Do Substance Rules Have Substance? Firm Responses to Anti-Tax Avoidance Rules*

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Abstract

How do multinational firms respond to substance rules in anti-tax avoidance provisions? We study substance-based exemptions, which have become a central feature of modern international tax regimes and allow firms to avoid additional taxation if they demonstrate economic activity in low-tax jurisdictions. Using two European regulatory changes to Controlled Foreign Company (CFC) rules, we analyze firm responses to substance rules along two margins. First, we examine whether firms use substance-based exemptions to sidestep anti-tax avoidance provisions by establishing new entities in low-tax countries. Exploiting the 2006 Cadbury Schweppes ruling, which required countries with existing CFC regimes to introduce substance-based exemptions, we find that affected multinationals increase incorporations in low-tax jurisdictions, consistent with substance rules facilitating new income-shifting opportunities. Second, we study how firms adjust real economic activity within existing low-tax affiliates using the 2016 Anti-Tax Avoidance Directive (ATAD), which introduced CFC rules with substance exemptions for previously untreated firms. We find that firms increase employment in low-tax affiliates but do not increase investment. Related subsidiaries in high-tax countries exhibit declines in employment and personnel costs, indicating reallocation within multinational groups rather than genuine expansion of economic activity. Our findings shed new light on how firms adapt when tax benefits are conditioned on economic activity.

Keywords: Substance, Anti-tax avoidance, Multinational firms, Corporate taxation

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1 Introduction

We study how multinational firms respond to substance rules embedded in anti–tax avoidance regulations. Substance rules have become a central feature of modern anti-tax avoidance policy. Across a growing number of regimes, including the U.S. Global Intangible Low-Taxed Income (GILTI) rules, Controlled Foreign Company (CFC) regulations, and the OECD's Global Minimum Tax, these provisions exempt firms from the application of anti–avoidance rules if they report sufficient economic activity (such as employees, tangible assets, and business premises) in the relevant jurisdiction. The policy rationale is that by conditioning tax treatment on real economic activity, substance requirements are intended to limit pure paper income shifting and ensure that income is taxed where economic value is created. Despite their widespread adoption as a key policy guardrail, little is known about whether substance rules generate meaningful changes in firms' real activities or whether firms instead adapt in ways that preserve tax advantages with limited changes to their real economic activities.

Substance rules fundamentally alter the incentives created by anti-tax avoidance regulations. Rather than imposing an unconditional tax penalty on income earned in low-tax subsidiaries, these rules allow firms to retain the tax advantage of locating income in such jurisdictions if the affiliate satisfies specified substance requirements. In principle, this design should discourage purely paper-based income shifting by encouraging firms to align reported income with real economic activity. In practice, however, the extent to which substance rules induce meaningful changes in real economic activity likely depends on how costly such adjustments are relative to the tax benefits at stake, as well as on how precisely substance is defined and enforced. In this paper, we examine (1) whether firms use substance requirements to circumvent anti-tax avoidance rules by establishing new entities in low-tax jurisdictions and (2) whether firms adjust real economic activity within existing affiliates in response to substance rules.

We address these questions in the context of CFC rules in the European Union (EU). CFC rules are designed to discourage income shifting by attributing the income of low-tax foreign subsidiaries to their higher-tax parent companies and subjecting that

income to immediate taxation at the parent level. This setting provides an ideal laboratory for studying firm responses to substance requirements. We exploit two distinct regulatory changes, the Cadbury Schweppes ruling in 2006 and the implementation of the Anti-Tax Avoidance Directive (ATAD) in 2016, that introduced substance-based exemptions, creating quasi-experimental variation in both the presence and application of these provisions. Together, these settings allow us to examine firm responses along two margins: the extensive margin, i.e., whether firms establish new entities in low-tax jurisdictions, and the intensive margin, i.e., how firms adjust investment and employment within existing affiliates.

To conduct our analyses, we use financial statement and ownership data from Moody's Orbis database and employ difference-in-differences research designs tailored to each setting. First, we study the Cadbury Schweppes ruling, which required existing CFC regimes to incorporate a substance-based exemption.[1] We compare incorporation patterns of multinationals headquartered in EU countries with existing CFC rules to those without such rules over the period 2002 to 2009 to test whether substance-based exemptions induce firms to expand their subsidiary presence in low-tax countries, potentially opening new avenues for income shifting. Second, we study the ATAD, which mandated the adoption of CFC rules across EU member states that had not previously applied such rules.[2] We compare investment and employment of subsidiaries of multinationals newly subject to CFC rules with substance-based exemptions to subsidiaries of multinationals already subject to such rules over the period 2012 to 2019. This setting allows us to examine which margins of adjustment firms use to meet substance thresholds and whether these adjustments reflect meaningful changes in real economic activity. To assess whether observed increases reflect genuine expansion or reallocation within multinational groups, we also analyze non-CFC subsidiaries located in high-tax countries.

[1] Because firms operating in low-tax jurisdictions prior to this ruling were likely located there for operational reasons and thus already maintained real economic activity, this setting is particularly suited to test responses along the extensive margin.

[2] This setting confronts previously unaffected firms with substance rules for the first time, making it well suited to examine responses along the intensive margin.

We first test whether substance-based exemptions induce multinationals to expand their subsidiary presence in low-tax jurisdictions. Prior research shows that firms close or relocate subsidiaries in low-tax jurisdictions when anti-tax avoidance regulations impose additional taxation (Voget, 2011; Clifford, 2019). The introduction of substance exemptions may reverse this pattern by allowing firms to obtain the tax advantages of low-tax locations if newly established subsidiaries demonstrate sufficient economic activity (Williams, 2018; De Simone and Olbert, 2022; Drake et al., 2022). If so, substance-based exemptions could open new avenues for income shifting by enabling firms to sidestep anti-tax avoidance rules that were previously binding. However, whether multinationals incorporate new subsidiaries in low-tax jurisdictions after the implementation of substance-based exemptions depends on whether the expected tax benefits exceed the costs of creating and maintaining sufficient substance.

We test this by comparing incorporation patterns of multinationals headquartered in EU countries with existing CFC rules, which were required to introduce substance-based exemptions following Cadbury Schweppes, to multinationals in EU countries without CFC rules before and after the ruling. We find that affected multinationals increase their share of incorporations in low-tax countries by 28 percent following the ruling, with no corresponding change in incorporations in high-tax countries. This suggests that substance-based exemptions make low-tax jurisdictions more attractive by providing a pathway to obtain tax advantages while avoiding CFC taxation. To provide motivational evidence on whether newly established subsidiaries meet the substance requirements, we descriptively compare investment and employment of new low-tax subsidiaries of treated and untreated multinationals. We find that new subsidiaries of treated firms exhibit higher investment and employment outcomes in the first three years after incorporation, providing suggestive evidence these entities are created with some economic activity to plausibly qualify for the exemption.

ins along which firms adjust economic activity within existing low-tax subsidiaries when confronted with substance rules. To retain the tax advantages of low-tax locations, firms must demonstrate sufficient substance in the relevant jurisdiction. How-

ever, what constitutes sufficient substance is often defined in vague terms, such as maintaining staff, equipment, assets, and premises, creating scope for different types of responses. Firms could respond by expanding investment and employment (Williams, 2018; Drake et al., 2022).However, if employment is more mobile than physical capital, and if firms prioritize lower-cost adjustments, responses may be concentrated in labor-related outcomes rather than investment. Moreover, consistent with the prediction that firms take less costly actions first (Slemrod, 1992), firms may satisfy substance requirements through reporting adjustments rather than changes in real economic activity (Bornemann et al., 2023; Chen et al., 2023).

To test these predictions, we leverage the ATAD setting, which introduced CFC rules with substance requirements across EU member states that had not previously applied such rules. We compare changes in investment and employment for newly affected subsidiaries to those already subject to substance rules before and after the ATAD's 2016 adoption. We find no significant effect on fixed assets, suggesting that firms do not respond to substance requirements by expanding investment. In contrast, we find positive effects on employment outcomes. The number of employees increases modestly, though this effect is not robust across all specifications. Personnel costs, however, increase substantially and consistently among affected low-tax subsidiaries. The stronger response in personnel costs relative to headcount suggests that firms may comply with substance requirements through more mobile and thus less costly labor-related adjustments, potentially including reporting responses, rather than through broad-based expansions of real economic activity. To assess whether substance requirements generate new economic activity or instead induce reallocation within multinational groups, we also examine non-CFC subsidiaries belonging to the same parent companies but located in high-tax countries. We find opposite effects for these subsidiaries, with declines in personnel costs and employment counts, indicating that the increases observed in low-tax subsidiaries do not reflect an overall expansion of economic activity but rather a reallocation within the multinational group.

The benefits of qualifying for a substance exemption should be greater for sub-

sidiaries facing larger tax differentials between parent and host countries, for those with a higher share of passive income subject to CFC taxation, and for those with lower pre-existing levels of substance. Consistent with our main results, we find no heterogeneous effects on fixed assets across any of the subsamples. In contrast, employment and personnel costs increase significantly among subsidiaries facing larger tax differentials, those with higher passive income shares, and those with lower pre-existing substance, while effects for the complementary subsamples are small and insignificant. These patterns reinforce the interpretation that firms with the strongest incentives to qualify for the exemption respond most, and that their responses are concentrated in labor-related margins rather than capital investment.

Taken together, our evidence indicates that firms use substance-based exemptions to avoid additional taxation. At the extensive margin, substance rules attract new incorporations in low-tax jurisdictions. At the intensive margin, firms respond primarily through employment-related adjustments rather than capital investment. This pattern is consistent with labor being more mobile and less costly to adjust than physical capital and suggests that firms may satisfy substance requirements through targeted labor-related adjustments rather than broad-based economic activity expansion. Moreover, the opposite effects we observe for non-CFC subsidiaries in higher-tax countries indicate that firms reallocate reported activity within the multinational group rather than expanding overall economic activity. Cross-sectional analyses reinforce this interpretation, showing that responses are concentrated among subsidiaries with stronger incentives to qualify for the exemption and are driven by labor-related adjustments rather than investment.

Our study contributes to the literature on the real effects of anti-tax avoidance regulations and responds to recent calls for research on how firms adapt to these rules (Jacob, 2022; Lester and Olbert, 2025). While previous work has examined firm responses to various anti-tax avoidance measures, such as interest deduction limitations, CFC rules, and general anti-abuse provisions (Clifford, 2019; Bilicka et al., 2022; Cowx and Kerr, 2024), we focus specifically on substance rules, which have become a cen-

tral design feature across multiple regimes but remain largely unstudied. We provide the first systematic evidence on how firms respond to substance-based exemptions embedded in anti-tax avoidance rules. Our findings reveal that substance requirements change firm behavior in ways that differ from traditional anti-avoidance rules. Earlier studies document that firms respond to CFC rules by closing or relocating subsidiaries (Voget, 2011; Clifford, 2019).We show that the introduction of substance-based exemptions reverses this pattern: firms increase incorporations in low-tax jurisdictions and adjust activity within existing affiliates to preserve tax advantages.However, these adjustments occur primarily through labor-related margins rather than capital investment, consistent with employment being more mobile and less costly to adjust (Slemrod, 1992; Giroud and Rauh, 2019). Moreover, we find that economic activity declines among related high-tax affiliates, indicating that substance requirements induce reallocation of reported activity within multinational groups rather than expansion of real economic activity.

Second, we contribute to understanding how firms respond to tax regulations that tie benefits to economic activity. Prior research highlights the role of foreign employment in enabling income shifting (Williams, 2018; Drake et al., 2022) and documents that firms respond to activity-based tax rules through labor-related adjustments (De Simone and Olbert, 2022; Bornemann et al., 2023; Chen et al., 2023; Cabral et al., 2025). We extend this literature by showing that when firms can avoid the application of anti-tax avoidance rules by complying with substance requirements, firms respond primarily through labor-related adjustments. While personnel costs increase substantially and persistently, headcount increases only modestly, suggesting that firms comply with substance requirements without undertaking meaningful changes to real economic activity.

Our study is relevant to tax authorities and policymakers designing anti-tax avoidance regimes. While our empirical analysis focuses on CFC rules, the findings apply to any regime that conditions tax treatment on economic activity thresholds. Our evidence offers three insights. First, substance-based exemptions can reverse the deter-

rent effects of traditional anti-avoidance rules by retaining existing affiliates and attracting new incorporations in low-tax jurisdictions. Second, firms respond to substance requirements primarily through employment-related adjustments rather than investment, suggesting greater mobility and lower adjustment costs of labor relative to capital. Policymakers seeking to encourage investment through substance-based provisions may need to consider additional incentives or more specific requirements. Third, because increases in activity in low-tax affiliates are accompanied by declines in higher-tax affiliates, substance requirements may induce reallocation within multinational groups rather than net increases in economic activity.

