Corporate tax cuts and firm employment: A match made in haven?

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Abstract: Evidence on employment responses to corporate income taxes is mixed. This paper revisits the issue in the context of corporate tax avoidance. It is now well known that multinational companies artificially register some of their profits in tax havens to reduce their tax liability. The study reveals that all other things being equal, the establishment of tax haven subsidiaries is followed by a 4 percent rise in firm employment in the subsequent years. This finding offers greater insight into how corporate income taxes affect employment levels. It also has particular resonance at a time when international tax regulation is tightening to limit the aggressive tax planning activities of large multinational companies.

Keywords: Multinational enterprises, tax avoidance, profit shifting, employment, tax havens.

JEL codes: F16, F23, H26, J21, M51.

Highlights:

- The paper studies the effect of profit shifting on firm employment.
- It exploits data on US-listed firms' financial statements and subsidiaries.
- Entry into tax havens is associated with employment growth.
- The finding fuels current discussions on the fight against income shifting practices.

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1 Introduction

The taxation of multinational enterprises (MNEs) has been at the forefront of media and political agendas during the past decade. On the one hand, numerous tax scandals have erupted following massive data leaks. The latter revealed to the public that MNEs artificially book their profits in tax-friendly and opaque jurisdictions like tax havens to diminish tax expenses. On the other hand, after many years of effort and negotiations, in late 2021, the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting reached an agreement to implement a global minimum tax for the largest MNEs. The agreement, endorsed by nearly 140 countries, has marked a milestone in international tax cooperation.

The literature extensively documents how MNEs transfer income toward low-tax jurisdictions (e.g., Beer et al., 2020). It also attempts to quantify the extent of the phenomenon and derive implications for tax revenues (e.g., Tørsløv et al., 2021). Yet, little is known about the consequences of profit shifting beyond tax revenues. The topic has gained the attention of researchers only very recently. A handful of papers uncover a positive impact of profit shifting on MNEs' investment (e.g., Goldbach et al., 2019; Klemm and Liu, 2019; De Mooij and Liu, 2021). The idea is that profit shifting decreases the average effective tax rate of MNEs, which in turn reduces the cost of capital and thereby fosters real investments. If investments increase as a result of profit shifting, we might expect firm employment to rise too (Jacob, 2022). Our understanding of the issue is still limited. As pointed out by Jacob (2022) in his survey, employment responses to corporate tax avoidance – and more generally to corporate income taxes – remain understudied.

The present paper contributes to filling this gap. Using data on US-listed firms' financial statements and subsidiaries and difference-in-differences (DiD) estimation techniques with two-way fixed effects (FEs), I scrutinize the evolution of firm (worldwide) employment before and after entry into tax havens (equivalently, offshore financial centers, OFCs). The results show that physical expansion into OFCs is associated with an increase in employment of about 4 percent. It is worth stressing that OFCs are mainly small jurisdictions and absorb a minor share of MNEs' total employment (Brown et al., 2019). Therefore, the results are unlikely to be driven by employees hired in OFCs.

The pattern is corroborated by several robustness checks and resonates with Buettner et al. (2018), Bilicka et al. (2021), and López Forero (2022). Buettner et al. (2018) and Bilicka et al. (2021) observe a harmful effect of anti-profit shifting measures on firm employment. My approach is different but complementary. Instead of looking at the consequences of a decline in profit shifting, I more directly look at the impact of a surge in profit shifting, and the findings prove to be consistent. The paper more closely relates to López Forero (2022). Her analysis is to my knowledge the only other examination of the employment effect of firm entry into OFCs. She finds the opposite result. However, the two papers are not incompatible. I argue on the contrary that they complete each other and highlight the

two key characteristics of OFCs: low corporate income tax rates (this paper) and lack of transparency (López Forero, 2022).

The paper is divided into five sections. Section 2 introduces the data. Next, section 3 outlines the econometric strategy, and section 4 lays out the results. Section 5 reconciles the results with those of López Forero (2022) and finally concludes.

2 Data

The data come from two sources: Compustat and Exhibit 21. Compustat provides consolidated financial statements of US-listed companies since the 1950s. It is one of the most frequent databases in the corporate tax avoidance literature. Importantly, it contains the companies that are the most inclined to engage in profit shifting. US-listed firms are indeed the most productive, and it has been established that only such enterprises have the resources to undertake foreign direct investments (FDIs) and large-scale tax dodging activities (e.g., Helpman et al., 2004; Gumpert et al., 2016).

