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Are Uganda's corporate tax incentives meeting their objectives?

A difference-in-differences analysis

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ABSTRACT

This paper studies the effects of the provision of a corporate income tax (CIT) exemption granted to investors in Uganda on key economic outcomes such as investment in fixed assets, sales revenues and employment. Specifically, we consider the case of the 10-year CIT exemption offered under section 21(1)(af) of the Ugandan Income Tax Act (ITA). Using a difference-in-differences methodology, we find that whilst beneficiary firms invested, on average, more than non-beneficiaries, there are no positive and robust effects on the other outcomes of interest. The finding on investment confirms that beneficiaries have made up-front investments in order to qualify for the exemption. We suggest that the lack of positive effects on other outcomes can be explained by the fact that (i) it is still early in the life cycle of many of the qualifying investments, or (ii), that the exemptions are simply redundant and do not encourage firms to produce or employ beyond what they otherwise would. Such incentives should provide a net benefit to the economy; it is not clear that this is currently the case.

Keywords: Uganda; Corporate Tax; Tax Incentives; Investment Incentives

JEL codes: H2; H25; O12; O23

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1. Introduction

The scope of corporate tax exemptions in Uganda's Income Tax Act (ITA) has broadened significantly over the past five years. Whilst there has been a growing interest in understanding the fiscal costs of Uganda's tax expenditures, there has been far less work to quantify the economic benefits realised from these provisions.

Notably, Uganda's corporate income tax (CIT) to GDP ratio stands amongst the very lowest on the African continent at around just 0.9% (OECD, 2022). Moreover, the IMF projects that the general government debt-to-GDP ratio is projected to break the 50% threshold outlined in the Charter for Fiscal Responsibility in 2022 (MoFPED, 2022a), and the most recent estimates suggest that the amount of revenue foregone from tax expenditures has increased by around 80% (from 0.87 to 1.56% of GDP between 2016/17 – 2021/22) in the past five years (MoFPED, 2022b). There is, thus, a pressing need to create evidence that helps us to better understand whether tax expenditures are providing benefits to the economy over and above the revenue foregone from exempting business income, and if not, to re-evaluate their role in Uganda's tax system. This study attempts to provide such evidence, by estimating the effects of the provision of an income tax exemption on firm investment levels, sales revenue and employment.

The Government of Uganda has recently committed to reducing its budget deficit primarily by raising revenues, rather than cutting spending. Accordingly, any tax expenditures that cannot be rationalised stand out as obvious candidates for reform. Indeed, as part of the Extended Credit Facility agreement with the International Monetary Fund (IMF), policymakers have committed to the ambitious target of reducing revenue foregone associated with tax expenditures by 0.1% of GDP in FY 2022/23 and then by 0.2% of GDP in FY 2023/24 and the subsequent years (IMF, 2022).

Research from numerous countries has produced conflicting findings on the efficacy of tax holidays for attracting investment and promoting economic development. For example, work that examined the impact of tax incentives on FDI in the CFA Franc zone found no evidence that tax holidays increased either FDI or fixed capital formation (Van Parys and James, 2010)[2]. Meanwhile, a 2011 survey found that over 90% of investors in Uganda that had benefitted from incentives suggested that the project would have happened even without the incentive, and just 13% suggested that incentives "influenced" their investment (James, 2013). Crucially, IMF (2015) argue that 'cost-based' incentives linked to investment expense are more effective in encouraging investment than 'profit-based' incentives such as tax holidays. This is because there will be a higher benefit to activities with low profitability. At the same time, they note that highly profitable investments - that are also internationally mobile - might be somewhat more influenced by the availability of profit-based incentives. Notably, Uganda already provides generous capital allowances to investors (Section 27A of

[2] The same study did however find that decreasing the complexity of the tax system and increasing legal guarantees for investors had a positive impact on investment.

the ITA – although this is limited to firms outside of the Kampala area) and unlimited carry-forward of tax losses.