2 Background and Predictions

2.1 Substance Rules in CFC Provisions

Substance requirements serve as a policy guardrail in a wide range of anti-tax avoidance regimes, including the U.S. GILTI rules, CFC regulations, and the OECD's global minimum tax. Broadly, substance rules exempt firms from the application of anti-tax avoidance provisions when sufficient real economic activity can be demonstrated. Their purpose is to target arrangements that are primarily designed for income shifting rather than for genuine economic reasons. In practice, substance is defined in terms of investment and employment, as under GILTI and the Global Minimum Tax, or more loosely as the presence of "people, premises, assets, and risks" in the context of CFC rules (OECD, 2015). Importantly, substance requirements differ in their design. While GILTI and the Global Minimum Tax apply percentage-based carve-outs tied to assets and payroll, which provide clear and verifiable thresholds, CFC regimes generally exempt an entity from the application of the rules altogether if sufficient substance can be demonstrated. The absence of precise thresholds in CFC regimes leaves substantial discretion in determining what constitutes sufficient substance, potentially allowing firms to satisfy substance requirements with limited real economic activity.

In this paper, we focus on substance rules within CFC provisions in the EU for three reasons. First, CFC rules have become an increasingly important policy instrument

against corporate tax avoidance worldwide and are implemented across a wide range of countries. Second, CFC regimes rely on comparatively vague substance concepts, which may be particularly susceptible to strategic responses aimed at meeting minimum substance requirements while continuing to facilitate income shifting. Third, two major regulatory changes in the EU provide well-defined institutional settings to study firms' responses to substance requirements: the mandatory introduction of substance-based exemptions following the Cadbury Schweppes ruling in 2006 and the mandatory implementation of CFC rules with substance requirements under the ATAD in 2019.

CFC rules aim to deter multinationals from shifting income from high-tax to low-tax countries by immediately taxing the profit of a foreign subsidiary in the country of the parent company if two conditions are fulfilled. First, the subsidiary must be controlled by the parent company, typically defined as direct or indirect majority ownership of voting rights, capital, or profit entitlements. This control criterion ensures that CFC rules apply only to entities whose decisions can be influenced by the parent and that can therefore be used for profit-shifting purposes. Second, the subsidiary must be considered low-tax. Low taxation is defined either relative to the parent country's domestic tax level, as an explicit statutory CIT rate threshold, or through blacklists classifying countries as low-tax for CFC purposes.

If the two conditions are satisfied, the subsidiary is classified as a CFC, and its passive income is attributed to the parent company. EU countries differ in their definitions of passive income, with some targeting specific categories such as dividends, interest, or royalties, while others apply broader concepts based on non-genuine arrangements. Upon attribution, the passive income of the low-tax subsidiary is taxed at the parent company's higher CIT rate, with foreign taxes paid being credited. Economically, CFC rules impose a tax penalty on profit shifting equal to the tax rate differential between the parent company's home country and the subsidiary's host country.

Substance-based exemptions became a mandatory feature of EU CFC regimes following the 2006 Cadbury Schweppes decision of the European Court of Justice. In this landmark ruling, the Court held that, within the European Economic Area (EEA), CFC

rules may only be applied to wholly artificial arrangements, such as letter-box companies (Bräutigam et al., 2017). Subsidiaries engaged in genuine economic activity therefore fall outside the scope of CFC taxation. As a result, the eleven EU countries with CFC rules in force at the time were required to amend their legislation to incorporate substance-based exemptions for EEA subsidiaries, rendering CFC rules inapplicable to low-tax EEA subsidiaries that conduct real economic activity.[3]

The second large-scale introduction of substance rules occurred with the adoption of the ATAD in 2016, which required the fifteen EU member states without existing CFC regimes to implement CFC rules with substance-based exemptions by the end of 2018.[4] The directive grants EU countries discretion to choose between two alternative CFC models. One model explicitly exempts EEA subsidiaries that carry out "substantive economic activities" (Article 7 (2) (a) ATAD), while the other incorporates the substance requirement implicitly by limiting the application of CFC rules to income arising from "non-genuine arrangements established primarily for the purpose of securing a tax advantage" (Article 7 (2) (b) ATAD). Both approaches define substance in terms of staff, equipment, assets, and premises, with particular emphasis on the integration of meaningful people functions capable of exercising control over the relevant activities. Although these criteria aim to exclude economically substantive activity from CFC taxation, they remain loosely defined, leaving substantial scope for interpretation by both tax authorities and firms.

2.2 Firms' Responses To Substance Rules

Substance requirements fundamentally change the incentives created by anti-tax avoidance provisions. Without substance requirements, CFC regimes impose a tax penalty on income earned in low-tax countries, significantly raising the effective tax rate of affected subsidiaries and thus reducing the incentive to locate affiliates in low-tax countries. Consistent with this mechanism, prior literature documents that firms respond to CFC rules by closing or relocating subsidiaries in low-tax countries and re-

[3] Table 1 provides an overview of the countries that had CFC rules in force in 2006 and were therefore affected by the Cadbury Schweppes ruling.

[4] Table 1 shows the countries that implemented CFC rules with substance-based exemptions for the first time.

ducing overall investment in affected countries (Voget, 2011; Clifford, 2019; Egger and Wamser, 2015).

Substance-based exemptions modify this incentive structure by conditioning the application of the anti-tax avoidance rule on the absence of genuine economic activity. Rather than facing an unconditional tax penalty, firms can preserve the tax advantages of low-tax subsidiaries if they meet the relevant substance criteria. In principle, this design should discourage purely paper-based income shifting and encourage firms to align reported income with real economic activity. However, substance-based exemptions may also create new margins of adjustment that enable firms to avoid CFC taxation. While prior evidence suggests that income shifting increased following the mandatory integration of substance-based exemptions into CFC rules (Schenkelberg, 2020), existing studies do not examine how firms satisfy substance requirements in order to avoid CFC taxation. Whether substance requirements generate meaningful real economic activity or instead facilitate the circumvention of anti-tax avoidance provisions remains an open empirical question. [5]

We examine firms' responses to substance requirements along two margins. First, we study the extensive margin by testing whether substance-based exemptions affect firms' decisions to establish subsidiaries in low-tax jurisdictions. Second, we analyze the intensive margin by examining how firms adjust real economic activity within existing low-tax subsidiaries when they become subject to CFC rules with substance-based exemptions. Together, these two margins allow us to assess the overall effectiveness of substance-based exemptions in anti-tax avoidance policies.

Our first hypothesis examines whether the introduction of substance rules increases the attractiveness of low-tax countries as locations for new subsidiaries. Prior research shows that CFC rules without substance-based exemptions reduce the incentive to locate subsidiaries in low-tax countries (Voget, 2011; Barrios et al., 2012; Clifford, 2019). If firms can avoid CFC taxation by demonstrating sufficient economic activity, low-tax countries may again become attractive for new incorporations. In particular, firms may

[5]Reflecting these concerns, policymakers and tax authorities raised early concerns that substance rules could create a safe harbor for tax planning within the EU following their initial introduction source.

find it profitable to establish new subsidiaries if doing so allows them to shift income while meeting substance requirements. Accordingly, we formulate our first hypothesis as follows:

Hypothesis 1: The introduction of substance requirements into CFC provisions increases the likelihood that MNEs establish subsidiaries in low-tax countries.

The Cadbury Schweppes ruling provides an ideal setting to test Hypothesis 1. Prior to the ruling, EU countries with CFC regimes in place did not provide for substance-based exemptions. As a result, multinationals headquartered in these countries had limited incentives to use subsidiaries in low-tax countries for income shifting, since passive income earned by such subsidiaries was subject to CFC taxation at their parent companies' higher tax rate. Consequently, subsidiary incorporations in low-tax countries were likely driven primarily by real economic considerations. Following the ruling, all EU countries with CFC regimes introduced substance-based exemptions, thereby creating incentives for multinationals to establish subsidiaries in low-tax countries for income shifting purposes, provided that these subsidiaries satisfy minimum substance requirements.

Our second hypothesis examines how firms adjust economic activity within existing low-tax subsidiaries when CFC rules with substance exemptions are introduced. To preserve tax advantages, affected firms may increase reported substance to qualify for the exemption and avoid CFC taxation. Prior literature documents that firms respond to anti-tax avoidance regulations by reallocating investment and employment from low-tax entities (Suárez Serrato, 2019; de Mooij and Liu, 2021; Bilicka et al., 2022), and that substantiating operations enables firms to retain the benefits of reporting income in low-tax countries (Williams, 2018; De Simone and Olbert, 2022; Drake et al., 2022). Following this literature, we expect firms to respond to substance-based exemptions by increasing economic activity in affected subsidiaries:

Hypothesis 2: The introduction of CFC rules with substance requirements increases economic activity in low-tax subsidiaries.

If employment is more mobile than physical capital, we would expect stronger responses in labor-related outcomes than in investment. Prior evidence suggests that labor adjustments may be less costly and faster to implement than changes in physical capital (Giroud and Rauh, 2019; De Simone and Olbert, 2022). Moreover, Slemrod (1992) argues that firms respond to tax incentives by taking less costly actions first. Applied to substance requirements, this suggests that firms may satisfy formal requirements through cost-efficient adjustments, such as increasing reported labor expenses, before undertaking more costly changes like expanding investment. This type of response may be especially feasible when substance definitions are vague, as is the case under CFC regimes, where substance is defined loosely in terms of staff, equipment, assets, and premises. We therefore examine multiple dimensions of economic activity, including fixed assets, headcount, and personnel costs, to assess how firms respond to substance requirements.

The ATAD setting is well suited to test Hypothesis 2. Several EU countries implemented CFC rules with substance-based exemptions for the first time as part of the ATAD. Prior to implementation, multinationals headquartered in these countries could use low-tax subsidiaries for income shifting purposes without being subject to CFC taxation. Following the introduction of CFC rules, the passive income of low-tax subsidiaries became subject to CFC taxation unless the subsidiaries satisfied the applicable substance requirements, thereby creating incentives for multinationals to increase real economic activity within these subsidiaries.

Despite our predictions, we may not observe the expected responses for at least two reasons. First, establishing and substantiating a new subsidiary involves costs, including administrative expenses, compliance costs, and the need for real business operations. Whether multinationals incorporate new subsidiaries in low-tax jurisdictions therefore depends on whether the expected tax benefits exceed the costs of creating and maintaining sufficient substance. When costs are relatively high, firms may choose not to establish new low-tax subsidiaries even when substance-based exemptions are available. Second, along the intensive margin, responses may vary across adjustment

margins depending on relative costs. If employment is more mobile and less costly to adjust than physical capital, we would expect employment-related outcomes to respond more strongly than investment. Moreover, if firms can satisfy formal requirements through increases in reported labor expenses without proportionally expanding their workforce, the effect on personnel costs may exceed the effect on headcount.

3 Research Design and Data

3.1 Empirics

We test our predictions on firms' responses to substance requirements using two tailored difference-in-differences designs. The Cadbury Schweppes ruling and the ATAD constitute two quasi-exogenous changes in the application of substance requirements within CFC regimes that allow us to identify distinct margins of adjustment. As discussed in Section 2.2, we examine multinationals' incorporation decisions in the Cadbury Schweppes setting and analyze changes in subsidiaries' economic activity in the ATAD setting.

Incorporations in the Cadbury Schweppes Setting

To examine firm responses along the extensive margin, we compare the number of newly incorporated subsidiaries of multinationals affected by the Cadbury Schweppes ruling in 2006 to those of multinationals that were not affected by the judgment. The treatment group consists of multinational groups headquartered in the eleven EU countries that already had CFC rules in place in 2006 and had to introduce substance-based exemptions due to the ruling. In contrast, multinational groups headquartered in the 17 EU countries without CFC rules in 2006 were not affected by the ruling and serve as the control group.[6] Because the ruling altered incentives specifically with respect to subsidiaries in low-tax countries, our analysis focuses on incorporations of subsidiaries that are low-tax and therefore classified as "CFC." Subsidiaries in higher-tax countries that fall outside the scope of CFC rules are classified as "non-CFC" and serve as a benchmark.

