixed effects and include year fixed effects to control for macroeconomic shocks. We use heteroskedasticity-robust standard errors clustered at the firm level in all regressions (Abadie, Athey, Imbens, and Wooldridge 2022). The explanatory variable of central interest is the interaction term $post_t * treated_i$. Hypothesis 1 predicts that the TCJA increases the demand for tax department employees and hence a positive coefficient estimate for β_1.

Our second hypothesis examines the qualifications sought in tax department personnel. To test this, we apply the following difference-in-differences regression design:

$$Qualification_{it} = \beta_0 + \beta_1\, post_t * treated_i + \beta_2\, post_t + \beta_3\, treated_i + \beta_x * x_{it} + \delta\, firm_i + \gamma\, year_t + \varepsilon_{it}. \quad (2)$$

$Qualification_{it}$ is the firm-year aggregate value of attributes estimated through a machine learning-based analysis of job postings. Required qualifications in the job postings are identified using natural language processing (NLP). Specifically, we use a pre-trained Bidirectional Encoder Representations from Transformers (BERT) language model, JobSpanBERT (Zhang et al. 2022), to analyze job descriptions.[7] This model classifies sections of job descriptions into attributes, distinguishing between knowledge, defined as fact-based content acquired through learning, and skills, defined as the ability to apply that knowledge to solve a problem or complete a task. We analyze both attributes combined in the variable

[7] The model is publicly available at the following address: https://huggingface.co/jjzha/jobspanbert-base-cased.

Qualification$_{it}$. We then cluster the identified qualifications into topics using the BERTopic clustering algorithm.

We further investigate whether firms prioritize hiring tax department employees for tax planning or tax compliance following the TCJA using Equation (3).

$$Compliance_{it} \text{ or } Planning_{it} = \beta_0 + \beta_1 post_t * treated_i + \beta_2 post_t + \beta_3 treated_i + \beta_x * x_{it} + \delta firm_i + \gamma year_t + \varepsilon_{it}. \quad (3)$$

The dependent variable *Compliance*$_{it}$ (*Planning*$_{it}$) represents the number of job postings by firm *i* in year *t* classified as tax compliance (planning) roles.[8] To construct these measures, we first use the two BERT models described above to extract and group the qualifications listed in each job posting. We then classify postings as tax compliance or tax planning roles based on the composition of these extracted qualifications. The literature highlights the influence of tax employee characteristics on tax planning. For instance, Ege et al. (2021) find that a higher employee job rank is positively associated with tax planning. Dyreng et al. (2010) show that executive managers significantly impact firms' effective tax rates. Similarly, Feller and Schanz (2017) emphasize that changes to a firm's tax planning strategy depend on the strategy's feasibility and on the tax manager's abilities and skills to implement changes. They categorize tax manager power into four dimensions—internal formal power, internal informal power, external reach, and capabilities—with "capabilities" (personal qualifications) being the most relevant for our study. Drawing from their findings, we define *expert functional knowledge* (e.g., higher education, work experience, and firm-specific expertise) and *social skills* (e.g.,

[8] To account for the possibility that an increase in tax compliance- or tax planning-related job postings per firm may simply reflect an overall rise in job postings (H1), representing a mechanical relationship, in further analyses we also scale the number of compliance- or planning-related job postings by the total number of tax-related job postings for the firm in a given year. Additionally, we construct a continuous measure to capture the balance between compliance and planning roles within each job posting. Specifically, we count the references to compliance- and planning-related topics within each posting, subtract the number of compliance-related references from the number of planning-related references, and scale the result by the total number of qualifications referenced. This process produces a value ranging from -1 (indicating pure compliance-related qualifications) to 1 (indicating pure planning-related qualifications) for each job posting. These values are then aggregated at the firm-year level. We find consistent results with these alternative measures displayed in Table 6.

communication, negotiation, and proactivity) as proxies for the qualifications required for tax planning roles (Feller and Schanz 2017).

To operationalize and validate this distinction between compliance- and planning-related qualifications, we conduct a survey of tax professionals (10) and academic tax experts (22), asking them to categorize each qualification accordingly. We use these survey responses to assign each qualification topic a weight ranging from -1 (fully tax compliance-related) to 1 (fully tax planning-related).[9] We then aggregate these weighted qualification measures at the job-posting level to classify postings as compliance- or planning-oriented.

Sample Selection

Our sample consists of firms included in the S&P 1500 as of January 1, 2018. We restrict the sample period to 2016–2019 to avoid potential confounding effects from the COVID-19 pandemic and the implementation of Brexit in 2020. We exclude highly regulated firms in the financial and insurance industries (SIC 60 to SIC 69), as well as foreign firms without U.S. headquarters from our sample.[10] We further exclude firms that offer individual tax preparation services and accounting firms, as they post disproportionately high numbers of tax-related positions that could bias the results.[11] This sample selection procedure yields a total of 4,878 firm-year observations.

Identifying tax jobs

To estimate firms' demand for tax department employees, we use the LinkUp database, which contains daily information on 275 million job postings since 2007.[12] LinkUp scrapes job postings directly from firms' websites, avoiding duplicate observations often found in data that

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9 The survey was declared as being ethically unobjectionable via IRB approval by all institutions involved.

10 Additionally, we exclude all firm-year observations with missing values for variables relevant to our analysis.

11 We specifically remove Intuit, H&R Block, Robert Half Inc., Automatic Data Processing Inc., Paycom Software Inc., as well as firms with the NAICS Codes 541213, 541211, 541219, and 541214.

12 We use job postings instead of, e.g., hand-collected LinkedIn data (Barrios and Gallemore 2024; Giese, Koch, and Sureth-Sloane 2024) or surveys (e.g., Klassen, Lisowsky, and Mescall 2017), as they enable us to examine specific qualifications of jobs and the demand for tax employees instead of matched demand and supply outcomes.

include job market platforms (Gutierrez, Lourie, Nekrasov, and Shevlin 2020; Hann, Yang, and Zheng 2023). To identify tax job postings, we first perform a keyword search with tax-related keywords across all 275 million job descriptions in the database. This initial search is intended to capture a broad set of potentially tax-related postings, but it also includes postings that mention tax-related terms without representing actual tax jobs. We therefore use a BoW approach as a second step to distinguish actual tax from nontax postings.

BoW is a common method for text categorization. It identifies and quantifies keywords within text that are most relevant for classification and represents their importance using a histogram (Zhang, Jin, and Zhou 2010). Before applying the model, it must be trained on a labeled dataset. This involves splitting the labeled data into 80% for training and 20% for testing (Mahesh 2020). The BoW model is first trained to predict categories using the training data, after which its precision is evaluated on the test dataset. Once validated, the model can be applied to unclassified data.

We use the BoW approach to classify job postings into two categories, defined as tax and nontax postings. To construct the model, we begin with the postings identified through the keyword search and manually curate subsamples of tax and nontax jobs for training and testing. The tax category includes job postings that contain the term "tax" in the job description or title. In contrast, for the nontax category, we assign postings that contain the word "tax" only once in the job description or refer solely to tax-related employee benefits (e.g., pre-tax flexible spending, tax-free, or tax benefit) as nontax jobs.[13] Following standard machine learning (Mahesh 2020) and accounting research (Guenther, Peterson, Searcy, and Williams 2023) practices, we split this curated labeled dataset into 80% training and 20% testing subsets.