It is against this backdrop that we seek to evaluate the benefits of the 10-year CIT exemptions offered under Section 21(1)(af) of the ITA. These exemptions are available to investments that meet a certain threshold and other criteria related to the use of local inputs and labour. Data from the Uganda Revenue Authority (URA) show that at the time of writing this paper, 38 firms[3] had made qualifying investments that are exempt from CIT under this provision. This provision is the most widely-used tax exemption in the ITA.

To shed light on the question of whether there are any benefits to these exemptions, we utilise firm-level data from the URA and carry out a difference-in-differences (DiD) analysis. Specifically, we compare how investment in fixed assets, sales, and employment (as measured by the total wage bill and number of staff employed) of CIT exempt firms changes over time relative to a group of comparable firms who are not beneficiaries of the exemption.

Our results show that beneficiaries do invest more than non-beneficiaries. This result is, however, explainable by the fact that the exemption is awarded only after firms have met a certain investment threshold. We find no robust evidence of positive effects on the other outcomes of interest. Crucially, a significant number of the investments that benefit from this exemption were made by large, pre-existing firms. Our results suggest that it is likely that these investments would have still taken place in the absence of the CIT holiday and therefore represent a revenue leakage and an economic distortion as the availability of the exemption may merely have brought forward the timing of the investment. It should be noted that this study does not represent a holistic cost-benefit analysis of the tax exemption, but does represent the first work that attempts to quantify and understand some of the potential economic benefits to Uganda's economy of this (or indeed any) exemption.

The rest of this paper is structured as follows. In section 2, we discuss the institutional setting and describe the exemption in question. Section 3 outlines our data and methodological approach. Section 4 presents the results of the empirical investigation. Section 5 provides a discussion of the implications of the findings and some limitations to the study. Section 6 concludes.

2. Institutional Setting

2.1 Income Tax Exemptions in Uganda

There are several exemptions in Uganda's tax laws which are designed to promote investment and other economic objectives.[4] These include boosting employment, exports and the use of local labour and raw materials. For strategic investors, provisions exist for income tax, Value

[3] This figure regarding the no. of beneficiaries is correct as of June 2022.
[4] We use the terms *tax exemption* and *tax holiday* interchangeably.

Added Tax (VAT), excise and stamp duty exemptions, subject to firms / investors meeting a set of qualifying criteria.

Four of the key income tax exemptions available to private firms / investors in Uganda are:

- **Section 21(1)(y):** 10-year CIT exemption for exporters of finished consumer and capital goods who export over 80% of their production. This was introduced in 2007.

- **Section 21(1)(ae):** 10-year CIT exemption for operators of industrial parks or free zones if an investment is made of US$50m or US$10m in the case of foreigners and citizens respectively.

- **Section 21(1)(af):** 10-year CIT exemption for firms operating in an industry considered to be a priority sector and meeting a range of qualifying criteria related to level of investment (which is notably lower than the thresholds set out under Section 21.1.ai), employment of Ugandan citizens and sourcing of local raw materials.

- **Section 21(1)(ai):** 10-year CIT exemption for any manufacturer who invests at least US$35m (if a foreign investor) or US$5m (for a local investor).[5]

The focus of our study is on the CIT holiday offered under Section 21(1)(af). There are several reasons for this:

Firstly, the CIT holiday offered under Section 21(1)(af) was first added to the income tax act in FY 2018/19, allowing us to undertake an event study to understand the impact of the provision on outcomes both before and after the incentive was provided to firms, relative to a control group of otherwise structurally similar firms which do not benefit. This allows us to go beyond making descriptive comparisons and attempt to provide causal inference on the results.

Secondly, the exemption offered under Section 21(1)(af) is the most widely used of any firm-level statutory tax exemption. The most recent URA data show that the provision has been used by 38 firms (as of FY 2021/22). In contrast, Section 21(1)(y) – the provision designed explicitly to promote exports – is the second most-widely used exemption in the Income Tax Act with only 11 beneficiaries at the time of writing.