To estimate the incorporation response, we employ a Poisson pseudo maximum

[6] Table 1 provides an overview of the countries in the treatment and control group.

likelihood (PPML) model as recent econometric evidence suggests that PPML regressions are particularly suited for underlying count variables (Santos Silva and Tenreyro, 2006; Cohn et al., 2022; Chen and Roth, 2023; Wooldridge, 2023)). Our underlying outcome variable, the number of (non-)CFC incorporations, is likely to be nonlinear and characterized by a large proportion of zero values. We include an exposure variable, the total number of incorporations, to examine the effect on the share of (non-)CFC incorporations.[7]

For multinational group g located in home country m in year t, we estimate the following regression equation:

$$\begin{aligned}(Non-)CFC\ Incorporations_{g,m,t} = exp(\beta_1 \times (CS\ Treat_m \times CS\ Post_t) + \\ \gamma_1 \times W_{g,t-1} + \gamma_2 \times W_{m,t} + \lambda_g + \omega_t) + \varepsilon_{g,m,t}\end{aligned} \tag{1}$$

The outcome variable is the share of (non-)CFC incorporations in total incorporations at the MNE-year level. $CS\ Treat_m$ equals one for multinational groups headquartered in EU countries that already had CFC rules in place prior to the Cadbury Schweppes ruling and zero otherwise. $CS\ Post_t$ equals zero for the years 2002 to 2005 and one for the years 2006 to 2009. $W_{g,t-1}$ denotes lagged, time-varying group-level control variables, while $W_{m,t}$ captures time-varying home country characteristics. Following prior literature, we control for the statutory CIT rate and gross domestic product (GDP) at the home country level (Markle and Robinson, 2012; De Simone and Olbert, 2022)). To account for group-level characteristics, we control for consolidated leverage, total assets, and the number of employees. Moreover, the specifications contain multinational group fixed effects (λ_g) to control for time-invariant unobserved group heterogeneity. We also include year fixed effects (ω_t) to account for aggregate time trends.[8] The coefficient of interest, β_1, captures the differential effect on multina-

[7] In Poisson regressions, the effects are proportional and can be interpreted as semi-elasticities. The Poisson model can be solved using the natural logarithm $log(Y) = \alpha + \beta X + \epsilon$. The effect of a unit change can then be expressed in log-units of the dependent variable. The implied estimate of the proportional treatment effect is $(exp(\beta_1) - 1) * 100$. When an exposure variable is added, Poisson regressions estimate the semi-elasticity of the rate of outcome per unit of exposure.

[8] In a robustness check, we also include industry-year fixed effects to absorb differential time trends across industries.

tionals' share of (non-)CFC incorporations between pre- and post-reform periods for the treatment group relative to the control group. In line with Hypothesis 1, we expect β_1 to be positive for CFC incorporations.

Economic Activity in the ATAD Setting

To study responses along the intensive margin, we examine how already established subsidiaries adjust their economic activity following the introduction of CFC rules with substance-based exemptions under the ATAD. Although the ATAD mandated CFC provisions to enter into force at the end of 2018, firms were informed about the forthcoming rules with the ATAD proposal in January 2016 and the final adoption in July 2016. We therefore designate 2016 as the initial treatment year to capture anticipatory adjustments.[9]

The treatment group consists of subsidiaries belonging to multinational groups headquartered in twelve EU countries that newly implemented CFC rules in response to the ATAD. The control group comprises subsidiaries of multinational groups headquartered in nine EU countries that already had CFC rules in place prior to the ATAD.[10] We conduct all analyses separately for low-tax CFC subsidiaries and higher-tax non-CFC subsidiaries.

For subsidiary i located in host country s in year t, we estimate the following PPML regression equation:[11]). We calculate the estimated treatment effect as $(exp(\beta_1) - 1) * 100$.

$$\begin{aligned} Economic\ Activity_{i,t} = exp(\beta_1 \times (ATAD\ Treat_{s,m} \times ATAD\ Post_t) + \\ \gamma_1 \times W_{i,t-1} + \gamma_2 \times W_{s,t} + \lambda_i + \omega_t) + \varepsilon_{i,s,t} \end{aligned} \tag{2}$$

The outcome variables include unconsolidated fixed assets, number of employees, and costs of employees of (non-)CFC subsidiaries. The treatment indicator $ATAD\ Treat_{s,m}$

[9] We support this choice by conducting a media coverage analysis with Factiva, which highlights the spike in newspaper attention throughout 2016 (see Appendix Figure 1).

[10] Although some of these countries amended their existing CFC provisions at the end of 2018, the legislative changes made, e.g., the extension of CFC rules to permanent establishments, are only of minor relevance for the dependent variables considered in our analyses and are assumed to have a negligible effect. See Table 1 for an overview of the countries in the treatment and control group.

[11] Poisson regressions are well-suited even when the outcome variable is continuous (**?**)antossilva2011,cohn2022,wooldridge2023

equals one for subsidiaries that became subject to CFC rules with substance-based exemptions for the first time due to the ATAD and zero for subsidiaries already subject to such rules prior to the reform. The indicator variable $ATAD\ Post_t$ equals zero for the years 2012 to 2015 and one for the years 2016 to 2019. We include lagged, time-varying subsidiary control variables ($W_{i,t-1}$) and time-varying host country control variables ($W_{s,t}$). As host country controls, we include GDP and the statutory CIT rate (**?**)chenkelberg2020). To account for subsidiary size, we control for the number of employees when examining fixed assets and for total assets when examining employment outcomes. To absorb unobserved time-invariant subsidiary- and time-specific trends, we include subsidiary (λ_i) and year (ω_t) fixed effects. The coefficient of interest, $beta_1$, captures the differential change in economic activity for treated subsidiaries relative to control subsidiaries between the pre- and post-reform periods. Consistent with Hypothesis 2, we expect β_1 to be positive for CFC subsidiaries. If employment is more mobile and easier to adjust than physical capital, we would expect stronger responses in labor-related outcomes than in investment

3.2 Sample Construction

To analyze firms' responses to substance-based exemptions within CFC regimes, we construct separate samples for the two institutional settings using data on European multinationals and their subsidiaries. For both samples, we rely on firm-level data from the Orbis database provided by Moody's. Orbis combines financial statement and industry information with detailed ownership data, which allows us to identify whether a subsidiary is controlled by a parent through direct or indirect majority ownership. Our analysis focuses on the relationship between each subsidiary and its global ultimate owner, defined as the highest-ranking shareholder in the ownership chain holding a majority stake. We retrieve annual historic ownership data for the years 2012 to 2019. For the Cadbury Schweppes sample, we follow prior literature (Clifford, 2019; Schenkelberg, 2020; Prettl, 2017) and rely on a snapshot of ownership information from 2012.[12] In contrast, for the ATAD setting, we observe ownership links throughout the

[12]We rely on an ownership snapshot because complete annual ownership histories are not available for the full sample period of the Cadbury Schweppes setting. This approach assumes that ownership

entire sample period, which allows us to ensure that subsidiaries included in the analysis do not experience ownership changes over time.

The sample used to analyze incorporation responses in the Cadbury Schweppes setting is constructed at the multinational-year level and spans the years 2002 to 2009. For each multinational group, we identify all worldwide subsidiaries existing at the end of the sample period, their incorporation dates, and the statutory CIT rates applicable in their host countries. Based on this information, we compute the total number of newly incorporated subsidiaries in each MNE-year, as well as the subset located in the EEA and classified as CFC or non-CFC. We additionally merge consolidated financial and industry information and restrict the sample to MNE-year observations with non-missing total assets.

To examine economic activity responses in the ATAD setting, we use a subsidiary-year sample for the period 2012 to 2019 and focus on CFC and non-CFC subsidiaries located in the EEA. We merge unconsolidated financial data and industry classifications and retain only observations with available total asset information. Because our analysis targets adjustment responses of subsidiaries that were already established prior to the ATAD and continued to operate thereafter, we restrict the sample to subsidiaries with at least one observation in both the pre- and post-treatment periods. To examine whether any observed increases in economic activity at CFC subsidiaries reflect genuine expansion or reallocation within multinational groups, we also retain non-CFC subsidiaries belonging to the same parent companies but located in higher-tax countries.

Central to our analysis is the classification of subsidiaries as CFC or non-CFC. In addition to being controlled, CFC status requires that a subsidiary is subject to low taxation. We define host countries as low-tax if their statutory CIT rate falls below the applicable CFC tax threshold of the multinational's home country or if they offer a preferential income tax regime. Consistent with De Simone and Olbert (2022), we identify Cyprus, Ireland, Luxembourg, Malta, the Netherlands, and Switzerland as

structures observed in 2012 reasonably approximate those prevailing during the sample period.

countries offering such preferential regimes. In addition, we account for black and white lists where applicable. Subsidiaries in higher-tax countries that fall outside the low-tax threshold of the multinational's home-country CFC rules are classified as "non-CFC". Table 1 summarizes the applicable tax thresholds across EU countries for the Cadbury Schweppes and ATAD settings as of 2006 and 2019, respectively.

In the Cadbury Schweppes setting, tax thresholds are observable only for multinationals headquartered in countries with CFC regimes, which constitute the treatment group. We therefore apply the same classification of low-tax and higher-tax host countries to multinationals headquartered in countries without CFC rules, which form the control group. In contrast, in the ATAD setting, all EU home countries have CFC regimes in place, which allows us to determine home-country–specific sets of low-tax host countries for all multinationals.

We compile information on the MNEs' home countries and the subsidiaries' host countries from various sources. Worldwide statutory CIT rates are hand-collected from the OECD[13], the Tax Foundation[14] and EY. Countries' GDP is drawn from the World Development Indicators Database of the World Bank[15], and converted from current USD to EUR using the annual average exchange rates published by Eurostat.[16]

3.3 Descriptive Statistics

Table 2 presents descriptive statistics for both the Cadbury Schweppes sample (Panel A) and the ATAD sample (Panel B), with the latter further disaggregated into CFC and non-CFC subsidiaries. The Cadbury Schweppes sample comprises 56,571 MNE-year observations drawn from 12,878 distinct multinational groups. On average, multinationals incorporate 0.36 subsidiaries per year, of which 0.05 are classified as CFCs and 0.30 as non-CFCs. This corresponds to an average share of CFC (non-CFC) subsidiaries in total subsidiaries of 13.14% (81.62%).

The subsidiary-level sample includes 55,838 CFC subsidiary-year observations, rep-

[13]OECD, https://stats.oecd.org/Index.aspx?DataSetCode=CTS_CIT (20.05.2024).
[14]Tax Foundation, https://files.taxfoundation.org/20211208141411/1980-2021-Corporate-Tax-Rates-Around-the-World.xlsx (10.03.2022).
[15]World Bank, https://databank.worldbank.org/source/world-development-indicators (20.05.2024).
[16]Eurostat, https://ec.europa.eu/eurostat/web/exchange-and-interest-rates/database (20.05.2024).

resenting 13,638 distinct subsidiaries. These observations are distributed across 22 low-tax EEA host countries, as shown in Table **??**, with the largest shares located in Bulgaria, Hungary, Romania, and the United Kingdom. By comparison, non-CFC subsidiaries account for 3,043,860 subsidiary-year observations spanning 644,401 unique subsidiaries. The substantially larger number of non-CFC observations reflects the distribution of the national low-tax thresholds. For most subsidiaries, host-country tax rates exceed the low-tax threshold defined by the parent companies' home countries, which places them outside the scope of CFC rules. As a result, the sample contains substantially more non-CFC than CFC subsidiaries.

As shown in Panel B of Table 2, CFC subsidiaries hold, on average, 8.06 mio. EUR in fixed assets, employ 76.96 workers, incur 2.79 mio. EUR in employee costs, and face a statutory CIT rate of 17.92%. In contrast, non-CFC subsidiaries report average fixed assets of 2.78 mio. EUR, employ 26.53 workers, incur 1.08 mio. EUR in employee costs, and are, by design, subject to an average CIT rate more than eleven percentage points higher than that faced by CFC subsidiaries.

4 Effects on Incorporations

4.1 Results

We begin by examining whether substance-based exemptions induce multinationals to establish new subsidiaries in low-tax countries. Specifically, we assess whether multinationals increase subsidiary incorporations in low-tax countries following the introduction of substance-based exemptions into CFC regimes under the Cadbury Schweppes ruling.