Compustat data are merged with Exhibit 21 data. Every year, US-listed companies prepare Exhibit 21 reports in accordance with the rules of the Securities and Exchange Commission. They notably have to file a list of their significant subsidiaries (see Online Appendix figure AF1 for an example). A subsidiary is significant if its assets (revenues) account for at least 10 percent of consolidated assets (revenues). Moreover, undisclosed subsidiaries need to be disclosed if, all together, they reach the 10 percent threshold. Exhibit 21 reports thus reflect where at least 90 percent of US-listed firms' assets and revenues are recorded and give an accurate picture of their worldwide network of subsidiaries. [1] The final sample covers the 1993-2013 period and includes 14,070 US-listed companies, all of which declared at least one subsidiary at some point over the period.

3 Event study

A DiD model with two-way FEs is used to assess the effect of profit shifting on firm employment, similarly to Buettner et al. (2018) and Bilicka et al. (2021):

$$ln(employment_{i,t}) = \alpha TREATMENT_{i,t} + \beta X_{i,t-1} + \mu_i + \delta_t + \epsilon_{i,t} \quad (1)$$

$employment_{i,t}$ denotes the total number of employees of firm i in year t. $TREATMENT_{i,t}$ is a binary variable equal to 1 if firm i divulges at least one tax haven subsidiary in year t. Entry into OFCs is interpreted as an international tax planning strategy allowing MNEs to lessen their tax burden, something for which Jones and Temouri (2016), Godar (2021), and Souillard (2022a,b), among many others, provide robust evidence. The baseline OFC classification comes from Dyreng and Lindsey

1. See Souillard (2022a,b) for more discussions about these data and for stylized facts on US-listed firms and tax haven FDIs.

TABLE 1 – Employment effect of profit shifting

Column	(1)	(2)	(3)
Dependent variable	$ln(employment_{i,t})$	$ln(employment_{i,t})$	$ln(employment_{i,t})$
$TREATMENT_{i,t}$	0.045***	0.044***	0.042***
	(0.011)	(0.011)	(0.012)
R-squared	0.966	0.966	0.966
Observations	98,161	98,161	98,161
Controls, firm FEs, year FEs	Yes	Yes	Yes
OFC list	DL	HR	DL-6

Notes: Results for equation (1). *** p < 0.01. Standard errors in parentheses clustered at the firm level. DL: Dyreng and Lindsey (2009). HR: Hines and Rice (1994). DL-6: Dyreng and Lindsey (2009) after ruling out Hong Kong, Ireland, Luxembourg, Malaysia, Singapore, and Switzerland. See section 4 for more details.

(2009) and consists of 46 jurisdictions (enumerated in Online Appendix table AT1). $X_{i,t-1}$ is a vector of covariates. It includes (lagged) sales and assets, in logarithm, and the number of subsidiaries in non-OFCs. Finally, firm and year FEs correct for systematic heterogeneity across firms, global trends in employment, and transitory macroeconomic shocks.

α reflects the effect of profit shifting on firm employment. The idea is to inspect firms with comparable fundamentals pre-treatment. Take two firms i and i' experiencing similar growth and both absent from OFCs in year $t-1$. Assume that firm i enters OFCs in year t, unlike firm i'. The assumption is that the number of employees in i and i' would have evolved in the same way, had firm i not entered into OFCs in year t.