The model identifies patterns within the labeled training data to distinguish between tax

[13] The keyword list includes the following terms: pre-tax flexible spending, pre-tax health savings, post-tax dollars, tax withholding, tax-free, tax free, tax benefit, pre-tax employee contribution, pre-tax.

and nontax job postings. It then applies these patterns to classify the test data, verifying the accuracy. This process is iteratively refined using different subsets to enhance the model's performance. The final model achieves a training accuracy of 96.52% and a test accuracy of 96.31%, indicating high reliability. Additional performance metrics confirm the model's high precision, including the receiver operating characteristic curve with 99% classification certainty (untabulated) and the confusion matrix (untabulated), which shows limited misclassifications. The macro-average F1-score of 93% (untabulated) further reflects the model's robustness, accounting for class imbalance between tax and nontax postings.

After the training and testing phase, we apply the final model to the unclassified data to assign the remaining LinkUp job postings to the tax or nontax category. We include all job postings classified by the BoW model with a certainty of 95% or higher as *tax* jobs in our sample and exclude postings with a likelihood of 5% or less. For job postings with classification certainty levels between 5% and 95% (approximately 70,000), we manually categorize them as tax or nontax job postings. The classification model distinguishes tax from nontax jobs based on distinct word tokens.[14] While nontax tokens are generally nonspecific, tax-related tokens (e.g., "tax," "tax returns," "tax services," "tax preparation," and "IRS") are clearly linked to tax functions and indicate the need for skills to communicate with the U.S. tax authority.

In addition to the BoW classification, we use LinkUp's O-Net taxonomy to identify tax job postings.[15] We incorporate all tax-related postings identified through this taxonomy to capture those missed by the BoW approach and remove duplicates. We further exclude VAT, intern, payroll, property, and indirect tax jobs. For our sample of S&P 1500 and FTSE All Shares Index nonfinancial firms from 2016 to 2019, we identify 13,568 tax-related postings (Table 1). For our empirical analysis, we aggregate the individual job postings at the firm-year

[14] The bag items are termed tokens because, in addition to individual words, the model can also recognize word sequences that are relevant for classifying the job postings. These relevant words and word sequences represent the tokens, which are each assigned to a relevance for the classification as a tax or nontax job.

[15] For details on the O-Net taxonomy, see https://www.onetcenter.org/taxonomy.html.

(month)-level and add firm-specific data from EIKON, Compustat, and Audit Analytics. We exclude firm-year observations with missing values for variables relevant to our analysis. 90% of the postings in our sample remain active for no longer than 140 days (untabulated), suggesting these positions are likely to be filled and indicating that we capture actual hiring. Thereby, we follow the definition of LinkUp and classify job postings active for more than 180 days as "evergreen" jobs that cannot be interpreted as actual hirings (Chen and Li 2023).[16]

Qualification requirements

After identifying tax-related job postings, we analyze their qualification requirements using the JobSpanBERT model. This model categorizes job posting requirements into two main groups: *knowledge*, referring to fact-based content acquired through learning, and *skills*, referring to the ability to apply that knowledge (Zhang et al. 2022). To reduce dimensions, we combine knowledge and skill requirements and refer to them jointly as *qualifications*. To gain insights into these qualification requirements, we cluster the JobSpanBERT results using the BERTopic model, identifying key qualification topics relevant to tax employees over time.

The BERTopic model identifies 15 qualification topics (Figure 1). Two topics emphasize traditional tax compliance tasks, such as preparing and reviewing tax returns (Topic 0: *Tax Returns*) and tax compliance itself (*Topic 5: Tax Compliance*). Additionally, technology-related qualifications such as tax technology (*Topic 8: Technology*), applying basic software (*Topic 9: Software*), and data-related tasks (*Topic 3: Data Analysis*) are prevalent.

Soft skills are also prominently featured, including leadership (*Topic 2: Team Management*), multitasking (*Topic 4: Multitasking*), problem-solving (*Topic 10: Problem-Solving*), and communication (*Topic 11: Communication).* These soft skills reflect employees in higher-level tax positions that require management skills, task coordination, and the ability

[16] When excluding the evergreen jobs in untabulated analyses, the results remain unchanged their economic and statistical significance.

to find efficient solutions for problems.

Furthermore, the BERTopic model identifies qualifications in which tax-specific knowledge is required, such as expertise in transfer pricing and accounting (*Topic 1: Transfer Pricing and Accounting*) and knowledge of tax-specific regulations (*Topic 7: Regulations*), reflecting a close connection between tax and accounting functions. International work experience (*Topic 13: Multinational*) further suggests a demand for highly skilled employees. Furthermore, the BERTopic model clusters qualifications related to company knowledge (*Topic 12: Company*) and customer service experience (*Topic 14: Customer Service*), which we exclude from further analyses, as they do not directly represent tax-related qualifications.

Figure 2 provides insights into the trends in qualification requirements for tax department employees from 2016 to 2019, illustrating how these demands evolve over time and in response to the TCJA. Several qualification topics exhibit consistently high demand throughout the sample period, such as *Transfer Pricing and Accounting (Topic 1),* with job postings for these qualifications peaking at nearly 900 per year. *Tax Returns (Topic 0)* show a steady increase over time, resulting in more than 1,000 job postings per year. *Tax Compliance (Topic 5)* significantly increases from around 200 job postings in 2015-2016 to 700 job postings in 2019. A moderate increase is also observed in *Communication (Topic 11)*, *Data Analysis (Topic 3),* and *Technology (Topic 8),* reflecting increased demand for data- and technology-driven tasks in tax departments. Other qualifications, such as *Team Management (Topic 2)*, *Multitasking (Topic 4)*, *Education (Topic 6)*[17], *Regulations (Topic 7)*, *Software (Topic 9)*, and *Problem Solving (Topic 10)*, show modest demand, with annual postings below 400.

When considering the TCJA as the treatment event, the trends in qualification topics highlight its impact on firms' hiring. In Figure 2, several qualification topics see notable

[17] 57% (7%) of the tax job postings in our sample explicitly require applicants to have a bachelor's (master's) degree. 32% these jobs require a degree in taxation, accounting, or finance. However, 64% do not specify a discipline, suggesting that firms are also hiring employees from other disciplines to meet their needs.

increases in demand following the TCJA, especially *Data Analysis (Topic 3)*, *Tax Compliance (Topic 5)*, *Technology (Topic 8),* and *Communication (Topic 11)*. These trends suggest increased demand for employees capable of handling the heightened regulatory complexity introduced during this period, underscoring the demand for technical expertise and familiarity with the new regulatory landscape. This is consistent with research that suggests firms prioritize advanced skills and knowledge when responding to regulatory shocks (Feller and Schanz 2017).

To examine the impact of the TCJA on qualification requirements, we categorize the topics into tax compliance and tax planning groups. Following Feller and Schanz (2017), social skills, such as communication, problem-solving, multitasking, and team management, are categorized under the tax planning category. Furthermore, qualifications in data analysis, transfer pricing, and regulations are categorized as tax planning-related. In contrast, technical tasks, such as tax return preparation, the use of technology and basic software, and tax compliance itself, are assigned to tax compliance. Comparing these allocations, we observe that qualifications associated with higher-level roles are more prevalent in tax planning jobs. This initial classification suggests that qualifications associated with higher-level roles are more prevalent in tax planning jobs. To refine our compliance and planning allocation, we conduct a survey and ask tax professionals (10) and academic tax experts (22) to categorize the derived qualification topics as tax compliance- or planning-related, resulting in weights between -1 (fully tax compliance-related) and 1 (fully tax planning-related) that are assigned to each qualification topic. At the job-posting level, we sum the weights of all included qualification topics and divide them by the number of qualification topics identified in the posting. The resulting score ranges from -1 to 1. We assign each job posting to planning and compliance based on a quartile threshold of this score. If the weighted sum of qualification topics in a job posting ranges from -0.25 to -1, the job posting is classified as a tax compliance posting; if it ranges from 0.25 to 1, the posting is classified as a tax planning posting. This classification of qualification topics is then used to examine changes in the demand for tax compliance and tax

planning employees following the TCJA (H2).