Figure 2 Panel (A) presents the dynamic effects for the share of CFC incorporations relative to total incorporations. In the pre-treatment period from 2002 to 2005, the coefficients are close to zero and statistically insignificant. In the treatment year 2006, the coefficient becomes significantly positive, indicating that multinationals affected by the Cadbury Schweppes ruling increased their share of CFC incorporations relative to the unaffected control group. Figure 2 Panel (B) shows a similar pattern for the count of

CFC incorporations, with a one-time increase in the count of CFC incorporations in the treatment year 2006. The concentration of effects in the treatment year is consistent with our setting. Incorporations represent discrete location decisions rather than continuous adjustments, and multinationals seeking to benefit from the newly available substance-based exemptions would establish a subsidiary in a low-tax jurisdiction to facilitate income shifting. Moreover, the onset of the financial crisis in 2007-2008 likely constrained firms' ability to pursue new incorporations in subsequent years.

Table 4 presents the results of estimating Equation 1 for the share of CFC incorporations in Panel A Columns (1) and (2), and the count of CFC incorporations in Columns (3) and (4). The interaction coefficient for the share of CFC incorporations is positive, statistically significant, and economically meaningful across specifications. The estimate in Column (2) implies that affected multinationals increase their share of CFC incorporations by 28.45% following the introduction of substance-based exemptions. Relative to the sample mean of 13.14% CFC incorporations, this corresponds to an increase of 3.74 percentage points. The coefficients on the count of CFC incorporations in Columns (3) and (4) are positive but not statistically significant, likely reflecting greater noise in the level of incorporations compared to the share measure. Taken together, these findings indicate that multinationals respond to substance-based exemptions by disproportionately directing new incorporations toward low-tax countries. This pattern suggests that substance-based exemptions make low-tax jurisdictions more attractive by providing a pathway to obtain tax advantages while avoiding CFC taxation. Unlike traditional CFC rules, which prior literature shows induce firms to close or relocate subsidiaries (Voget, 2011; Clifford, 2019), substance-based exemptions appear to open new avenues for locating affiliates in low-tax countries.

4.2 Plausibility Tests and Motivational Evidence on Substance

To corroborate our findings, we provide several plausibility tests. Incorporations in higher-tax countries that fall outside the scope of CFC rules should not respond to the introduction of substance requirements and therefore serve as a suitable benchmark. Figure 2 Panels (C) and (D) report the corresponding event-study estimates for the

share and count of non-CFC incorporations. As expected, these estimates do not display statistically significant post-treatment responses. Panel B of Table 4 confirms that the interaction coefficients for non-CFC incorporations are negative and statistically insignificant, indicating that our results capture responses specific to low-tax countries and do not reflect broader incorporation trends. We further verify that the results are robust to including industry-year fixed effects (Table 5) and to excluding individual home countries (Figure 3).

Our findings suggest that substance-based exemptions induce multinationals to establish new subsidiaries in low-tax countries, potentially opening new avenues for income shifting. For this interpretation to hold, newly established subsidiaries must exhibit sufficient economic activity to qualify for the substance-based exemption and thus fall outside the scope of CFC taxation. To provide motivational evidence on this point, we descriptively compare investment and employment of new CFC subsidiaries of treated and untreated multinationals. Table 6 reports regressions of fixed assets, number of employees, and employee costs for CFC subsidiaries incorporated after the 2006 ruling on an indicator for whether the parent multinational is subject to CFC rules with substance-based exemptions. Columns (1) and (2) include host-country–year fixed effects, effectively comparing subsidiaries operating in the same host country and year but belonging to different multinational groups. Across all outcomes, the estimates are positive and statistically significant for fixed assets and employee costs, irrespective of the inclusion of control variables. The results remain robust to alternative fixed-effects structures, including industry–year and host-country fixed effects in Column (3) and host-country–age fixed effects in Column (4). Though purely descriptive, these findings document a positive association between exposure to substance rules in CFC provisions and higher investment and employment in newly established low-tax subsidiaries consistent with treated multinationals establishing subsidiaries with sufficient economic activity to meet the substance thresholds and benefit from the exemption.

5 Effects on Economic Activity

5.1 Results

Having established that substance-based exemptions attract new incorporations in low-tax jurisdictions, we next examine how firms adjust investment and employment within existing low-tax subsidiaries when confronted with substance requirements. This dimension is central to assessing whether and to what extent substance-based provisions generate meaningful real economic activity. The ATAD provides an ideal setting for this analysis. Prior to the directive, multinationals headquartered in newly treated countries could use low-tax subsidiaries for income shifting without facing CFC taxation. Following the ATAD, they can preserve these tax advantages only by demonstrating sufficient substance. Thus, this setting thus allows us to identify how firms adjust real economic activity in response to substance requirements.

Figure 4 presents event study estimates based on Equation 2, in which the $ATAD\ POST_t$ indicator is replaced by year dummies. Panels (A), (C), and (E) report the dynamic effects for fixed assets, the number of employees, and employee costs of CFC subsidiaries, respectively. Across all outcome variables, the pre-treatment coefficients are small and statistically insignificant, supporting the parallel trends assumption. In the post-treatment period, fixed assets show no significant response. The number of employees increases significantly in the treatment year 2016 but reverts to insignificance in subsequent years. In contrast, employee costs exhibit a statistically and economically significant increase starting in 2016, which persists through the end of the sample period.

The event study results are corroborated by the main estimates reported in Table 7. Columns (1) and (2) present the results from estimating Equation 2 without and with control variables, respectively. For fixed assets in Panel A, the interaction coefficients are negative and statistically insignificant, indicating that affected multinationals do not respond by expanding investment. By contrast, the coefficients for the number of employees in Panel B and employee costs in Panel C are positive. The estimates in

Column (2) imply that the number of employees in affected CFC subsidiaries increases by 2.85%, while employee costs rise by 6.78%. Given an average of 76.96 employees and mean labor costs of 2.79 mio. EUR, this corresponds to an increase of approximately 2.19 employees and of 189.16 thousand EUR labor costs.

Overall, these findings support the notion that affected CFC subsidiaries increase real economic activity as a strategy to circumvent the application of CFC rules, consistent with Hypothesis 2. Importantly, the results indicate that firms respond to substance requirements primarily through employment-related adjustments rather than investment. This pattern is consistent with previous studies investigating investment and employment effects of tax rules in distinct settings, which provide initial evidence that labor may be more mobile than capital and thus easier and potentially less costly to adjust (Giroud and Rauh, 2019; De Simone and Olbert, 2022). The relatively vague definition of substance in CFC provisions, which does not specify precise thresholds or types of investments, may further facilitate adjustment along labor-related margins. Notably, the effect on personnel costs is more pronounced than the effect on headcount. While we cannot directly test whether firms engage in reporting adjustments, this pattern is at least suggestive of firms raising reported labor expenses without proportionally expanding their workforce. Such an interpretation would align with prior evidence that firms respond to activity-based tax rules through labor-related adjustments (Bornemann et al., 2023; Chen et al., 2023).

To assess whether the increases in economic activity at CFC subsidiaries reflect genuine expansion or reallocation within multinational groups, we examine non-CFC subsidiaries belonging to the same parent companies but located in higher-tax countries. Table 8 reports estimates of Equation 2 for non-CFC subsidiaries. Across outcome variables, the interaction coefficients in Columns (1) and (2) are negative, with the employment outcomes being statistically significant at the 1% level. Importantly, the magnitudes are comparable to those estimated for CFC subsidiaries, implying declines of 2.97% in employment and 3.92% in employee costs. These patterns indicate that firms reallocate labor-related activity from higher-tax to lower-tax affiliates rather

than expanding overall economic activity within the multinational group.

5.2 Robustness and Cross-Sectional Evidence

To validate our results, we conduct several plausibility tests. First, we re-estimate the baseline specification including host country-year and industry-year fixed effects. The results, reported in Columns (3) and (4) of Tables 7 and 8, remain consistent with our main findings. For CFC subsidiaries, the coefficients on employment outcomes remain positive and mostly statistically significant, while the corresponding estimates for non-CFC subsidiaries are significantly negative. This confirms that our baseline results are not driven by unobserved host-country or industry-level time trends.

Second, we assess the sensitivity of the results for CFC subsidiaries by conducting a jackknife analysis that excludes one host country at a time. Figure 5 presents the resulting coefficient estimates. Panel A reports the results for fixed assets, Panel B for the number of employees, and Panel C for employee costs. Across all outcome variables, the estimates are largely similar in magnitude, indicating that our findings are not driven by subsidiaries in any single country.

Third, to address concerns that confounding differences between the treatment and control group drive our results, we re-estimate the baseline specification using an entropy-balanced sample that is balanced on the first three moments of the pre-treatment average values of the firm-level control variables. The results are reported in Table 9 for CFC subsidiaries and in Table 10 for non-CFC subsidiaries. The estimates are largely consistent with the baseline results. While the coefficients for fixed assets and number of employees of CFC subsidiaries remain positive but are not statistically significant, the effect on employee costs remains economically similar in magnitude and statistically significant at the 1% level. For non-CFC subsidiaries, the coefficients across all outcome variables are negative and statistically significant for the employment-related measures.

We next examine whether responses are concentrated among subsidiaries with the strongest incentives to adjust. The benefits of qualifying for a substance-based exemption should be greater for subsidiaries facing larger tax differentials, those with higher

shares of passive income, and those with lower pre-existing levels of substance. To test this we conduct cross-sectional tests partitioning the sample along three dimensions: (i) the tax rate differential between the host and home countries, (ii) the share of passive income, and (iii) pre-existing levels of economic substance. The results from estimating Equation 2 on these subsamples are reported in Table 11. Panel A presents the estimates for fixed assets, Panel B for the number of employees, and Panel C for employee costs.

Columns (1) and (2) report the results for subsamples with above- and below-median tax rate differentials. A larger tax differential increases the tax benefits of allocating income in low-tax jurisdictions and, in turn, the incentive to maintain low-tax CFC subsidiaries by meeting the substance requirements. Consistent with this argument, the coefficients for the employment outcomes are significantly positive for subsidiaries facing high tax differentials, whereas the corresponding estimates for subsidiaries with smaller tax differentials are not statistically significant.

Columns (3) and (4) present estimates for subsamples defined by above- and below-median shares of passive income, measured as the pre-treatment average ratio of financial revenue to total revenue. Because passive income is attributed to the parent company when CFC rules apply, subsidiaries with higher passive income shares have stronger incentives to avoid CFC taxation by fulfilling substance requirements. In line with this prediction, subsidiaries with high passive income shares show a statistically significant increase in employment outcomes, whereas those with low passive income shares do not.

Columns (5) and (6) report results for subsamples defined by pre-existing levels of economic substance. We classify subsidiaries as having low substance if their pre-treatment average total assets and number of employees are both below the median, and as having high substance if both measures exceed the median. Subsidiaries with low initial substance face disproportionately stronger incentives to increase real activity in order to qualify for the substance exemption and thereby avoid CFC taxation. Consistent with this, we find that subsidiaries with low pre-existing substance exhibit

larger and statistically significant increases in the number of employees and employee costs, with the coefficients being larger in magnitude than the baseline effects in Table 7. In contrast, the corresponding estimates for high-substance subsidiaries are smaller and not consistently statistically significant.

These patterns suggest that firms with stronger incentives to qualify for the exemption respond more pronouncedly, and that responses are concentrated in employment-related adjustments rather than investment. This reinforces the interpretation that substance requirements induce targeted adjustments among subsidiaries most likely used for income shifting rather than broad-based expansion of real economic activity.

6 Conclusion

We examine how multinational firms respond to substance requirements embedded in anti-tax avoidance regulations, focusing on CFC rules in the European Union. Substance-based exemptions have become a central feature of modern international tax policy, yet evidence on whether these provisions generate meaningful real economic activity remains limited. Using two regulatory changes that introduced substance-based exemptions at different points in time, we provide new evidence on how firms respond along both the extensive and intensive margin.

We first study whether substance-based exemptions affect firms' decisions to establish subsidiaries in low-tax jurisdictions. Following the Cadbury Schweppes ruling, which required countries with existing CFC regimes to introduce substance exemptions, affected multinationals significantly increase their share of CFC incorporations, with no corresponding change in incorporations in high-tax countries. This response suggests that substance-based exemptions reopen low-tax jurisdictions as attractive locations for affiliates by providing a pathway to avoid CFC taxation. Descriptive evidence further indicates that newly established low-tax subsidiaries of treated multinationals exhibit higher investment and employment than those of untreated firms, consistent with firms creating entities that are capable of meeting substance requirements and benefiting from the exemption.