Finally, the qualifying criteria for Section 21(1)(af) are part of a suite of tax holidays offered to strategic investors meeting certain criteria, allowing them to benefit from similar exemptions under other domestic tax laws. These include: (i) clause (pp) of Section 19, Paragraph 1 of the 2nd Schedule of the VAT Act, Schedule 2, (ii) Item 60A(b) of the Stamp Duty Act and (iii) Schedule 2, Item 21 of the Excise Duty Act. Accordingly, many of the beneficiaries of Section 21(1)(af) in the IT Act typically benefit from one or more of these other provisions included in other parts of the domestic laws. This means that by analysing the behaviour of beneficiaries of Section 21(1)(af) of the IT Act, we will (at least to some

[5] Specifically, this provision is available to any manufacturer not listed under 21(1)(af)

extent) also be looking at the beneficiaries of statutory tax exemptions more broadly. We can think of these laws as 'sister provisions' to one another.

2.2 Income Tax Exemptions under ITA Section 21(1)(af)

Section 21 of Uganda's ITA was amended in 2018 to include subsection 21(1)(af). However, this subsection has itself been amended numerous times since its inclusion, notably with relation to the minimum investment thresholds and the qualifying criteria and sectors. At the time of writing this paper, the qualifying criteria are as follows:

1. **Investment Threshold:** Firms must have made an investment of at least US$10m (in the case of foreigners), or at least US$300,000 (in the case of citizens investing in the Kampala area) or US$150,000 (in the case of citizens investing 'upcountry').[6] Before the firm receives the tax exemption under Section 21(1)(af), the URA must have verified that these qualifying investments have already been made. Thus, the investment must be realised and not merely a commitment.

2. **Local Employment Requirements:** At least 70% of the employees of beneficiaries of the exemption under 21(1)(af) must be Ugandan citizens. Moreover, at least 70% of the aggregate wage bill must be paid to Uganda citizens. Whether the beneficiaries of Section 21(1)(af) are meeting this condition is periodically monitored by the URA.

3. **Local Raw Material (LRM) Requirements:** 70% of the raw materials used by beneficiaries must be sourced from within Uganda. This is also monitored periodically by the URA.

4. The current list of **qualifying activities and sectors** is as follows: *Processing of agricultural goods; Manufacturing or assembling of medical appliances; Manufacturing of: medical sundries; pharmaceuticals; building materials; furniture; pulp and paper, tyres, footwear, mattresses, toothpaste, chemicals for agricultural and industrial use, textiles, glassware, leather products, industrial machinery, electrical equipment, sanitary pads, diapers; Manufacturing or assembling of automobiles; Manufacturing or assembling of household appliances; Printing and publishing of instructional material; Establishing and/or operating of vocational or training institutes; Logistics and warehousing; Information technology and Commercial farming.*

It is important to note that the Income Tax Act further outlines the concept of "qualifying investments" and "qualifying income" in subsections 21(1)(1a – 1e). These affirm that only the part of income earned from a qualifying investment will be treated as exempt. Thus, for an existing firm, the income generated from any *new* qualifying investment (that meets the

[6] 'Upcountry' is defined as 50km outside the boundaries of Kampala.

thresholds outlined) would be exempt from CIT for 10 years, but not the income from any *existing* operations.

2.3 Evolution of Section 21(1)(af)

Since Section 21(1)(af) was introduced into the Income Tax Act in FY2018/19, it has been reformed on an annual basis. These changes are outlined in **Table 2.1**. The key trends in its reform are as follows:

- The qualifying investment threshold has been lowered markedly over time. After being initially set at US$15m for foreigners and US$5m for citizens in FY2018/19, it has been gradually lowered and now stands at US$10m for foreigners and either US$0.30m or US$0.15m, depending on whether the qualifying investment is made in Kampala or upcountry. In other words, the threshold for Ugandan citizens is now only 3% or 6% (depending on the location of the investment) of the original level ($5m), representing a dramatic decrease.