IV. RESULTS

Demand for tax employees (H1)

Applying a difference-in-differences research design relies on the assumption that parallel trends in the treatment and control groups would have continued absent the reform. Since we cannot test this directly, we investigate the pre-TCJA trend in treatment and control groups using an event study design (Roberts and Whited 2013). Specifically, we replace the post indicator of Equation (1) with a series of year indicators. Figure 3 Panel A displays the results with the bars depicting 90% confidence intervals and the estimated coefficients providing estimates of the differential change in the number of job postings in U.S. firms relative to U.K. firms. The coefficient estimates are indistinguishable from zero for all years before the reform, supporting the parallel trends assumption. In the post-TCJA period, we find a statistically significant increase in the demand for tax employees, providing support for H1.

We empirically test H1 using a difference-in-differences design. The corresponding results are reported in Table 3. Column (1) presents a reduced model without controls or fixed effects, whereas column (2) includes firm-level controls and industry and year fixed effects.[18] Column (3) introduces firm and year fixed effects. Column (4) adds firm-level controls, and column (5) additionally controls for the firm-year level number of overall job postings. Lastly, we include controls lagged by one year in column (6). We adopt the specification used in column (5) for all subsequent analyses.

Across all specifications, the coefficient estimates are statistically significant, indicating robust results. The column (5) coefficient of 0.6637 suggests an increased demand for tax employees of 32%, equating to 1.3 additional tax employees over two years.[19] Relative to the

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[18] We find similar results when including controls in column (1) (untabulated).

[19] Only 0.91% of the classified U.S. tax jobs are part-time jobs, underscoring the quality of the job posting data as a proxy for firm's demand for full-time tax department employees.

average pre-reform tax department size of our U.S. sample firms this represents an increase of approximately 7.3%.[20]

Figure 3 Panel A displays the time dynamics for the two-year pre- and post-TCJA period. We observe an increased demand for tax employees in the first year following the reform. While this increase is not statistically significant at conventional levels, it becomes statistically significant in the second year after the reform. This delay might reflect hiring frictions, where firms require time to interpret the reform's implications and adjust their hiring. However, there is no effect in the third year after the reform (see Figure 3, Panel B). These findings suggest the increased demand for tax employees following the TCJA is satisfied within the first two years after the tax reform.

To further examine whether this increase in demand for tax department employees reflects actual hiring, we validate our results using LinkedIn-based career data from Revelio Labs (Baker, Larcker, McClure, Saraph, and Watts 2024; Blann, Kleppe, and Moon 2024; Cai, Chen, Rajgopal, and Azinovic-Yang 2024; Blouin, Zhou, and Zhu 2025). Table 4 displays the results for the firms' Tax Department Size ($TaxDepSize_{it}$), calculated as the number of tax positions per firm-year. Column (1) includes firm-level controls and industry and firm fixed effects. Column (2) includes only firm and year fixed effects. We add firm-level controls to this model in column (3) and include firm-level controls lagged by one year in column (4). We find positive and statistically significant coefficient estimates for all specifications. The specification used in column (3) mirrors our main model specification of Table 3. The coefficient estimate of 1.90 translates into approximately 1.9 additional tax employees following the reform. This corresponds to an increase in tax department size of about 11% relative to the average pre-reform tax department size of our U.S. sample firms. The positive

[20] The average tax department size, measured by the variable *TaxDepSize*, prior to the tax reform in 2017 was 17.80.

and statistically significant effect on tax department size indicates that the rise in job postings after the TCJA reflects realized hiring rather than only greater demand that does not translate into new positions.

Table 5 examines cross-sectional differences in the demand for tax employees using a U.S.-only sample. Using a split based on firms' pre-reform multinational activity, we find that MNCs relative to domestic companies demand significantly more tax employees (column 1). We also find that firms with higher tax risk, measured by a quartile split of the standard deviation of pre-reform cash ETRs (column 2), significantly increase their job postings. Furthermore, in column (3), we use a quartile split of three-year foreign ETRs, only for multinational firms with pre-tax foreign income, to examine the effect of pre-reform international tax planning activities and find a significantly lower job postings for firms with lower foreign ETRs.[21] Finally, we find that firms with a higher pre-reform tax department performance, as measured by cash ETR adjusted for tax risk (Jacob and Schütt 2020), exhibit significantly lower demand for tax employees (column 4), suggesting that existing internal expertise mitigates the need for additional hiring in response to the TCJA Overall, these results indicate that firms with more effective in-house tax functions prior to the reform show significantly lower demands, while firms facing greater tax complexity, particularly those with more international operations, expand tax hiring in response to the TCJA. These cross-sectional tests within the U.S. subsample further alleviate concerns that our results are driven by differences between U.S. treatment firms and U.K. control firms.[22]

Given the documented increase in demand for tax department employees, we next examine whether firms face labor market frictions in filling these positions. In untabulated analyses, we use job posting duration as a proxy for hiring difficulty and estimate Equation (1)

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[21] In untabulated analyses, we use for all heterogeneity tests a median split and find similar results with exception of the foreign ETR cross-sectional test.

[22] The parallel trends assumption holds using interactions between the treatment variable and pre-period year indicators (untabulated).

with posting duration as the dependent variable. The coefficient for treatment firms in the post period is negative but insignificant, indicating that tax job postings do not remain open longer after the TCJA. This suggests that firms do not face increased difficulty hiring tax department employees in the post-reform period. To further assess potential frictions, we examine the salary ranges in tax job postings. We observe a slight but statistically insignificant increase in salary over time inconsistent with hiring frictions.[23]

Demand for tax planning and compliance skills and knowledge (H2)

To test our second hypothesis, we analyze changes in the qualifications required for internal tax department employees. Specifically, we use the qualification topics classifications generated by the JobSpanBERT and BERTopic models and examine these changes using a difference-in-differences design. Further, we replace the dependent variable in Equation (2) with the variables *Compliance* and *Planning*. These vectors represent the number of qualification topics classified as mainly compliance- or planning-related (see Section: Qualification requirements).

We observe significant post-TCJA increases in *Tax Returns*, *DataAnalysis*, and *Multitasking* (Figure 4). These findings suggest that firms emphasized hiring employees with technical expertise, including data analysis skills, broader organizational skills, and tax compliance-related qualifications following the TCJA. This indicates that analytical skills are important for navigating the complexity of tax reform, while firms still demand traditional tax compliance qualifications, such as filing tax returns.

Next, we assign the skill and knowledge topics to tax planning- and compliance-oriented job postings, as explained in the Section Qualification requirements. Using this classification, we estimate regressions based on Equation (3), with the results reported in Table 6. We find statistically significant coefficient estimates only for tax compliance job postings, indicating an

[23] Salary information is available for only 400 job postings, so these results should be interpreted with caution.

increased demand for compliance employees. To distinguish whether the observed increases in compliance postings reflect a genuine shift in the types of tax roles demanded—rather than simply mirroring the overall growth in tax job postings—we scale the dependent variables in columns (3) and (4) by the total number of tax-related postings for each firm in the respective year. We continue to observe a significant increase in scaled compliance postings and a higher demand for tax compliance employees compared to tax planning employees.

Overall, the results suggest that the demand for compliance-related qualifications increased to a greater extent compared to planning-related qualifications. This aligns with the increased regulatory complexity introduced by the reform, requiring firms to prioritize compliance capabilities within their tax departments.