We next examine how firms adjust real activity within existing low-tax subsidiaries

when they become subject to CFC rules with substance exemptions. Our findings indicate that firms respond primarily through employment-related adjustments rather than capital investment. While the number of employees increase modestly, personnel costs increase substantially and persistently. This pattern is consistent with labor being more mobile and less costly to adjust than physical capital and is suggestive of firms satisfying substance requirements through targeted labor-related adjustments rather than large-scale operational expansion. Importantly, we document offsetting declines in employment and personnel costs among related subsidiaries in higher-tax countries, pointing to reallocation within multinational groups rather than a net increase in real economic activity.

Our analysis has limitations. We cannot directly observe whether firms satisfy the legal substance requirements and instead rely on observable proxies such as employment, personnel costs, and investment. This limitation is particularly relevant given that substance definitions in many CFC regimes are vague, typically referring to staff, assets, and premises without specifying precise thresholds. Accordingly, our findings speak to firm behavior under loosely defined substance requirements. Future research examining regimes with more precisely defined substance thresholds may help assess whether clearer definitions constrain firms' ability to comply through targeted or low-cost adjustments.

Overall, our results have important implications for the design of anti-tax avoidance policies. Substance-based exemptions can reverse the deterrent effects of traditional anti-tax avoidance rules, but the resulting adjustment does not necessarily translate into broad increases in real economic activity. Firms respond primarily through employment-related outcomes rather than investment, and increases in activity in low-tax subsidiaries are accompanied by declines in higher-tax affiliates, indicating reallocation rather than expansion. These findings suggest that while substance requirements can alter firm behavior, vague definitions may allow firms to preserve tax advantages without undertaking substantial operational changes, highlighting the importance of careful policy design when conditioning tax benefits on economic activity.

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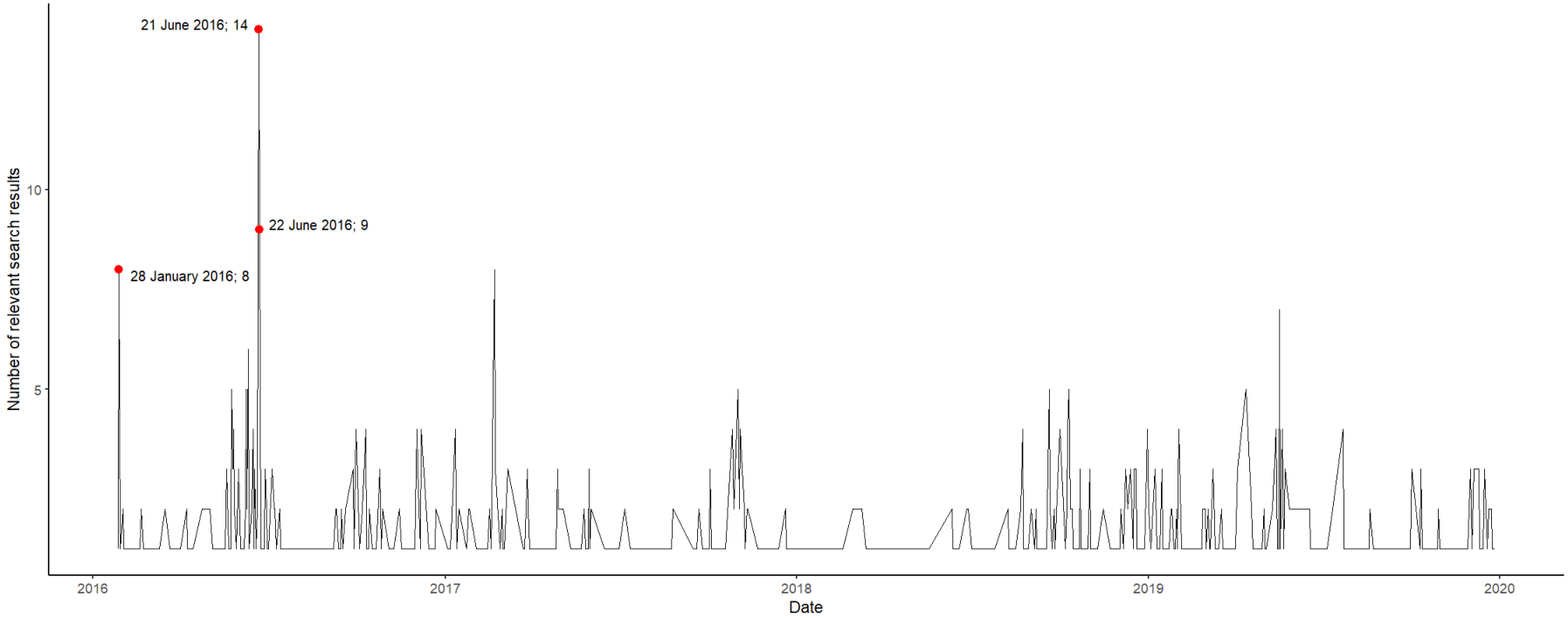
7 Appendix

Table 1: CFC Rules in the EU

EU Countries	Enactment of CFC Rules	Cadbury Schweppes Setting			ATAD Setting		
		Treatment Group	Control Group	Tax Threshold as of 2006 (in %)	Treatment Group	Control Group	Tax Threshold as of 2019 (in %)
Austria (AT)	2019		X		X		12.50
Belgium (BE)	2019		X		X		14.79
Bulgaria (BG)	2019		X		X		5.00
Croatia (HR)	2019		X		X		9.00
Cyprus (CY)	2019		X		X		6.25
Czech Republic (CZ)	2019		X		X		9.50
Denmark (DK)	1995	X		28.00	-	-	-
Estonia (EE)	2019		X		-	-	-
Finland (FI)	1995	X		17.40		X	12.00
France (FR)	1980	X		23.30		X	17.22
Germany (DE)	1972	X		25.00		X	25.00
Greece (GR)	2014		X		-	-	-
Hungary (HU)	1997	X		10.67		X	4.50
Ireland (IE)	2019		X		X		6.25
Italy (IT)	2001	X				X	13.90
Latvia (LV)	2019		X		-	-	-
Lithuania (LT)	2002	X		11.25		X	7.50
Luxembourg (LU)	2019		X		X		12.47
Malta (MT)	2019		X		X		17.50
Netherlands (NL)	2019		X		X		9.00
Poland (PL)	2015		X		-	-	-
Portugal (PT)	1995	X		16.50		X	15.75
Romania (RO)	2018		X		X		8.00
Slovak Republic (SK)	2019		X		X		10.50
Slovenia (SI)	2019		X		X		9.50
Spain (ES)	1995	X		26.25		X	18.75
Sweden (SE)	1989	X		15.40		X	11.77
United Kingdom (GB)	1984	X		22.50	-	-	-

Notes: This table summarizes the CFC regimes in force at the time of the Cadbury Schweppes ruling in 2006 and at the entry into force of the ATAD CFC provisions in 2019. Countries shown in bold additionally rely on black or white lists to identify low-tax jurisdictions. The tax threshold indicates the CIT rate below which subsidiaries are classified as low-tax. Italy did not specify an explicit tax threshold in 2006 and instead relied exclusively on a black list. Countries marked with a dash are excluded from the ATAD analysis because they either introduced CFC rules during the pre-treatment period (Greece and Poland) or do not specify a tax threshold (Denmark, Estonia, and Latvia). Great Britain is not considered as EU country in the ATAD setting due to the Brexit.

Figure 1: Media coverage analysis



Notes: This figure shows a media coverage analysis conducted with Factiva. We plot the number of relevant media articles over time when searching for "anti-tax avoidance directive".

Table 2: Summary Statistics

	N	Mean	SD	P25	P50	P75
Panel A: Cadbury Schweppes Sample						
Num. Total Incorp.$_{g,t}$	56,571	0.36	2.67	0.00	0.00	0.00
Num. CFC Incorp.$_{g,t}$	56,571	0.05	0.37	0.00	0.00	0.00
Num. Non-CFC Incorp.$_{g,t}$	56,571	0.30	2.55	0.00	0.00	0.00
Share CFC Incorp.$_{g,t}$ (in %)	8,224	13.14	30.71	0.00	0.00	0.00
Share Non-CFC Incorp.$_{g,t}$ (in %)	8,224	81.62	35.30	87.50	100.00	100.00
Total Assets$_{g,t}$	56,571	607.61	2,139.23	13.10	48.96	189.93
Number of Employees$_{g,t}$	55,107	2,211.29	7,590.75	57.00	212.00	804.00
Leverage$_{g,t}$ (in %)	55,606	17.06	19.23	1.78	11.15	24.80
GDP$_{m,t}$	56,571	1,156.73	826.52	324.57	1,096.52	1,987.73
CIT$_{m,t}$ (in %)	56,571	30.24	4.61	28.00	30.00	32.50
Panel B: ATAD Sample						
CFC Subsidiaries						
Total Assets$_{i,t}$	55,838	18.96	38.87	0.56	2.99	13.00
Fixed Assets$_{i,t}$	55,816	8.06	19.55	0.04	0.50	3.82
Number of Employees$_{i,t}$	55,838	76.96	131.16	4.00	18.00	76.00
Costs of Employees$_{i,t}$	40,796	2.79	4.71	0.12	0.72	2.91
Leverage$_{i,t}$ (in %)	50,832	9.20	25.35	0.00	0.00	2.35
GDP$_{s,t}$	55,838	587.36	877.84	82.58	169.47	557.43
CIT$_{s,t}$ (in %)	55,838	17.92	5.28	15.00	19.00	21.00
Non-CFC Subsidiaries						
Total Assets$_{i,t}$	3,043,860	6.62	21.00	0.30	0.92	3.29
Fixed Assets$_{i,t}$	3,041,601	2.78	10.62	0.03	0.17	0.88
Number of Employees$_{i,t}$	3,043,860	26.53	67.83	2.00	7.00	18.00
Costs of Employees$_{i,t}$	2,693,689	1.08	2.87	0.05	0.18	0.62
Leverage$_{i,t}$ (in %)	2,978,656	11.09	22.22	0.00	0.00	12.77
GDP$_{s,t}$	3,043,860	1,508.46	813.38	1,113.46	1,616.37	1,713.41
CIT$_{s,t}$ (in %)	3,043,860	29.22	4.76	27.81	30.18	31.29

Notes: The table displays the summary statistics for the multinationals considered in the Cadbury Schweppes setting (Panel A), and the subsidiaries considered in the ATAD setting (Panel B). The subsidiary observations in Panel B are split into subsidiaries classified as CFCs non-CFCs. Financial variables at the firm-level are denoted in mio. EUR. GDP is expressed in bio. EUR.

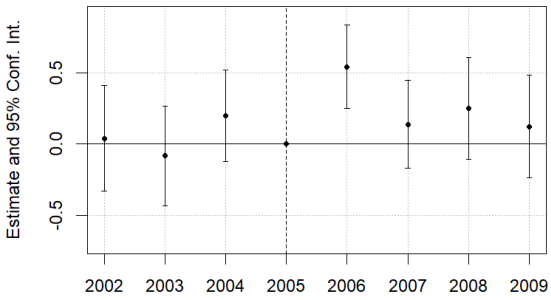
Table 3: Distribution of CFC Subsidiaries

Low-tax Host Country	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total**
Bulgaria (BG)	1,003	910	1,116	1,029	1,048	1,042	1,012	999	8,159
Croatia (HR)	153	169	180	181	205	202	192	193	1,475
Cyprus (CY)	-	2	5	7	6	13	20	25	78
Czech Republic (CZ)	314	20	2	7	9	4	3	1	360
Denmark (DK)	12	81	81	96	156	149	149	139	863
Estonia (EE)	27	30	31	33	36	33	36	36	262
Finland (FI)	75	109	117	117	123	135	133	126	935
Greece (GR)	73	76	100	98	99	104	106	106	762
Hungary (HU)	951	963	981	958	959	984	943	870	7,609
Iceland (IS)	5	9	10	11	11	11	12	13	82
Ireland (IE)	207	284	358	375	364	366	362	350	2,666
Latvia (LV)	130	28	22	26	158	169	166	165	864
Lithuania (LT)	26	28	31	28	28	31	31	30	233
Luxembourg (LU)	197	194	224	120	71	59	38	24	927
Malta (MT)	52	36	21	8	6	3	-	-	126
Netherland (NL)	891	827	816	783	686	650	622	596	5,871
Norway (NO)	4	4	13	162	190	165	155	83	776
Poland (PL)	252	193	127	116	395	907	1,094	1,129	4,213
Romania (RO)	246	1,022	1,099	1,165	1,226	1,184	382	389	6,713
Slovakia (SK)	340	28	8	266	348	400	390	389	2,169
Sweden (SE)	176	195	212	218	227	408	406	399	2,241
United Kingdom (GB)	540	580	584	891	1,201	1,305	1,502	1,851	8,454
Total	5,674	5,788	6,138	6,695	7,552	8,324	7,754	7,913	55,838

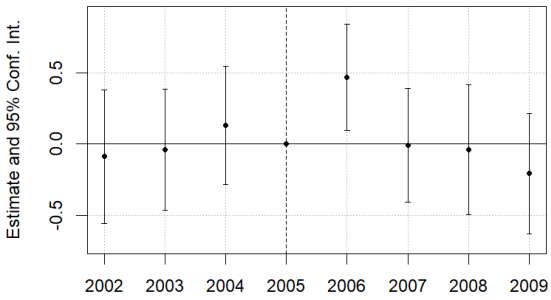
Notes: The table displays the distribution of CFC subsidiary observations across low-tax EEA host countries in the ATAD sample.