- The length of the tax holiday was increased from five years when Section 21(1)(af) was originally introduced in FY2018/19 to ten years subsequently.

- The list of qualifying sectors has been expanded dramatically over time and now applies to operators in a large portion of the economy. [7]

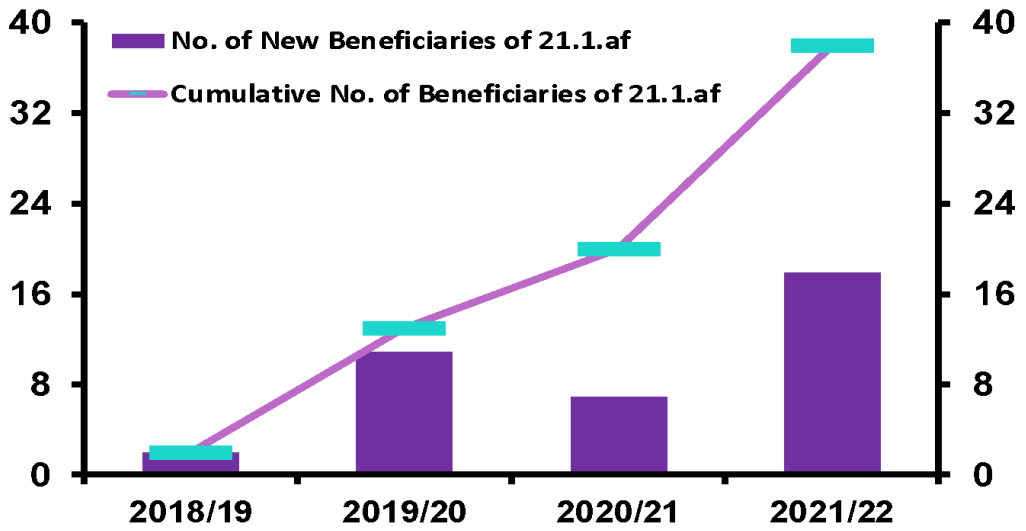
Change in No. of Beneficiaries Over Time

The number of new beneficiaries of Section 21(1)(af) has risen sharply since its introduction, from just two when the provision was introduced in FY 2018/19 to 18 new beneficiaries in the most recent financial year (FY2021/22). The cumulative number of beneficiaries, at the time of writing, stands at 38. This is shown in **Figure 2.1** and, given the recent trend, there is clearly a risk that the number of beneficiaries continues to rise sharply over the coming years, resulting in further erosion of the future corporate income tax base.

There are several factors which may be driving this trend. It could be partly explained by firms requiring adequate time to raise the sufficient investment required to meet the qualifying threshold. It is also likely that the expansion of the list of qualifying sectors and the reduction in the threshold has resulted in a greater number of firms being eligible for the exemption.

[7] However, given the way in which sectors are classified in 21(1)(af), it is impossible to calculate the exact share of GDP accounted for by these qualifying sectors by, for example, matching with the corresponding ISIC codes.

***Figure 2.1**: New Firms Benefitting from Section 21(1)(af) of the ITA*



Source: Uganda Revenue Authority

Revenue Foregone Under CIT Exemptions

Before turning to estimating whether there are any observable economic benefits from the CIT exemption, it is worth briefly reviewing estimates of observable *losses*. The most recent Tax Expenditure Report (MoFPED, 2022b) did not assign any revenue foregone under 21(1)(af) due to data constraints.[8] However, the data accessed for this study allows us for the first time to understand whether this has been the case. An inspection of the CIT returns of the beneficiary companies shows that none reported any positive chargeable incomes in the period after they had received the tax exemption under 21(1)(af). Therefore, to date, there has been no revenue foregone under this provision. However, this is likely because most qualifying investments are in the early years of operation and thus firms are still in a tax loss position. It is highly probable that there will be significant revenue foregone from investments under this provision during the period of the 10-year exemptions.