Alternative channel: Auditor-provided tax services

We next examine whether firms respond to the tax complexity introduced by the TCJA by relying more heavily on external tax advisors rather than expanding internal tax capacity. Using data from Audit Analytics, we analyze changes in auditor-provided tax services (APTS) following the reform. Specifically, we analyze changes in the natural logarithm of APTS plus one (*lnAPTS*) following the TCJA (Kroeger 2024). *Hired* is an indicator variable equal to one if a firm closes more than half of its tax job postings of the respective year within 90 days.[24] In line with Kroeger (2024), we include industry and year fixed effects and a set of firm-level controls. We further control for tax planning activities using cash ETR (Lynch and Pendl 2025).

Table 7 displays the effects on APTS for hiring compared to non-hiring firms over the entire post-TCJA period in column (1) and for each post-TCJA year individually in column (2). The results in Table 7 indicate a significant decrease in tax fees paid to auditors following the reform for hiring firms (column 1). When examining the time dynamics (column 2), we find a

[24] LinkUp classifies jobs remaining online longer than 180 days as evergreen and therefore never filled jobs. 90% of the job postings included in our sample remain online not longer than 140 days. We therefore reduce the threshold for the hiring indicator to 90 days to increase the certainty that these postings reflect actual hiring.

negative and statistically significant coefficient estimate for 2019, the second year after the reform. This timing coincides with the observed increase in tax-related hiring shown in Figure 3 and is consistent with firms substituting away from auditor-provided tax services toward internal tax department employees following the TCJA. These findings suggest that some firms prioritized internal hiring and the development of firm-specific tax expertise and reduced their use of APTS.

Robustness Tests

We present robustness tests for H1 in Table 8. In column (1), we use the natural logarithm of the number of job postings to mitigate the influence of skewness in the distribution of job postings. To address the issue of serial correlation in difference-in-difference models with multiple pre- and post-periods, we follow the suggestion of Bertrand et al. (2004) and collapse all pre-reform years into one pre-period and all post-reform years into one post-period (column 2). In column 3, we report results using firm-month observations instead of firm-years. For all specifications, we find comparable effects to our baseline findings.

Additionally, we employ firm-level matching techniques to further enhance the comparability between U.S. and U.K. firms (untabulated). Specifically, we match firms based on pre-reform (2017) characteristics[25] using one-to-one propensity score matching (with replacement), one-to-five propensity score matching (with replacement),[26] and Mahalanobis-distance matching (both with and without industry restriction). The coefficient estimates are consistent with our baseline findings.

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[25] We use our baseline control variables (natural logarithm of total assets, a loss indicator variable, return on assets, leverage, intangible intensity, property, plant, and equipment, research and development expenses, inventory, natural logarithm of the number of segments, and auditor-provided tax services) as matching variables.

[26] For all propensity score matching estimations, we apply a caliper set to 0.2 times the pooled standard deviation of the logit of the propensity score, following standard practice in the accounting literature (Shipman, Swanquist, and Whited 2017).

Placebo tests

Finally, to address concerns that our findings may reflect broader economic growth trends, or growth induced by the TCJA itself, we perform three placebo tests (Table 9). Specifically, we re-estimate Equation (1) using alternative dependent variables: customer service postings, white-collar postings, and nontax job postings based on U.S. and U.K. firms drawn from our baseline sample (Table 3). In column (1), for customer service postings, and in column (2) for white-collar postings, we observe positive but statistically insignificant coefficient estimates. In column (3), for all non-tax job postings, the coefficient is positive and statistically significant, but its magnitude (19%) is substantially smaller than the 32% increase observed for tax job postings. Given that the estimated effect size for tax job postings is approximately 1.6 times larger than that for all non-tax positions, we conclude that the observed increase in tax-related postings is unlikely to be attributable solely to general economic growth. Overall, these placebo tests help mitigate concerns that broader macroeconomic trends in the treatment group, relative to the control group, drive our main findings.

Post-hiring performance

To evaluate the effects of the additional hiring after the TCJA on U.S. firms' tax department performance, we estimated the effect of hiring on several tax planning and tax risk measures (untabulated). More precisely, we compare firms that appear to have realized tax hiring with firms that do not. Specifically, we again use the indicator variable *Hired*, which equals 1 if a firm closes more than half of its tax job postings within 90 days in a given year, and 0 otherwise. The regression design is based on the model in Equation (1), but includes industry and year fixed effects, as well as firm-level controls, as in our main analyses (Table 3). We use current-year cash and GAAP ETR as proxies for tax planning, and the standard deviations of cash and GAAP ETR over three years and UTBs as tax risk proxies. We find negative but insignificant coefficient estimates for cash ETR and GAAP ETR, indicating that U.S. firms do not avoid more taxes after hiring additional tax department employees. This result

is consistent with the significantly higher demand for tax compliance employees after the TCJA in Table 6 and not an increase in tax planning investments. Furthermore, we find insignificant coefficient estimates for the three-year standard deviation of cash ETR, GAAP ETR, and UTBs, indicating no change in tax risk. This is consistent with additional tax hiring allowing firms to manage the increase in tax complexity and contain the associated tax risk (Giese, Koch, and Sureth-Sloane 2024).

V. CONCLUSION

This study examines how firms adjust their internal labor demand in response to major tax reform. Using a unique dataset of tax-related job postings, we document a significant increase in firms' demand for tax department employees following the TCJA. Specifically, we find a 32% increase in tax-related job postings, equating to approximately 1.3 additional tax department employees per firm. These results are consistent with an increase in the net marginal benefits of internal tax department employees following tax reform. This effect is concentrated in the second year after the reform, suggesting significant labor market frictions that required time to respond to the TCJA. We also find that firms demand more tax compliance qualifications in response to the TCJA, with significant increases in postings emphasizing compliance-related attributes, such as tax return preparation, multitasking, and data analysis. These findings underscore the role of regulatory complexity in shaping firms' internal capacity-building, particularly their investment in compliance-related expertise.

This study makes several contributions. First, we add to research on the effects of major tax reforms by demonstrating the associated labor demand. While prior research documents aggregate compliance costs, our analysis provides a granular view of firms' internal hiring practices and skill requirements. Second, we extend research on the TCJA by examining internal labor implications, complementing studies on the reform's effects on the demand for public accounting human capital, tax burdens, and corporate investment. Third, our study contributes to the broader literature on the costs of regulatory change by showing that the TCJA

increases internal labor demand. Although our setting focuses on the TCJA, our findings are likely relevant for other major tax reforms, which typically combine tax incentives with anti-avoidance provisions and involve complex interactions that increase firms' compliance burden.

This study is subject to several caveats. First, we cannot definitively conclude that all posted positions result in actual hires. Although supplementary analysis using LinkedIn data suggests that these positions are filled, we cannot directly observe hiring outcomes for each position. Second, we cannot identify the origin of new hires. Increased demand for tax professionals at public accounting firms (Daugherty 2025) suggests that firms may recruit from these firms, but we cannot directly observe who fills internal tax department positions. Future research may further examine these labor supply dynamics. Finally, our results may not generalize to other tax reforms, as reforms differ in their design and complexity, leading to heterogeneous cost-benefit considerations in firms' hiring decisions.

Despite these limitations, our findings have important implications for practitioners, policymakers, and educators. For firms, the results highlight the skills required to navigate increasingly complex tax environments. For policymakers, our study offers evidence on the labor costs of tax reforms, informing the debate on future tax legislation. Finally, for educators and students, our results suggest growing demand for tax expertise, emphasizing the importance of aligning curricula with the evolving labor market needs. Overall, this study demonstrates how firms adjust their internal labor strategies in response to tax reform, providing new insights into the real effects of taxation on organizational decision-making.