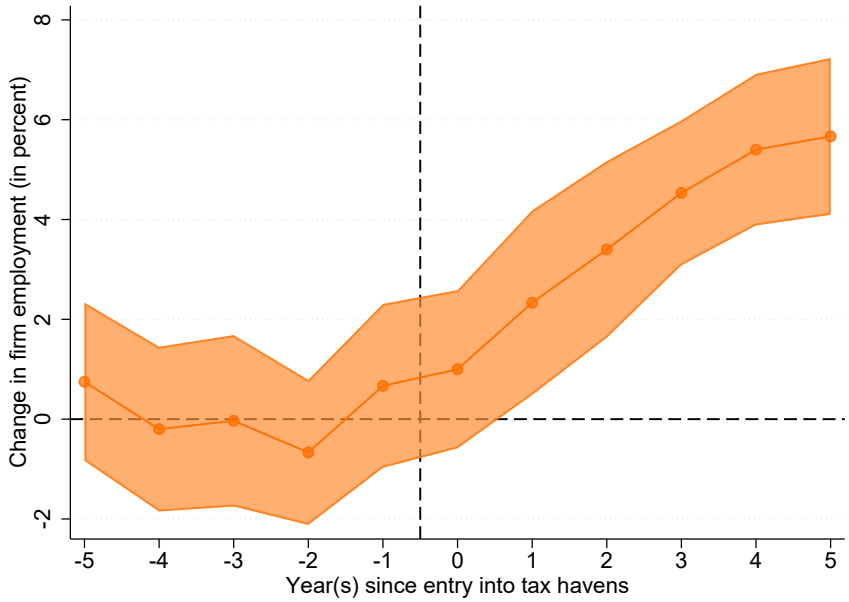
4 Results

The baseline results are attached in the first column of table 1. $\hat{\alpha}$ is equal to 0.04 and statistically significant at the 1 percent level. It means that firm employment increases by around 4 percent post-entry into OFCs. This observation is in line with prior studies tackling the effect of profit shifting on firm investment and concurs with those analyzing the impact of anti-profit shifting rules on firm employment.

To gauge the robustness of the results, I perform three types of sensitivity tests. The first ones verify that there are no pre-existing trends. The identification strategy relies on the hypothesis that employment in treated and non-treated firms evolved in a similar way pre-treatment. Figure 1 displays the dynamics of firm employment year after year, pre- and post-treatment, within a ten-year window. There are no significant changes in firm employment pre-entry into OFCs. The pattern gives credence to the parallel trend assumption and alleviates endogeneity concerns. Then, firm employment progressively grows.

The second series of tests addresses econometric issues raised by De Chaisemartin and D'Haultfœuille (2020) and Callaway and Sant'Anna (2021). De Chaisemartin and D'Haultfœuille (2020) explain that two-way FEs regression models can be misleading if the treatment effect is heterogeneous and if some

FIGURE 1 – Employment dynamics before and after entry into OFCs



Notes: Results for equation (1) after inserting five lead and five lagged values of the treatment variable. Point estimates with 95 percent confidence intervals. Standard errors clustered at the firm level. See section 4 for more details.

weights are negative. The share of negative weights in equation (1) is relatively low (9 percent). Thus, treatment effect heterogeneity is unlikely to be a major threat in this exercise. Callaway and Sant'Anna (2021) develop a new estimator for DiD with two-way FEs that adjusts for both heterogeneous treatment effects and staggered treatment timing. The regression results in Online Appendix table AT2 coincide and strengthen the benchmark ones.

The last sensitivity checks pertain to the OFC classification. Regression results in table 1 column (2) demonstrate that the finding holds with the list of Hines and Rice (1994), another list customary in the field. Column (3) preserves the baseline classification but excludes the largest OFCs, namely: Hong Kong, Ireland, Luxembourg, Malaysia, Singapore, and Switzerland. The rationale is the following. The trade literature posits that FDIs are principally directed toward large jurisdictions (e.g., Helpman et al., 2004). Hence, FDIs of US-listed firms in these six jurisdictions are not necessarily motivated by tax saving purposes. Investments conducted in small and remote islands such as Seychelles, on the other hand, are more prone to fall within the sole scope of profit shifting. In addition, recall that the number of employees in these jurisdictions represents a tiny share of employment. Brown et al. (2019) notice that (i) OFCs concentrate less than 5 percent of MNEs' total employment and (ii) Hong Kong, Ireland, Luxembourg, Singapore, and Switzerland make up the bulk of MNEs' employment in OFCs. This evidence, combined with the fact that $\hat{\alpha}$ is remarkably stable across all the regressions, supports the claim that the results are not mechanical. They capture a rise in firm employment in non-OFCs,

not in OFCs.

5 Discussion and conclusion

This paper shows that profit shifting goes along with firm employment growth. At first sight, this finding contrasts with López Forero (2022). She observes that MNEs' entry into tax havens leads to job cuts in France. So what causes this discrepancy? One difference is that her study focuses on the number of MNEs' employees in France. Mine looks at MNEs' total employment and thus provides a more comprehensive overview of employment responses to profit shifting. Perhaps more interestingly, France stands out in terms of employment protection legislation. A growing firm that wishes to close plants – for instance to relocate its operations abroad – has to incur substantial costs to compensate its workers (for anecdotal evidence and discussions, see López Forero, 2022). In this context, MNEs operating in France and implanted in OFCs not only benefit from the tax-friendly environment of OFCs ("tax effect") but also fully take advantage of their opacity ("secrecy effect"). By minimizing their profitability in France, they can justify lay-off plans and close French subsidiaries more easily, i.e., at a lower cost. While López Forero (2022) emphasizes this "secrecy effect" and proves that it might dominate at least locally depending on labor regulations' stringency, the present paper highlights the "tax effect" of profit shifting on employment, which is for its part more likely to prevail at the global level.