[8] Revenue foregone measures the amount of tax revenue that *would have been collected* had a particular provision not been in place. It does not take account of behavioural factors.

Table 2.1: *Changes to Section 21(1)(af) Over Time*

Year	Qualifying Investment	No. of Years	LRM Requirement	Local Employment Requirement	Qualifying Sectors Added
2018/19	Foreigners – US$15m Citizens – US$5m	5	-	-	-
2019/20	Foreigners – US$10m Citizens – US$1m	10	Source 50% of raw materials locally	-	Agro-processing Manufacturers or assemblers of medical appliances & sundries, pharmaceuticals, building materials, vehicles & HH appliances Manufacturers of furniture, pulp and paper Printers & publishers of instructional materials Establishers or operators of VTIs Logistics, warehousing, ICT & commercial farming
2020/21	Foreigners – US$10m Citizens (Kampala) – US$0.30m Citizens (Upcountry) – US$0.15m		Source 70% of raw materials locally	Citizens account for 70% of employees; Citizens account for 70% of wage bill.	Manufacturers of tyres, footwear, mattresses and toothpaste
2021/22					Manufacturers of chemicals for agricultural and industrial use Manufacturers of textiles, glassware, leather products, industrial machinery, electrical equipment, sanitary pads and diapers

Source: Uganda Income Tax Act 1997 and various subsequent amendments

3. Methodology & Data

This section outlines our methodological approach and discusses the data at hand. Our primary research question is to understand whether receipt of a CIT exemption under 21(1)(af) affects firms' levels of economic activity as measured by sales, investment, wages paid and the number of staff employed.

3.1 Assigning Treatment

The first pertinent issue is how to assign treatment. We have shown above that the number of beneficiaries of 21(1)(af) has steadily increased since its introduction in the ITA in FY18/19 and stands at 38 at the start of FY22/23. However, the manner in which a firm qualifies for this incentive is important for how we assign treatment. In order to receive the 10-year tax holiday, a firm must have made a qualifying investment and met certain other criteria (as discussed above in Table 2.1). Whilst it may take some years for a firm to meet these criteria, their behaviour – in terms of e.g., investment – will change once the decision has been made to apply for the incentive, *not* when they receive the incentive. It is unfortunately not possible to observe the exact point at which firms' behaviour changes in order to benefit from 21(1)(af) at some point in the future. We therefore assume that the introduction of 21(1)(af) in the ITA led to a change in firms' behaviour *in that year* and beyond. Accordingly, we assign a firm to the treatment group if they qualified for the CIT holiday under 21(1)(af) in any year from FY18/19 onward. The 'post' period is defined as all financial years from FY18/19 inclusive.

The case just discussed pertains to *existing firms* that made a new qualifying investment in order to qualify for 21(1)(af). A separate case is that of a new entrant – for example an overseas investor who was attracted to Uganda by the potential tax holiday. None of these firms will have filed tax returns in the 'pre' period (i.e., any FY prior to FY18/19). They are thus considered as 'treated' for all years for which they file returns.

3.2 Defining the Control Group

In order to find a comparison or 'control' group of firms, we follow two approaches. In the first instance, we simply restrict the sample of firms to those operating in the qualifying sectors for 21(1)(af). These are *A - Agriculture, Forestry and Fishing, C- Manufacturing, F – Construction, G - Wholesale and Retail Trade; Repair Of Motor Vehicles And Motorcycles, H - Transportation And Storage* and *L - Real Estate Activities*.[9] A second approach is to 'match' firms on pre-treatment observables, namely their leverage (as measured by the logarithm of total interest expense) and asset base (as measured by the logarithm of the value of the total asset base). However, this approach has the disadvantage of reducing our 'treatment' sample

[9] The letters pertain to the relevant ISIC code.

size, which may lead to a type two statistical error, as a result of low statistical power. In the analysis below, we present results for both unmatched and matched samples.