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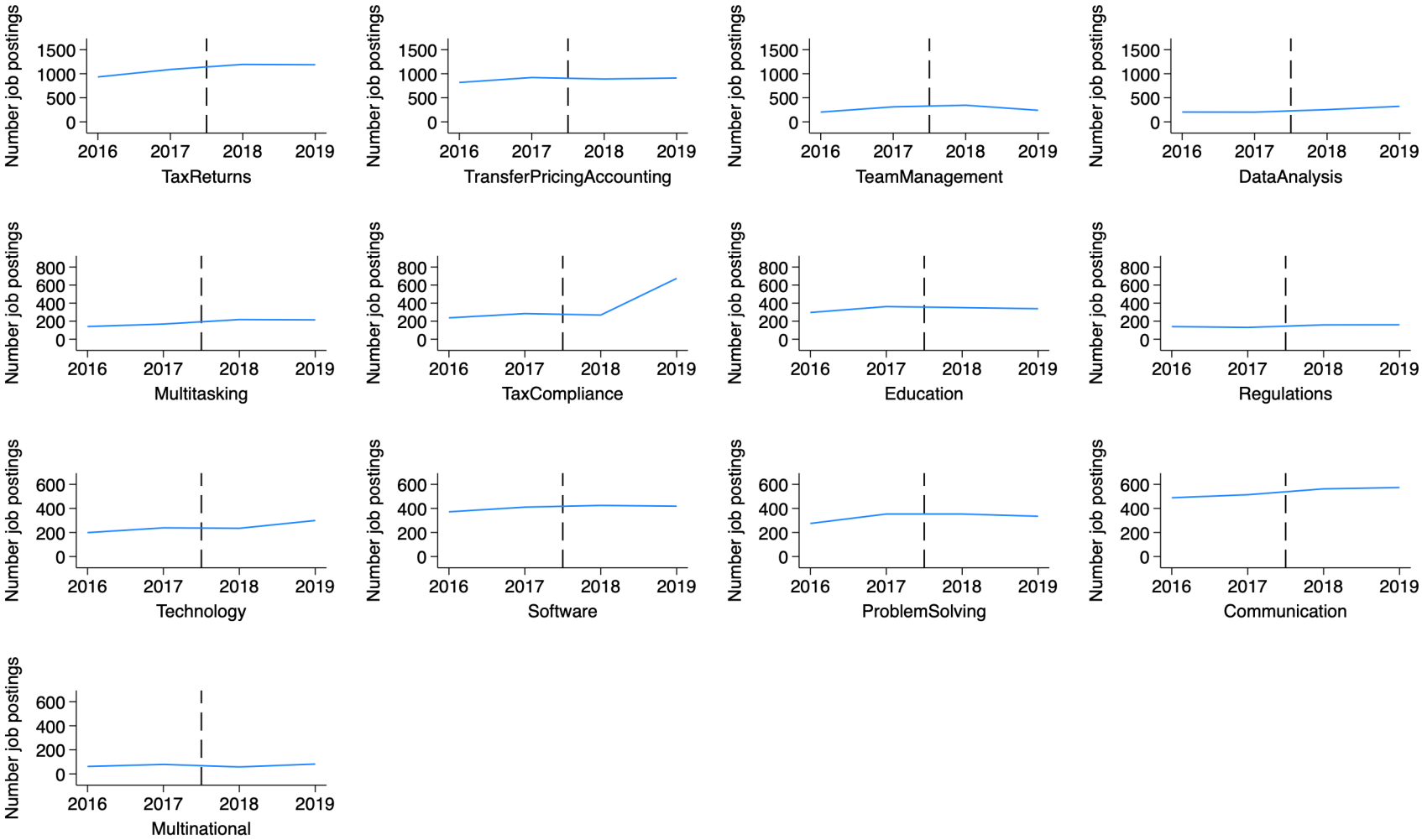
FIGURES AND TABLES

Figure 1
BERTopic Qualification Topics

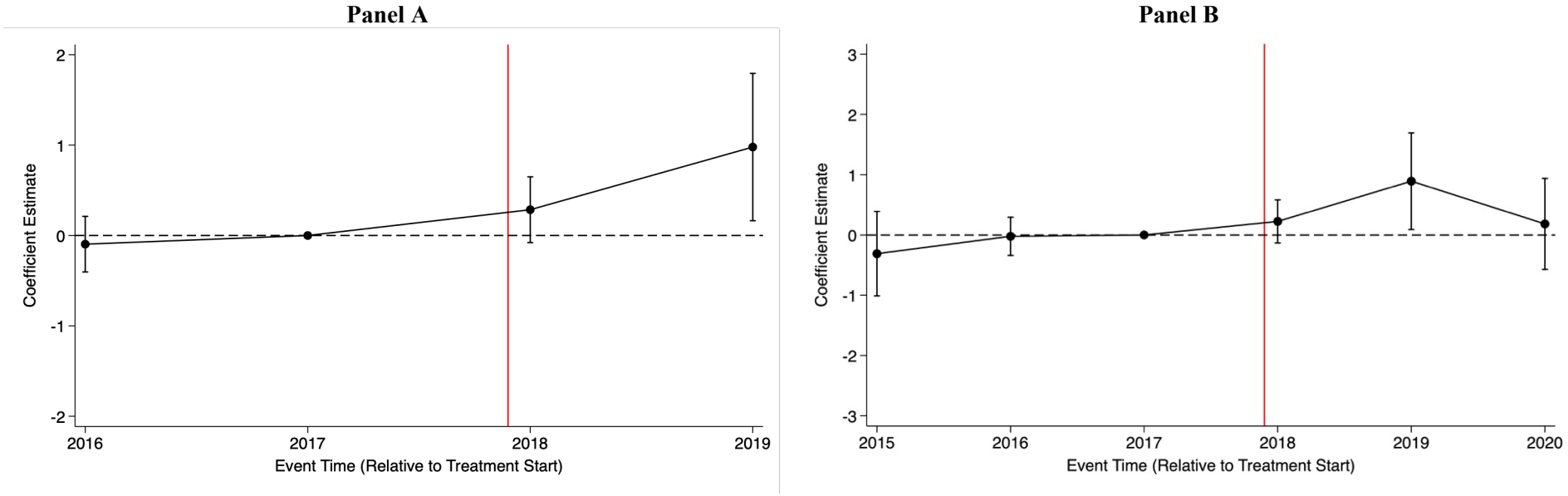
This figure presents the qualification topics of all S&P 1500 tax jobs postings using the BERTopic model. Colors are included solely to improve readability and do not convey substantive meaning. Larger font sizes indicate greater importance within the text, and words located closer to the center of a cloud are more central to the respective topic. Smaller words reflect related concepts or subthemes within the broader topic. Qualifications are identified using the JobSpanBERT model. To reduce noise, we exclude qualifications that appear fewer than 60 times.