Figure 2: Dynamic Effects on CFC and Non-CFC Incorporations

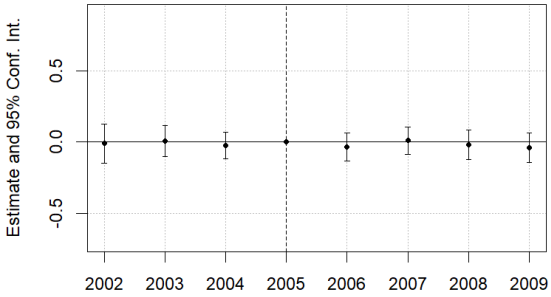
(**A**) Share of CFC Incorporations



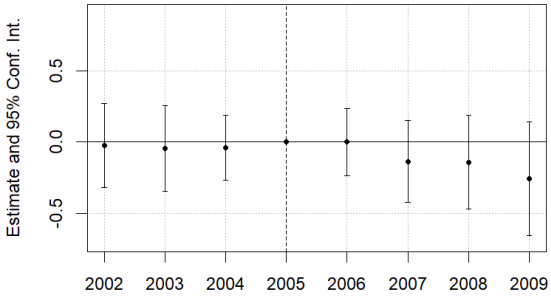
(**B**) Count of CFC Incorporations



(**C**) Share of Non-CFC Incorporations



(**D**) Count of Non-CFC Incorporations



Notes: This figure presents event-study DiD coefficients from estimating Equation 1 using PPML, where the $CS\ Treat_m$ variable is interacted with individual year dummies instead of the $CS\ Post_t$ indicator. Panels (A) and (C) display the dynamic effects on multinationals' shares of CFC and non-CFC incorporations in total incorporations, respectively. Panels (B) and (D) depict the effect dynamics on multinationals' count of CFC and non-CFC incorporations. Robust standard errors clustered at the group level are reported in parentheses. The black lines denote 95% confidence intervals. The dashed line marks the reference year 2005.

Table 4: Effects on CFC and Non-CFC Incorporations

	(1)	(2)	(3)	(4)
Panel A	CFC Incorporations$_{g,t}$			
	Share		Count	
CS Treat$_m$ x CS Post$_t$	0.3217***	0.2504**	0.0907	0.0945
	(0.1082)	(0.1059)	(0.1145)	(0.1218)
Log(Total Assets$_{g,t-1}$)		-0.0530		-0.1040
		(0.1006)		(0.1115)
Log(Num. Empl.$_{g,t-1}$ + 1)		-0.1441*		0.0200
		(0.0788)		(0.0858)
Leverage$_{g,t-1}$		0.0053*		0.0046
		(0.0030)		(0.0038)
Log(GDP$_{m,t}$)		0.5101		0.5554
		(0.8862)		(1.0646)
CIT$_{m,t}$		0.0161		-0.0025
		(0.0109)		(0.0142)
N	2,934	2,934	5,281	5,281
Pseudo R2	0.316	0.318	0.279	0.280
Panel B	Non-CFC Incorporations$_{g,t}$			
	Share		Count	
CS Treat$_m$ x CS Post$_t$	-0.0168	-0.0123	-0.1532	-0.0930
	(0.0243)	(0.0267)	(0.0944)	(0.1023)
Log(Total Assets$_{g,t-1}$)		-0.0116		0.0016
		(0.0128)		(0.0747)
Log(Num. Empl.$_{g,t-1}$ + 1)		0.0105		-0.0327
		(0.0104)		(0.0448)
Leverage$_{g,t-1}$		-0.0002		-0.0030
		(0.0004)		(0.0030)
Log(GDP$_{m,t}$)		-0.0004		1.5545*
		(0.2203)		(0.8313)
CIT$_{m,t}$		-0.0026		-0.0130
		(0.0029)		(0.0114)
N	7,720	7,720	20,674	20,674
Pseudo R2	0.568	0.568	0.510	0.511
Group FE	X	X	X	X
Year FE	X	X	X	X

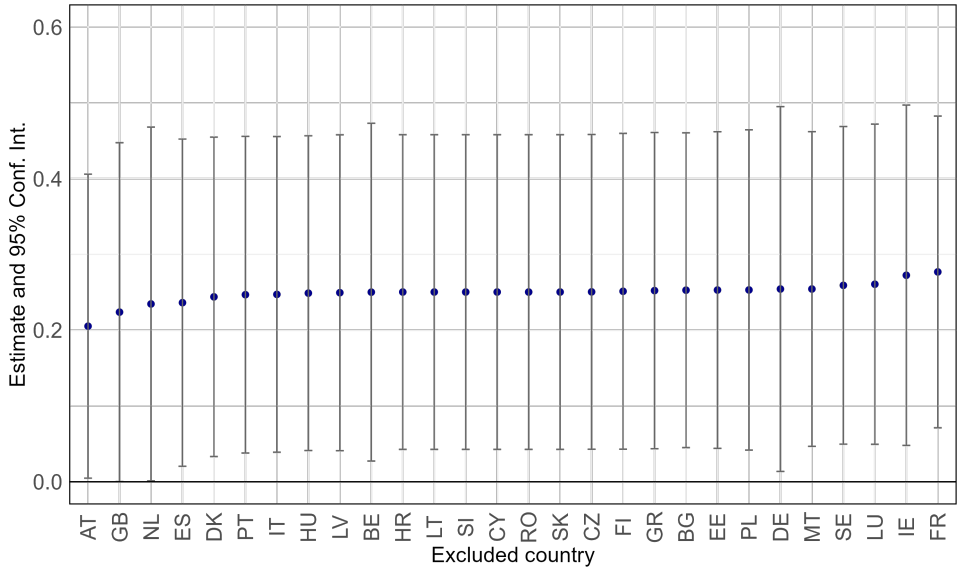
Notes: This table presents the results of estimating Equation 1 using PPML. Panel A shows the results for CFC incorporations, whereas Panel B presents the corresponding estimates for non-CFC incorporations. Columns (1) and (2) display results for incorporation shares, while Columns (3) and (4) provide estimates based on incorporation counts. All specifications include group and year fixed effects. Robust standard errors clustered at the group level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Effects on CFC and Non-CFC Incorporations with Industry-Year Fixed Effects

	(1)	(2)	(3)	(4)
	CFC Incorporations$_{g,t}$		Non-CFC Incorporations$_{g,t}$	
	Share	Count	Share	Count
CS Treat$_m$ *x CS Post*$_t$	0.2393**	0.1005	-0.0096	-0.1204
	(0.1046)	(0.1270)	(0.0289)	(0.0930)
Log(*Total Assets*$_{g,t-1}$)	-0.0985	-0.1964*	-0.0066	0.0144
	(0.1112)	(0.1037)	(0.0137)	(0.0575)
Log(*Num. Empl.*$_{g,t-1}$ + *1*)	-0.1332	0.0382	0.0077	-0.0374
	(0.0902)	(0.0713)	(0.0107)	(0.0355)
Leverage$_{g,t-1}$	0.0058*	0.0064*	-0.0003	-0.0019
	(0.0031)	(0.0036)	(0.0005)	(0.0025)
Log(*GDP*$_{m,t}$)	1.2441	1.6577	-0.0191	1.6543**
	(0.9229)	(1.0957)	(0.2282)	(0.7331)
CIT$_{m,t}$	0.0182	0.0070	-0.0020	-0.0084
	(0.0116)	(0.0145)	(0.0031)	(0.0110)
N	2,914	5,220	7,631	20,337
Pseudo R2	0.330	0.298	0.570	0.520
Group FE	X	X	X	X
Industry-Year FE	X	X	X	X

Notes: This table presents the results of estimating Equation 1 using PPML. In contrast to Table 4, the specifications include MNE and industry-year fixed effects instead of year fixed effects. Columns (1) and (2) ((3) and (4)) display results for CFC (non-CFC) incorporation shares and counts, respectively. Robust standard errors clustered at the group level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure 3: Jackknive Analysis: Effect on the Share of CFC Incorporations



Notes: This figure presents DiD coefficients from estimating Equation 1 using PPML, excluding one home country at a time. The outcome variable is the share of CFC incorporations relative to total incorporations. All specifications include group and year fixed effects. Robust standard errors are clustered at the group level. The black lines denote 95% confidence intervals.

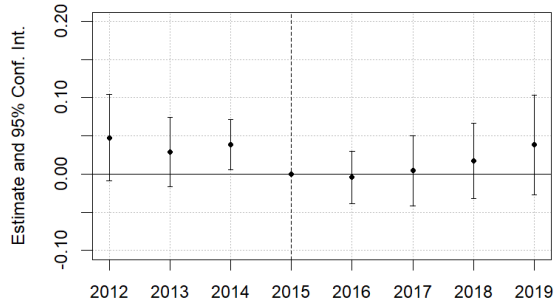
Table 6: Motivational Evidence on CFC Subsidiaries' Substance

	(1)	(2)	(3)	(4)
Panel A	Fixed Assets$_{i,t}$			
CS Treat$_m$	1.0819***	1.0051***	0.7954***	0.9878***
	(0.1749)	(0.2207)	(0.1566)	(0.2137)
Log(Num. Empl.$_{i,t-1}$ *+ 1)*		0.4585***	0.4676***	0.4456***
		(0.1291)	(0.0833)	(0.1276)
Leverage$_{i,t-1}$		0.0056***	0.0064***	0.0055***
		(0.0021)	(0.0023)	(0.0020)
Log(GDP$_{s,t}$*)*			5.7342***	2.9146*
			(1.8600)	(1.5566)
CIT$_{s,t}$			-0.3250***	-0.2616
			(0.0583)	(0.1634)
N	11,986	11,986	10,484	11,986
Pseudo R2	0.300	0.365	0.460	0.371
Panel B	Number of Employees$_{i,t}$			
CS Treat$_m$	0.7956***	0.1534	0.1425	0.1586
	(0.2217)	(0.1524)	(0.1264)	(0.1432)
Log(Total Assets$_{i,t-1}$*)*		0.4474***	0.4520***	0.4437***
		(0.0573)	(0.0605)	(0.0581)
Leverage$_{i,t-1}$		-0.0060***	-0.0057***	-0.0061***
		(0.0018)	(0.0015)	(0.0017)
Log(GDP$_{s,t}$*)*			0.4116	-3.1491***
			(1.9377)	(0.7633)
CIT$_{s,t}$			-0.1388	0.0971***
			(0.1172)	(0.0293)
N	9,923	9,923	8,471	9,923
Pseudo R2	0.186	0.481	0.543	0.481
Panel C	Costs of Employees$_{i,t}$			
CS Treat$_m$	1.3550***	0.4915**	0.4179**	0.5374***
	(0.1814)	(0.2132)	(0.1717)	(0.1920)
Log(Total Assets$_{i,t-1}$*)*		0.6054***	0.6480***	0.6047***
		(0.0593)	(0.0555)	(0.0597)
Leverage$_{i,t-1}$		-0.0095***	-0.0097***	-0.0097***
		(0.0018)	(0.0020)	(0.0017)
Log(GDP$_{s,t}$*)*			2.2317	2.4436
			(1.6616)	(2.2619)
CIT$_{s,t}$			-0.0565	-0.0213
			(0.0686)	(0.0473)
N	8,579	8,579	7,209	8,579
Pseudo R2	0.382	0.715	0.748	0.720
Host country-Year FE	X	X		
Industry-Year FE			X	
Host country FE			X	
Host country-Age FE				X