My results have important implications at a time when international tax regulation is tightening. They suggest that reforms designed to curb profit shifting might potentially trigger adverse effects and generate a trade-off for policymakers between tax revenues and employment. Future research is required in this direction to shed light on general equilibrium effects and job reallocation mechanisms.

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Online Appendix

FIGURE AF1 – Subsidiaries reported by PFIZER INC

EX-21 6 y46668ex21.htm SUBSIDIARIES OF THE COMPANY

EXHIBIT 21

SUBSIDIARIES OF THE COMPANY

The following is a list of subsidiaries of the Company as of December 31, 2000, omitting some subsidiaries which, considered in the aggregate, would not constitute a significant subsidiary.

NAME	WHERE INCORPORATED
412357 Ontario Inc	Canada
A S Ruffel (Mozambique) Limitada	Mozambique
A S Ruffel (Private) Ltd	Zimbabwe
A.S. Ruffel (Proprietary) Limited	South Africa
A/O Pfizer	Russia
Adams (Thailand) Limited	Thailand
Adams Panama, Sociedad Anonima	Panama
Adams S.A	Argentina
Adenylchemie GmbH	Germany
Agouron Pharmaceuticals (Europe) Limited	United Kingdom
Agouron Pharmaceuticals Canada Inc	Canada
Agouron Pharmaceuticals, Inc	United States
American Chicle Company	United States
American Foods Industries, Inc	United States
AMS Medical Systems AG	Switzerland
Anaderm Research Corp	United States
Andean Services SA	Colombia
Bioindustria Farmaceutici S.p.A.	Italy
Biorell GmbH	Germany
Blue Cross S.r.l	Italy
C.P. Pharmaceuticals International C.V	Netherlands
Cachou Lajaunie	France
Capsugel AG/SA/ Ltd	Switzerland
Capsugel France	France
Charwell Pharmaceuticals Limited	United Kingdom
Chicle Adams, S.A	Colombia

Notes: This snapshot provides a non-exhaustive list of the significant subsidiaries reported by PFIZER INC in Exhibit 21 in December 2000.

TABLE AT1 – List of tax havens from Dyreng and Lindsey (2009)

Andorra, Anguilla, Antigua and Barbuda, Aruba, Bahamas, Bahrain, Barbados, Belize, Bermuda, Cayman Islands, Cook Islands, Costa Rica, Cyprus, Dominica, Gibraltar, Grenada, Guernsey, Hong Kong, Ireland, Isle of Man, Jersey, Lebanon, Liberia, Liechtenstein, Luxembourg, Macau, Malaysia, Malta, Marshall Islands, Mauritius, Monaco, Montserrat, Nauru, Netherlands Antilles, Niue, Panama, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Seychelles, Singapore, Switzerland, Turks and Caicos Islands, Vanuatu.

Notes: Compared to Dyreng and Lindsey (2009), Hines and Rice (1994) include the British Virgin Islands, Jordan, Maldives, and Saint Martin. However, they do not include Aruba, Costa Rica, Malaysia, Mauritius, Nauru, Niue, Samoa, San Marino, and Seychelles. In total, the two lists have 37 tax havens in common.

TABLE AT2 – Employment effect of profit shifting – Estimator of Callaway and Sant'Anna (2021)

Dependent variable	$ln(employment_{i,t})$	$ln(employment_{i,t})$	$ln(employment_{i,t})$
Comparison group	Never-treated firms	Never-treated firms	Never-treated firms
$TREATMENT_{i,t}$	0.054***	0.052***	0.053***
	(0.014)	(0.018)	(0.016)
OFC list	DL	HR	DL-6
Comparison group	Not-yet treated firms	Not-yet treated firms	Not-yet treated firms
$TREATMENT_{i,t}$	0.050***	0.051***	0.051***
	(0.011)	(0.013)	(0.012)
OFC list	DL	HR	DL-6

Notes: *** $p < 0.01$. These results correspond to DiD regressions with two-way FEs based on Callaway and Sant'Anna (2021). Simple weighted average of all average treatment effects across groups and periods, as defined in Callaway and Sant'Anna (2021). Standard errors in parentheses are clustered at the firm level. DL: Dyreng and Lindsey (2009). HR: Hines and Rice (1994). DL-6: Dyreng and Lindsey (2009) after ruling out Hong Kong, Ireland, Luxembourg, Malaysia, Singapore, and Switzerland. See section 4 for more details.