Figure 2
Qualification Topics over Time



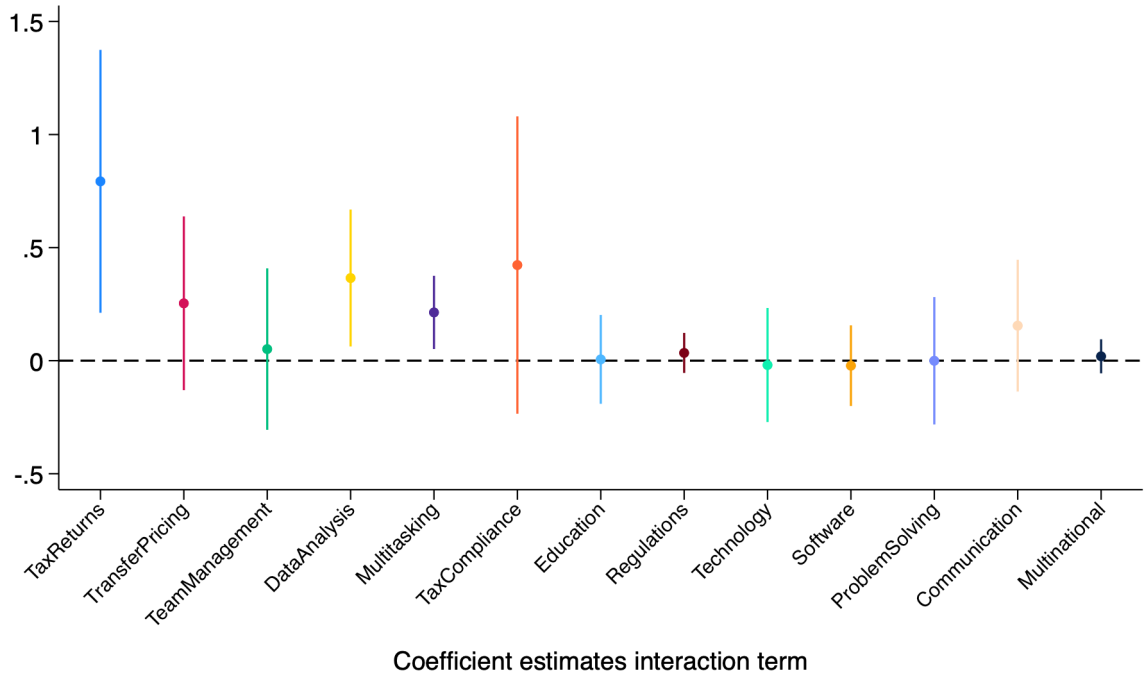
This figure shows the development of qualification topics over time. The x-axis depicts the years 2016 to 2019. The y-axis depicts the total number of job postings for the S&P 1500 firms per year for a given topic. The vertical dashed line represents the enactment date of the TCJA. We exclude the Topics Company and Service, as these topics represent no tax-related qualifications.

Figure 3
Parallel Trends Assumption



This figure presents coefficient estimates from the event-study analysis for our baseline specification, which compares job postings of non-financial U.S. S&P 1500 firms with those of non-financial U.K. FTSE All-Share firms. The figure reports annual coefficient estimates using the number of job postings as the dependent variable. Panel A (B) presents results for the two-year (three-year) period before and after the TCJA. The vertical line indicates the enactment of the TCJA.

Figure 4
Demand for Qualifications



The figure presents the coefficient estimates for the interaction term in the difference-in-differences analysis, capturing changes in the demand for qualification topics over time. The analysis uses non-financial S&P 1500 U.S. firms as the treatment group and non-financial FTSE All Shares U.K. firms as the control group. We exclude the Topics 12: Company and 14: Service, as these topics represent no tax-related qualifications. The qualification topics are ordered from left to right as follows: 0: TaxReturns (blue), 1: TransferPricing (red), 2: TeamManagement (green), 3: DataAnalysis (yellow), 4: Multitasking (grape), 5: TaxCompliance (tangerine), 6: Education (cyan), 7: Regulations (brown), 8: Technology (springgreen), 9: Software (orange), 10: ProblemSolving (stateblue), 11: Communication (bisque), and 13: Multinational (lightpink).

Table 1
Sample Selection Tax Job Postings

		Number of job postings
All LinkUp tax jobs (keyword and O-Net taxonomy)		1,328,520
Less		
VAT, intern, payroll, property and indirect tax jobs	-	222,705
Non-U.S. and non-U.K. tax jobs	-	109,391
Non-S&P 1500 and non-FTSE All Share Index, financial (SIC 60 to 69), tax preparation and accounting firms	-	982,856
Total U.S. and U.K. tax jobs within sample period		13,568
Number of firm-year observations		4,876

This table presents the sample selection for tax job postings of the non-financial S&P 1500 firms with headquarters in the U.S. and of the non-financial FTSE All Shares Index firms with headquarters in the U.K.

Table 2
Descriptive Statistics

Panel A: Full Sample

Variables	N	mean	sd	p5	p95
	Dependent Variables				
JobPostings	4,876	1.920	8.437	0	8
FirmJobPostings	4,876	3,968	21,483	0	17,184
CustomerServicePostings	4,876	166.8	2,444	0	253
WhiteCollarPostings	4,876	1,518	6,717	0	6,270
PlanningPostings	4,876	0.440	2.661	0	2
CompliancePostings	4,876	0.516	4.677	0	2
ScaledPlanningPostings	4,876	0.0880	0.247	0	0.900
ScaledCompliancePostings	4,876	0.103	0.254	0	1
TaxDepSize	4,876	15.27	30.09	0	64
	Control Variables				
Post	4,876	0.500	0.500	0	1
U.S.	4,876	0.763	0.425	0	1
AGE	4,876	9.147	0.775	7.693	10.11
APTS	4,876	0.107	0.250	0	0.479
INT	4,876	0.265	0.224	0	0.692
INV	4,876	0.105	0.131	0	0.350
LEV	4,876	0.255	0.191	0	0.595
LOSS	4,876	0.128	0.334	0	1
PPE	4,876	0.271	0.238	0.0206	0.783
R&D	4,876	0.0239	0.0478	0	0.122
ROA	4,876	0.107	0.0888	-0.01000	0.271
SEG	4,876	1.635	0.851	0	2.833
SIZE	4,876	8.043	1.625	5.588	10.90

Panel B: Sample Split	**U.K.**					**U.S.**					
Variables	N	mean	sd	p5	p95	N	mean	sd	p5	p95	
					Dependent Variables						
JobPostings	1,156	0.144	0.727	0	1	3,720	2.472	9.584	0	9	***
FirmJobPostings	1,156	630.9	4,263	0	1,564	3,720	5,005	24,388	0	21,246	***
CustomerServicePostings	1,156	0.144	0.727	0	1	3,720	218.6	2,796	0	394.5	***
WhiteCollarPostings	1,156	156.6	1,986	0	199	3,720	1,941	7,561	0	8,726	***
PlanningPostings	1,156	0.0528	0.353	0	0	3,720	0.561	3.030	0	3	***
CompliancePostings	1,156	0.0415	0.325	0	0	3,720	0.663	5.343	0	2	***
ScaledPlanningPostings	1,156	0.0230	0.138	0	0	3,720	0.108	0.269	0	1	***
ScaledCompliancePostings	1,156	0.0142	0.0996	0	0	3,720	0.130	0.280	0	1	***
TaxDepSize	1,156	3.608	8.358	0	18	3,720	18.90	33.32	0	72	***
					Control Variables						
Post	1,156	0.484	0.500	0	1	3,720	0.506	0.500	0	1,156	
AGE	1,156	9.226	0.335	8.542	9.512	3,720	9.123	0.866	7.535	1,156	***
APTS	1,156	0.0564	0.240	0	0.291	3,720	0.123	0.251	0	1,156	***
INT	1,156	0.282	0.234	0.00110	0.730	3,720	0.260	0.221	0	1,156	***
INV	1,156	0.108	0.157	0	0.374	3,720	0.105	0.122	0	1,156	
LEV	1,156	0.200	0.169	0	0.510	3,720	0.272	0.195	0	1,156	***
LOSS	1,156	0.125	0.330	0	1	3,720	0.129	0.336	0	1,156	
PPE	1,156	0.254	0.228	0.00882	0.723	3,720	0.276	0.241	0.0278	1,156	***
R&D	1,156	0.0135	0.0320	0	0.0851	3,720	0.0271	0.0513	0	1,156	***
ROA	1,156	0.110	0.0981	-0.000156	0.285	3,720	0.106	0.0857	-0.0138	1,156	
SEG	1,156	1.220	0.421	0.693	1.792	3,720	1.763	0.908	0	1,156	***
SIZE	1,156	7.358	1.646	4.843	10.36	3,720	8.256	1.559	5.919	1,156	***

This table presents descriptive summary statistics for variables used in Equations (1) to (3). *U.K.* reports statistics for the non-financial FTSE All Share firms and *U.S.* for the non-financial S&P 1500 firms.