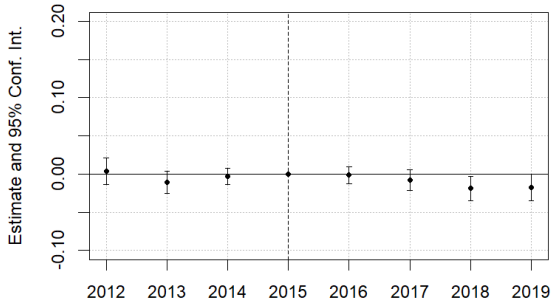
Notes: This table presents the results of estimating the following regression equation for CFC subsidiaries using PPML: $Economic\ Activity_{i,s,t} = exp(\beta_1 \times CS\ Treat_m + \gamma_1 \times W_{i,t-1} + \lambda_{s,t}) + \varepsilon_{i,s,m,t}$. The economic activity outcome variables are CFC subsidiaries' fixed assets in Panel A, number of employees in Panel B, and costs of employees in Panel C. Columns (1) and (2) include host country-year fixed effects, Column (3) incorporates industry-year and host country fixed effects, and Column (4) includes host country-age fixed effects. Robust standard errors clustered at the host country level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure 4: Dynamic Effects on CFC and Non-CFC Subsidiaries' Substance

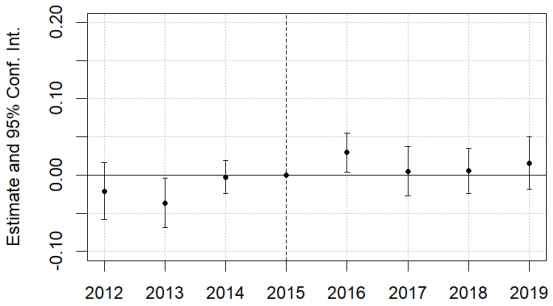
(**A**) CFC - Fixed Assets



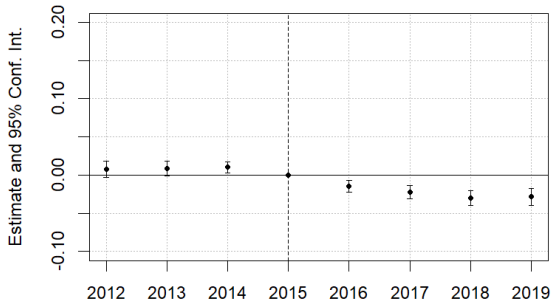
(**B**) Non-CFC - Fixed Assets



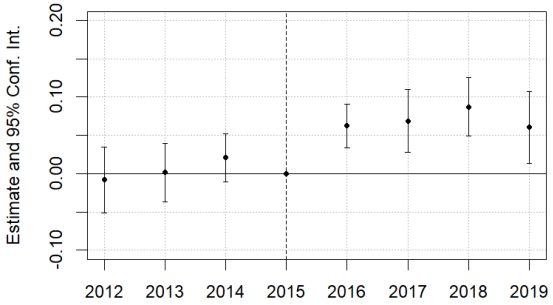
(**C**) CFC - Number of Employees



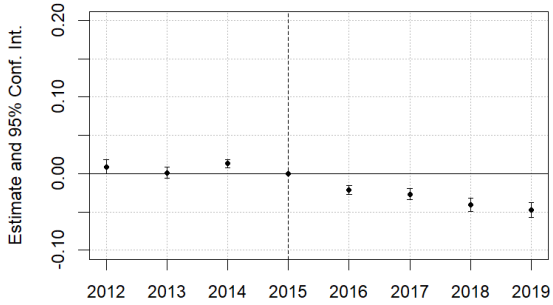
(**D**) Non-CFC - Number of Employees



(**E**) CFC - Costs of Employees



(**F**) Non-CFC - Costs of Employees



Notes: This figure presents event-study DiD coefficients from estimating Equation 2 using PPML, where the $ATAD\ Treat_{h,m}$ variable is interacted with individual year dummies instead of the $ATAD\ Post_t$ indicator. Panels (A), (C), and (E) display the dynamic effects on CFC subsidiaries' fixed assets, number of employees and costs of employees, respectively. Panels (B), (D), and (F) depict the corresponding effect dynamics for non-CFC subsidiaries. Robust standard errors clustered at the subsidiary level are reported in parentheses. The black lines denote 95% confidence intervals. The dashed line marks the reference year 2015.

Table 7: Effects on CFC Subsidiaries' Substance

	(1)	(2)	(3)	(4)
Panel A		Fixed Assets$_{i,t}$		
ATAD Treat$_{s,m}$ x ATAD Post$_t$	-0.0147	-0.0145	0.0006	-0.0028
	(0.0230)	(0.0223)	(0.0274)	(0.0233)
Log(Num. Empl.$_{i,t-1}$ + 1)		0.0780***	0.0790***	0.0742***
		(0.0125)	(0.0130)	(0.0125)
Leverage$_{i,t-1}$		0.0008	0.0007	0.0006
		(0.0005)	(0.0005)	(0.0005)
Log(GDP$_{s,t}$)		0.0837		0.1022
		(0.1217)		(0.1222)
CIT$_{s,t}$		0.0006		0.0021
		(0.0023)		(0.0024)
N	54,895	54,895	54,895	53,510
Pseudo R2	0.971	0.972	0.972	0.972
Panel B		Number of Employees$_{i,t}$		
ATAD Treat$_{s,m}$ x ATAD Post$_t$	0.0420**	0.0281*	0.0262	0.0279*
	(0.0168)	(0.0148)	(0.0162)	(0.0150)
Log(Total Assets$_{i,t-1}$)		0.2429***	0.2459***	0.2425***
		(0.0138)	(0.0139)	(0.0139)
Leverage$_{i,t-1}$		-0.0005*	-0.0005**	-0.0005*
		(0.0003)	(0.0003)	(0.0003)
Log(GDP$_{s,t}$)		0.0966		0.1054
		(0.0655)		(0.0673)
CIT$_{s,t}$		0.0001		0.0001
		(0.0011)		(0.0011)
N	55,838	55,838	55,834	54,545
Pseudo R2	0.949	0.952	0.952	0.952
Panel C		Costs of Employees$_{i,t}$		
ATAD Treat$_{s,m}$ x ATAD Post$_t$	0.0924***	0.0656***	0.0480**	0.0660***
	(0.0216)	(0.0196)	(0.0219)	(0.0197)
Log(Total Assets$_{i,t-1}$)		0.2872***	0.2730***	0.2891***
		(0.0200)	(0.0196)	(0.0203)
Leverage$_{i,t-1}$		-0.0003	-0.0004	-0.0004
		(0.0003)	(0.0003)	(0.0004)
Log(GDP$_{s,t}$)		0.2684***		0.2906***
		(0.0824)		(0.0849)
CIT$_{s,t}$		0.0030**		0.0032**
		(0.0015)		(0.0015)
N	53,871	53,871	53,871	52,867
Pseudo R2	0.977	0.981	0.981	0.981
Subsidiary FE	X	X	X	X
Year FE	X	X		
Host country-Year FE			X	
Industry-Year FE				X

Notes: This table presents the results of estimating Equation 2 using PPML. The outcome variables are CFC subsidiaries' fixed assets in Panel A, number of employees in Panel B, and costs of employees in Panel C. All specifications include subsidiary fixed effects. Columns (1) and (2) additionally control for year fixed effects, Column (3) incorporates host country–year fixed effects, and Column (4) includes industry–year fixed effects. Robust standard errors clustered at the subsidiary level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

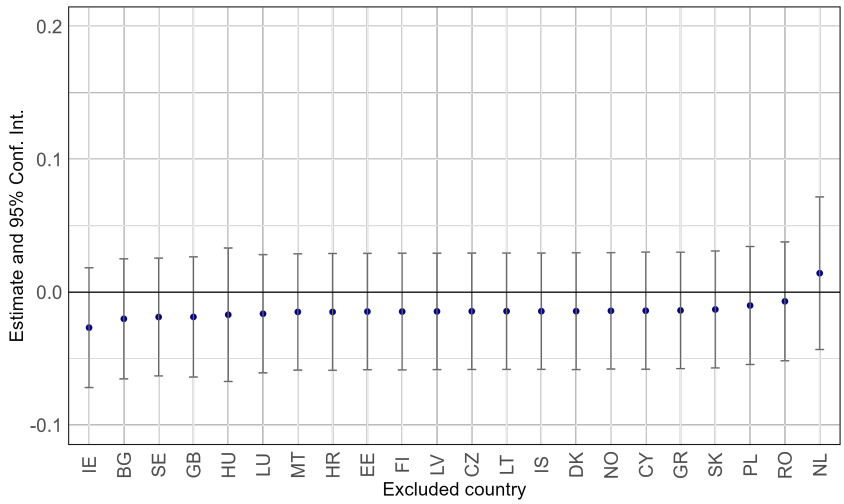
Table 8: Effects on Non-CFC Subsidiaries' Substance

	(1)	(2)	(3)	(4)
Panel A		Fixed Assets$_{i,t}$		
ATAD Treat$_{s,m}$ *x ATAD Post*$_t$	-0.0296***	-0.0088	-0.0102	-0.0166**
	(0.0054)	(0.0072)	(0.0083)	(0.0073)
Log(*Num. Empl.*$_{i,t-1}$ + 1)		0.1109***	0.1108***	0.1088***
		(0.0038)	(0.0038)	(0.0038)
Leverage$_{i,t-1}$		0.0019***	0.0019***	0.0018***
		(0.0001)	(0.0001)	(0.0001)
Log(*GDP*$_{s,t}$)		-0.1211**		-0.0306
		(0.0501)		(0.0500)
CIT$_{s,t}$		-0.0004		-0.0002
		(0.0006)		(0.0006)
N	6,298,650	2,953,382	2,953,382	2,946,435
Pseudo R2	0.972	0.982	0.982	0.982
Panel B		Number of Employees$_{i,t}$		
ATAD Treat$_{s,m}$ *x ATAD Post*$_t$	-0.0331***	-0.0301***	-0.0187***	-0.0318***
	(0.0047)	(0.0044)	(0.0050)	(0.0044)
Log(*Total Assets*$_{i,t-1}$)		0.2456***	0.2466***	0.2447***
		(0.0042)	(0.0043)	(0.0043)
Leverage$_{i,t-1}$		-0.0004***	-0.0004***	-0.0004***
		(0.0000)	(0.0000)	(0.0000)
Log(*GDP*$_{s,t}$)		0.1138***		0.1263***
		(0.0302)		(0.0303)
CIT$_{s,t}$		-0.0008**		-0.0010**
		(0.0004)		(0.0004)
N	3,647,717	3,043,860	3,043,835	3,041,055
Pseudo R2	0.921	0.927	0.927	0.927
Panel C		Costs of Employees$_{i,t}$		
ATAD Treat$_{s,m}$ *x ATAD Post*$_t$	-0.0453***	-0.0400***	-0.0269***	-0.0415***
	(0.0040)	(0.0037)	(0.0042)	(0.0037)
Log(*Total Assets*$_{i,t-1}$)		0.3000***	0.2997***	0.2997***
		(0.0051)	(0.0051)	(0.0051)
Leverage$_{i,t-1}$		-0.0005***	-0.0006***	-0.0005***
		(0.0001)	(0.0001)	(0.0001)
Log(*GDP*$_{s,t}$)		0.3764***		0.3938***
		(0.0328)		(0.0331)
CIT$_{s,t}$		-0.0010***		-0.0009**
		(0.0004)		(0.0004)
N	4,072,544	3,394,203	3,394,203	3,392,142
Pseudo R2	0.981	0.986	0.986	0.986
Subsidiary FE	X	X	X	X
Year FE	X	X		
Host country-Year FE			X	
Industry-Year FE				X