Table 3
The Effects of the TCJA on Labor Demand

	(1) *JobPostings*	(2) *JobPostings*	(3) *JobPostings*	(4) *JobPostings*	(5) *JobPostings*	(6) *JobPostings*
Post	0.0718*					
	(1.66)					
US	1.9819***	1.1542***				
	(12.51)	(4.41)				
Post # US	**0.6827****	**0.5549****	**0.6862****	**0.7272****	**0.6637****	**0.6335****
	(2.17)	**(2.07)**	**(2.52)**	**(2.37)**	**(2.19)**	**(2.18)**
SIZE		1.2018***		0.4563	0.5698	0.4084
		(5.52)		(0.67)	(0.86)	(0.92)
AGE		0.0594				-0.4492
		(0.41)				(-1.09)
LOSS		0.1637		-0.0996	-0.1491	-0.1615
		(0.34)		(-0.31)	(-0.47)	(-0.72)
ROA		-0.2570		-2.4577	-3.4263	1.0374
		(-0.26)		(-1.13)	(-1.47)	(0.47)
LEV		-1.9921***		-0.0275	-0.0274	-1.6489
		(-2.91)		(-0.03)	(-0.03)	(-1.44)
INT		0.5152		-3.1076	-3.3485	0.7877
		(0.78)		(-1.08)	(-1.17)	(0.56)
PPE		-0.9072		-1.3533	-0.9055	2.3863
		(-0.72)		(-0.73)	(-0.51)	(1.01)
R&D		8.7062		-4.6667	-4.6806	4.6199
		(0.79)		(-1.23)	(-1.26)	(1.09)
INV		0.6144		3.3773	4.0303*	-0.2750
		(0.57)		(1.52)	(1.78)	(-0.14)
APTS		-0.2261		0.2129	0.1790	0.0243
		(-0.86)		(1.04)	(0.90)	(0.10)
SEG		-0.0686				
		(-0.24)				

FirmJobPostings		0.0000			0.0001	0.0000
		(1.38)			(1.34)	(1.17)
Effect Size (1y)	**30.93%**	**25.14%**	**31.09%**	**32.95%**	**30.07%**	**28.70%**
Effect Size (2y)	**32.65%**	**26.54%**	**32.82%**	**34.78%**	**31.74%**	**30.30%**
Fixed Effects	No	Industry & Year	Firm & Year	Firm & Year	Firm & Year	Firm & Year
Controls	No	Yes	No	Yes	Yes	Yes (lagged)
Clustering	Robust	Firm	Firm	Firm	Firm	Firm
Sample	US-UK	US-UK	US-UK	US-UK	US-UK	US-UK
Observations	4,876	4,849	4,876	4,876	4,876	4,876
Adjusted R^2	0.0147	0.0928	0.3581	0.3570	0.3653	0.3580

This table displays results for the difference-in-differences analysis of the change in the number of U.S. tax job postings before and after the enactment date of the TCJA. Non-financial S&P 1500 U.S. firms represent the treatment group, and non-financial FTSE All Shares U.K. firms are the control group. The dependent variable, *JobPostings*, is the number of tax job postings per firm per year. *U.S.* is an indicator variable equal to one for all U.S. firms and zero otherwise. *Post* is an indicator variable equal to one for all observation periods after 2017, representing the implementation period of the TCJA. See the Appendix for definitions of the control variables. We report heteroskedasticity-robust standard errors clustered at the firm level in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 4
Tax Department Size

	(1)	(2)	(3)	(4)
	TaxDepSize	*TaxDepSize*	*TaxDepSize*	*TaxDepSize*
Post # US	1.0721**	2.0121***	1.9046***	1.8718***
	(2.48)	(7.97)	(8.01)	(8.13)
Fixed Effects	Industry & Year	Firm & Year	Firm & Year	Firm & Year
Controls	Yes	No	Yes	Yes (lagged)
Clustering	Firm	Firm	Firm	Firm
Sample	US-UK	US-UK	US-UK	US-UK
Observations	4,849	4,876	4,876	4,876
Adjusted R^2	0.4074	0.9792	0.9795	0.9793

This table displays results from the difference-in-differences analysis of the change in U.S. firms' tax department size before and after the enactment date of the TCJA. Non-financial S&P 1500 U.S. firms represent the treatment group, and non-financial FTSE All Shares U.K. firms are the control group. The dependent variable, *TaxDepSize*, is the number of tax department employees per firm per year, measured by the number of positions included in the Revelio Database. *U.S.* is an indicator variable equal to one for all U.S. firms and zero otherwise. *Post* is an indicator variable equal to one for all observation periods after 2017, representing the implementation period of the TCJA. Column (1) includes industry and year fixed effects, firm-level control variables, and clustered standard errors at the firm-level. Column (2) includes firm and year fixed effects and clustered standard errors at the firm-level, column (3) adds firm-level controls, and column (4) includes firm-level control variables lagged by one year. See the Appendix for definitions of the control variables. We report heteroskedasticity-robust standard errors clustered at the firm level in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 5
Cross-Sectional Tests of the Effects of the TCJA on Labor Demand

	(1)	(2)	(3)	(4)
	JobPostings	*JobPostings*	*JobPostings*	*JobPostings*
Post # Split	0.7379*	1.6193*	-1.2457*	-1.1214**
	(1.74)	(1.72)	(-1.90)	(-2.37)
Split Variable	MNC Indicator	Quartile SDCashETR	Quartile ForeignETR	Quartile TaxDepPerf
Fixed Effects	Firm & Year	Firm & Year	Firm & Year	Firm & Year
Controls	Yes	Yes	Yes	Yes
Clustering	Firm	Firm	Firm	Firm
Sample	US	US	US-MNEs	US
Observations	3,691	3,720	2,608	3,720
Adjusted R^2	0.3589	0.3591	0.3629	0.3581

This table shows results for cross-sectional tests for non-financial S&P 1500 U.S. firms. The dependent variable, *JobPostings*, is the number of tax job postings per firm per year. Column (1) shows a multinational split based on whether a firm has foreign ETRs or pre-tax foreign income. Column (2) shows the results for a quartile split based on the standard deviation of cash ETR assets. Column (3) displays the quartile split on foreign ETRs, showing the interaction effect for the lowest quartile. We include only multinational firms with pre-tax foreign income in column (3). Column (4) represents results for a quartile split of tax department performance using the tax department performance measure of Jacob & Schütt (2020). We report heteroskedasticity-robust standard errors clustered at the firm level in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 6
The Effects of the TCJA on Tax Compliance and Tax Planning Labor Demand

	(1) *PlanningPostings*	(2) *CompliancePostings*	(3) *ScaledPlanningPostings*	(4) *ScaledCompliancePostings*
Post # US	0.1224	**0.3782***	-0.0026	**0.0193***
	(1.12)	**(1.86)**	(-0.22)	**(1.82)**
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Clustering	Firm	Firm	Firm	Firm
Sample	US-UK	US-UK	US-UK	US-UK
Observations	4,876	4,876	4,876	4,876
Adjusted R^2	0.3229	0.0880	0.2404	0.1483

This table shows the difference-in-differences results for the change in the number of tax compliance and tax planning U.S. tax job postings before and after the enactment date of the TCJA. The table represents results for non-financial S&P 1500 U.S. firms as treated and non-financial FTSE All Shares U.K. firms as control firms. Columns (1) and (2) represent the effect for the number of tax planning and tax compliance job postings, and columns (3) and (4) represent the number of tax planning and tax compliance job postings scaled by the number of tax job postings per firm. We report heteroskedasticity-robust standard errors clustered at the firm level in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 7
The Effects of the TCJA and Labor Demand on APTS

	(1) *lnAPTS*	(2) *lnAPTS*
Post # Hired	**-0.5751***	
	(-1.67)	
2018 # Hired		-0.4381
		(-1.12)
2019 # Hired		**-0.7129***
		(-1.76)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Controls	Yes	Yes
Clustering	Firm	Firm
Sample	US	US
Observations	2,753	2,753
Adjusted R^2	0.2003	0.2001

This table shows the change in *lnAPTS* for the post-TCJA period. All models include industry and year fixed effects. The dependent variable *lnAPTS* is the natural logarithm of all tax fees paid plus one to the firm's auditor. *Hired* is an indicator variable equal to 1 if a firm closes more than the half of its yearly tax job postings within 90 days. Column (1) reports results for the change in *lnAPTS* if a firm hires in the post-TCJA period (2018-2019). Column (2) shows the change in *lnAPTS* by year if a firm hires in the respective year. We report heteroskedasticity-robust standard errors clustered at the firm level in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 8
Robustness Tests

	(1)	(2)	(3)
	ln JobPostings	*JobPostings*	*JobPostings*
Post # US	0.0557**	0.7334**	0.0628**
	(2.33)	(2.32)	(2.17)
Firm FE	Yes	Yes	Yes
Year FE	Yes	No	Yes (Month FE)
Controls	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
Model	OLS	Collapsed	OLS (monthly)
Sample	US-UK	US-UK	US-UK
Observations	4,876	2,444	51,527
Adjusted R^2	0.6468	0.4803	0.1105

This table shows the robustness tests for the baseline difference-in-differences analysis for the change in the number of U.S. tax job postings before and after the enactment date of the TCJA for non-financial S&P 1500 U.S. firms, non-financial FTSE All Shares U.K. firms. The dependent variable *JobPostings* is the number of tax job postings per firm per year. *U.S.* is an indicator variable equal to one for all U.S. firms and zero otherwise. *Post* is an indicator variable equal to one for all observation periods after 2017, representing the implementation period of the TCJA. Column (1) the natural logarithm plus one of the number of firm-year tax job postings, column (2) collapses pre- and post-period following Bertrand et al. (2004), and column (3) reports results on monthly job postings. We report robust standard errors clustered at the firm level in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 9
Placebo Tests

	(1) *CustomerServicePostings*	(2) *WhiteCollarPostings*	(3) *FirmJobPostings*
Post # US	55.5472	242.1067	849.7857*
	(1.38)	(1.52)	(1.95)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
Sample	US-UK	US-UK	US-UK
Observations	4,876	4,876	4,876
Adjusted R^2	0.6359	0.8916	0.7675

This table shows placebo tests of other treatment and control designs for all firms included in the baseline U.S. vs. U.K. sample. Column (1) shows the results of the change in the number of customer service job postings. Column (2) presents the results of the change in the number of white-collar job postings, and column (3) presents the change in the number of all firm job postings (excluding tax-related postings). We report robust standard errors clustered at the firm level in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Appendix
Variable Definitions

Variables	Source	Definition
$JobPostings_{it}$	LinkUp	Number of tax job postings per firm per year.
$CompliancePostings_{it}$	LinkUp	Number of tax job postings per firm per year classified as tax compliance employees using machine learning.
$PlanningPostings_{it}$	LinkUp	Number of tax job postings per firm per year classified as tax planning employees using machine learning.
$ScaledCompliancePostings_{it}$	LinkUp	Number of tax job postings per firm per year classified as tax compliance employees using machine learning scaled by the total number of tax job postings per firm per year.
$ScaledPlanningPostings_{it}$	LinkUp	Number of tax job postings per firm per year classified as tax planning employees using machine learning scaled by the total number of tax job postings per firm per year.
$Hired_{it}$	LinkUp	Indicator variable taking the value of one for years in which the firm published and closed more than half of their job postings within 90 days and zero otherwise.
$HiredCompliance_{it}$	LinkUp	Indicator variable taking the value of one for years in which more than half of the firms' job postings are *CompliancePostings* and zero otherwise.
$HiredPlanning_{it}$	LinkUp	Indicator variable taking the value of one for years in which more than half of the firms' job postings are *PlanningPostings* and zero otherwise.
$FirmJobPostings_{it}$	LinkUp	Number of total jobs postings per firm per year.
$CustomerServicePostings_{it}$	LinkUp	Number of customer service job postings per firm per year.
$WhiteCollarPostings_{it}$	LinkUp	Number of white-collar job postings, excluding tax job postings, per firm per year.
$Qualification_{it}$	LinkUp	Machine learning-based estimated vector of sought-after qualifications per firm per year.
$lnAPTS_{it}$	Audit Analytics	Tax fees measured as natural logarithm of total tax fees plus one (TaxFees).
$Post_t$		Indicator variable taking the value of one for years after the enactment of the TCJA (2018) and zero otherwise.
$Treated_i$	EIKON/Compustat	Indicator variable taking the value of one for U.S. firms and zero for U.K. firms.
$APTS_{it}$	Audit Analytics	Auditor-provided tax services, measured by fees paid to the auditor for tax services scaled by total assets (TaxFees/AT). We set missing values for TaxFees to zero.
AGE_{it}	Compustat	Firm age, measured as the natural logarithm of age in years using the first reporting date available for that firm in Compustat.
INT_{it}	Compustat	Intangible asset intensity, measured by intangibles scaled by total assets (INTAN/AT).
INV_{it}	Compustat	Inventory divided by lagged total assets (INVT/L.AT). We set missing values for INVT to zero.
LEV_{it}	Compustat	Leverage, calculated as long-term debt scaled by total assets (DLTT/AT).
$LOSS_{it}$	Compustat	Loss indicator, equals 1 if negative pre-tax income (PI < 0) and zero otherwise.
PPE_{it}	Compustat	Capital intensity, calculated as net property, plant, and equipment scaled by total assets (PPENT/AT). We set missing values for PPENT to zero.
RD_{it}	Compustat	Research and development expense divided by lagged total assets (XRD/L.AT). We set missing values for XRD to zero.
ROA_{it}	Compustat	Return on assets, measured by earnings before interest and taxes scaled by total assets (EBIT/AT).
SEG_{it}	Compustat/ hand-collected	Firm segment complexity, measured as the natural logarithm of the number of operating (business) segments of a firm in 2017 plus one. Calculated using Compustat Historical Segment database for U.S. firms (SNMS), and hand-collected for U.K. firms from their 2017 annual reports. We set missing values to zero.
$SIZE_{it}$	Compustat	Firm size, measured as natural logarithm of total assets (AT).

Impressum:
Arbeitskreis Quantitative Steuerlehre, arqus, e.V.
Vorstand: Prof. Dr. Ralf Maiterth (Vorsitzender),
Prof. Dr. Kay Blaufus, Prof. Dr. Dr. Andreas Löffler
Sitz des Vereins: Berlin

Herausgeber: Kay Blaufus, Jochen Hundsdoerfer, Martin Jacob, Dirk Kiesewetter, Rolf J. König, Lutz Kruschwitz, Andreas Löffler, Ralf Maiterth, Heiko Müller, Jens Müller, Rainer Niemann, Deborah Schanz, Sebastian Schanz, Caren Sureth-Sloane, Corinna Treisch

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ISSN 1861-8944