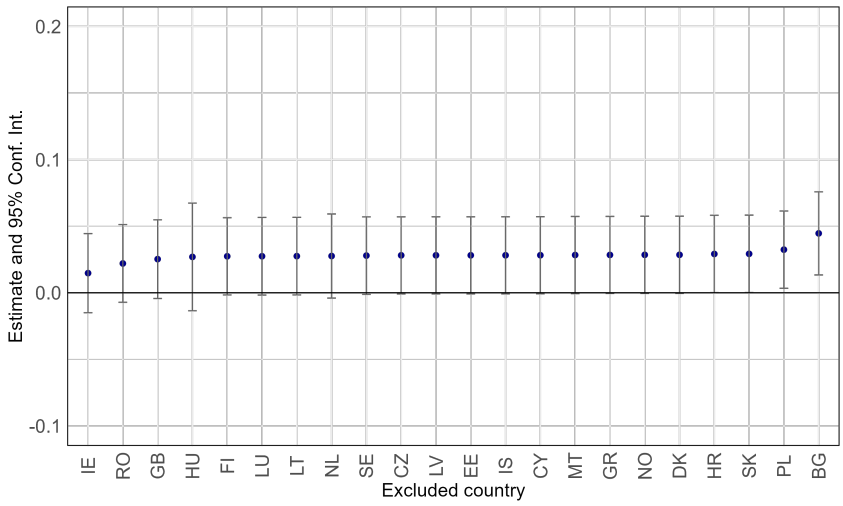
Notes: This table presents the results of estimating Equation 2 using PPML. The outcome variables are non-CFC subsidiaries' fixed assets in Panel A, number of employees in Panel B, and costs of employees in Panel C. All specifications include subsidiary fixed effects. Columns (1) and (2) additionally control for year fixed effects, Column (3) incorporates host country–year fixed effects, and Column (4) includes industry–year fixed effects. Robust standard errors clustered at the subsidiary level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure 5: Jackknive Analyses: Effect on CFC Subsidiaries' Substance

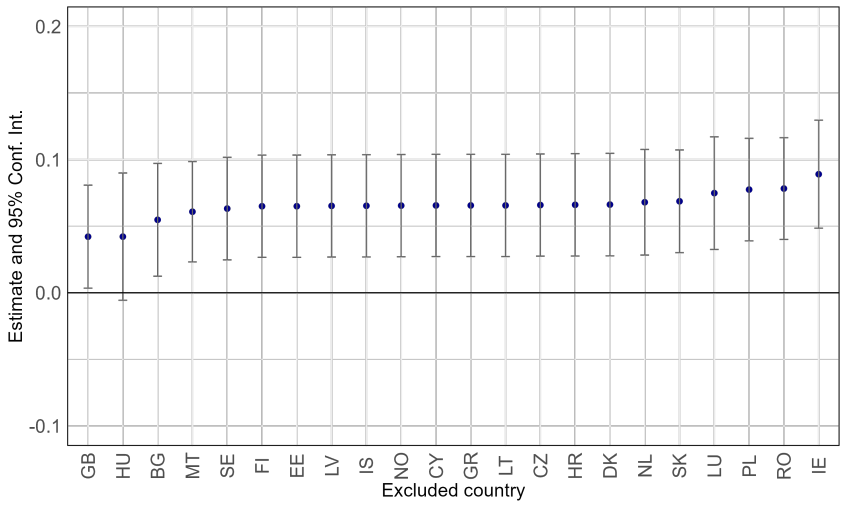
(**A**) Fixed Assets



(**B**) Number of Employees



(**C**) Costs of Employees



Notes: This figure presents DiD coefficients from estimating Equation 2 using PPML, excluding one host country at a time. The outcome variables are CFC subsidiaries' fixed assets in Panel (A), number of employees in Panel (B) and costs of employees in Panel (C). All specifications include subsidiary and year fixed effects. Robust standard errors are clustered at the subsidiary level. The black lines denote 95% confidence intervals.

Table 9: Effects on CFC Subsidiaries' Substance Using an Entropy-balanced Sample

	(1)	(2)	(3)	(4)
Panel A		Fixed Assets$_{i,t}$		
ATAD Treat$_{s,m}$ x ATAD Post$_t$	0.0100	0.0069	0.0074	0.0001
	(0.0268)	(0.0254)	(0.0315)	(0.0262)
Log(Num. Empl.$_{i,t-1}$ + 1)		0.1071***	0.1074***	0.1005***
		(0.0180)	(0.0184)	(0.0176)
Leverage$_{i,t-1}$		0.0006	0.0006	0.0005
		(0.0006)	(0.0006)	(0.0006)
Log(GDP$_{s,t}$)		0.1602		0.1279
		(0.1545)		(0.1594)
CIT$_{s,t}$		0.0031		0.0059
		(0.0033)		(0.0037)
N	46,414	46,414	46,414	45,143
Pseudo R2	0.998	0.998	0.998	0.998
Panel B		Number of Employees$_{i,t}$		
ATAD Treat$_{s,m}$ x ATAD Post$_t$	0.0383**	0.0203	0.0173	0.0186
	(0.0170)	(0.0151)	(0.0165)	(0.0151)
Log(Total Assets$_{i,t-1}$)		0.2539***	0.2593***	0.2551***
		(0.0148)	(0.0149)	(0.0154)
Leverage$_{i,t-1}$		-0.0004	-0.0004	-0.0003
		(0.0003)	(0.0003)	(0.0003)
Log(GDP$_{s,t}$)		0.2398**		0.2309**
		(0.1044)		(0.1049)
CIT$_{s,t}$		0.0002		0.0002
		(0.0015)		(0.0015)
N	51,299	51,299	51,295	50,070
Pseudo R2	0.995	0.995	0.995	0.995
Panel C		Costs of Employees$_{i,t}$		
ATAD Treat$_{s,m}$ x ATAD Post$_t$	0.0924***	0.0656***	0.0480**	0.0660***
	(0.0216)	(0.0196)	(0.0219)	(0.0197)
Log(Total Assets$_{i,t-1}$)		0.2872***	0.2730***	0.2891***
		(0.0200)	(0.0196)	(0.0203)
Leverage$_{i,t-1}$		-0.0003	-0.0004	-0.0004
		(0.0003)	(0.0003)	(0.0004)
Log(GDP$_{s,t}$)		0.2684***		0.2906***
		(0.0824)		(0.0849)
CIT$_{s,t}$		0.0030**		0.0032**
		(0.0015)		(0.0015)
N	53,871	53,871	53,871	52,867
Pseudo R2	0.977	0.981	0.981	0.981
Subsidiary FE	X	X	X	X
Year FE	X	X		
Host country-Year FE			X	
Industry-Year FE				X

Notes: This table presents the results of estimating Equation 2 using PPML and an entropy-balanced sample. The sample is balanced on the first three moments of the subsidiary-level control variables. The outcome variables are CFC subsidiaries' fixed assets in Panel A, number of employees in Panel B, and costs of employees in Panel C. All specifications include subsidiary fixed effects. Columns (1) and (2) additionally control for year fixed effects, Column (3) incorporates host country–year fixed effects, and Column (4) includes industry–year fixed effects. Robust standard errors clustered at the subsidiary level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Effects on Non-CFC Substance Using an Entropy-balanced Sample

	(1)	(2)	(3)	(4)
Panel A		Fixed Assets$_{i,t}$		
ATAD Treat$_{s,m}$ *x ATAD Post*$_t$	-0.0090	-0.0060	-0.0138	-0.0022
	(0.0071)	(0.0077)	(0.0090)	(0.0081)
Log(Num. Empl.$_{i,t-1}$ *+ 1)*		0.1090***	0.1091***	0.1064***
		(0.0088)	(0.0088)	(0.0087)
Leverage$_{i,t-1}$		0.0014***	0.0014***	0.0014***
		(0.0002)	(0.0002)	(0.0002)
Log(GDP$_{s,t}$*)*		-0.0423		-0.0069
		(0.1077)		(0.1088)
CIT$_{s,t}$		-0.0001		0.0001
		(0.0014)		(0.0014)
N	3,386,420	2,583,400	2,583,400	2,578,502
Pseudo R2	0.999	1.000	1.000	1.000
Panel B		Number of Employees$_{i,t}$		
ATAD Treat$_{s,m}$ *x ATAD Post*$_t$	0.0073	-0.0099**	-0.0108**	-0.0100**
	(0.0050)	(0.0045)	(0.0055)	(0.0045)
Log(Total Assets$_{i,t-1}$*)*		0.2342***	0.2350***	0.2339***
		(0.0127)	(0.0126)	(0.0127)
Leverage$_{i,t-1}$		-0.0002	-0.0002*	-0.0002
		(0.0001)	(0.0001)	(0.0001)
Log(GDP$_{s,t}$*)*		0.0315		0.0544
		(0.0708)		(0.0710)
CIT$_{s,t}$		-0.0008		-0.0009
		(0.0008)		(0.0008)
N	3,110,751	2,882,800	2,882,775	2880214
Pseudo R2	0.997	0.998	0.998	0.998
Panel C		Costs of Employees$_{i,t}$		
ATAD Treat$_{s,m}$ *x ATAD Post*$_t$	-0.0453***	-0.0400***	-0.0269***	-0.0415***
	(0.0040)	(0.0037)	(0.0042)	(0.0037)
Log(Total Assets$_{i,t-1}$*)*		0.3000***	0.2997***	0.2997***
		(0.0051)	(0.0051)	(0.0051)
Leverage$_{i,t-1}$		-0.0005***	-0.0006***	-0.0005***
		(0.0001)	(0.0001)	(0.0001)
Log(GDP$_{s,t}$*)*		0.3764***		0.3938***
		(0.0328)		(0.0331)
CIT$_{s,t}$		-0.0010***		-0.0009**
		(0.0004)		(0.0004)
N	4,072,544	3,394,203	3,394,203	3,392,142
Pseudo R2	0.981	0.986	0.986	0.986
Subsidiary FE	X	X	X	X
Year FE	X	X		
Host country-Year FE			X	
Industry-Year FE				X

Notes: This table presents the results of estimating Equation 2 using PPML and an entropy-balanced sample. The sample is balanced on the first three moments of the pre-treatment averages of the subsidiary-level control variables. The outcome variables are non-CFC subsidiaries' fixed assets in Panel A, number of employees in Panel B, and costs of employees in Panel C. All specifications include subsidiary fixed effects. Columns (1) and (2) additionally control for year fixed effects, Column (3) incorporates host country–year fixed effects, and Column (4) includes industry–year fixed effects. Robust standard errors clustered at the subsidiary level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Heterogeneity in Effects on CFC Substance

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	Fixed Assets$_{i,t}$					
	High Tax Difference		High Passive Income		Low Substance	
	Yes	No	Yes	No	Yes	No
ATAD Treat$_{s,m}$ x ATAD Post$_t$	0.0081	-0.0476*	-0.0031	-0.0226	-0.0640	-0.0104
	(0.0344)	(0.0263)	(0.0318)	(0.0438)	(0.0971)	(0.0307)
N	25,501	29,394	21,434	21,436	19,460	19,899
Pseudo R2	0.971	0.972	0.970	0.969	0.919	0.956
Panel B	Number of Employees$_{i,t}$					
	High Tax Difference		High Passive Income		Low Substance	
	Yes	No	Yes	No	Yes	No
ATAD Treat$_{s,m}$ x ATAD Post$_t$	0.0388**	0.0079	0.0347*	0.0153	0.0973*	0.0184
	(0.0174)	(0.0304)	(0.0187)	(0.0258)	(0.0528)	(0.0163)
N	24,099	27,200	20,250	20,256	17,991	18,510
Pseudo R2	0.951	0.952	0.951	0.951	0.627	0.921
Panel C	Costs of Employees$_{i,t}$					
	High Tax Difference		High Passive Income		Low Substance	
	Yes	No	Yes	No	Yes	No
ATAD Treat$_{s,m}$ x ATAD Post$_t$	0.0460*	0.0551	0.0848***	0.0273	0.0867*	0.0674***
	(0.0237)	(0.0346)	(0.0270)	(0.0292)	(0.0444)	(0.0211)
N	23,801	30,070	23,881	23,883	16,430	17,189
Pseudo R2	0.177	0.154	0.167	0.173	0.206	0.150
Controls	X	X	X	X	X	X
Subsidiary FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X

Notes: This table reports the results of heterogeneity analyses based on estimates of Equation 2 for subsamples of CFC subsidiaries. Columns (1) and (2) split the sample by whether the tax rate differential between the host country and the multinational's home country is above or below the median. Columns (3) and (4) present estimates for subsidiaries with above- and below-median shares of passive income, measured as the pre-treatment average ratio of financial revenue to total revenue. Columns (5) and (6) differentiate subsidiaries based on pre-existing levels of economic substance. Subsidiaries are classified as having low substance if their pre-treatment average total assets and number of employees are both below the median, and as having high substance if both measures exceed the median. The outcome variables are CFC subsidiaries' fixed assets in Panel A, number of employees in Panel B, and costs of employees in Panel C. All specifications include the same control variables as in Table 7, as well as subsidiary and year fixed effects. Robust standard errors clustered at the subsidiary level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.