3.3 Data

Table 3.1 shows the total number of firms according to treatment status both before (left panel) and after matching (right panel).

Table 3.1: *Treated and Comparison Group Firms*

	Before Matching			After Matching		
Financial Year	**Comparison group firms**	**Treated group firms**	**Total firms**	**Comparison group firms**	**Treated group firms**	**Total firms**
2015/16	24,323	16	24,339	11,793	14	11,807
2016/17	24,756	16	24,772	11,907	13	11,920
2017/18	26,696	17	26,713	12,775	14	12,789
2018/19	28,809	25	28,834	11,840	14	11,854
2019/20	30,712	28	30,740	10,990	14	11,004
2020/21	30,058	33	30,091	9,456	14	9,470
Total	**165,354**	**135**	**165,489**	**68,761**	**83**	**68,844**

Source: Authors' estimations

Before matching, the number of CIT returns of our sample firms amount to 165,489 over the six-year period, ranging from 24,339 in FY15/16 to 30,740 in FY19/20. The slight decline for FY20/21 might be explained, for example, by closures due to Covid-19.[10]

The number of treated firms that were filing returns prior to the introduction of 21(1)af lies at 16 or 17, whilst this rises steadily to 33 in FY20/21. Thus, we can infer that 16 or 17 of the current beneficiaries of 21(1)(af) were pre-existing firms, whilst the remainder were either entirely new firms (that may have been encouraged to set up production by the presence of the incentive – although this is not verifiable with the data at hand) ***or*** pre-existing firms that set up new entities to cover the scope of the CIT-exempt activities.

After matching, the sample size reduces significantly to 68,844 returns in total and between 9,470 and 12,789 in any given year. Our treatment group is also notably smaller, due to the reason outlined above, namely that it is not possible to match new entrants on pre-treatment characteristics. Thus, the analysis with matching is restricted to those that existed before FY18/19. Whilst this might be viewed as a limitation to the approach, it also allows us to focus on a key sub-sample of 21(1)(af) beneficiaries, namely pre-existing firms. A table of summary statistics is provided in Appendix 1.

A first check on our outcomes of interest is to test whether there are statistically significant differences between the treatment and comparison groups at baseline. We define here 'baseline' as the average value in each of the three years prior to treatment (i.e. FY15/16 –

[10] The total number of CIT returns for these years - in the unrestricted sample - is 551,631

FY17/18). The results are shown in **Table 3.2**. In all cases, the difference in outcomes is statistically significant. Those firms in the treatment group have, on average, higher sales revenues, a higher wage bill, a larger stock of fixed assets and a larger number of employees.

Table 3.2: *Two-way T-test for difference in means of key outcome variables at baseline*

Variable	Control Group Mean	Treatment Group Mean	Difference	t	Pr(T>t)
Log Sales Revenue	10.915	17.055	6.140	4.492	0.000***
Log Total Wage Bill	6.913	15.332	8.419	7.184	0.000***
Log Total Fixed Assets	7.487	20.787	13.300	10.420	0.000***
Log Number of Employees	0.534	4.411	3.877	22.803	0.000***

*Source: Authors calculations. *** denotes statistical significance at the 1% level.*

Difference in pre-treatment outcomes need not, however, be an issue for our estimation strategy. For the 'parallel trends' assumption to hold, it is important that the ***trends*** in (not the level of) pre-treatment outcomes are not statistically different between control and treatment groups. If the parallel trends assumption is found not to hold, then the specification in equation [2] is more appropriate for our estimation. We explore this in depth below.

3.4 Empirical Strategy

The analysis in this paper is based on both the 'standard' Difference in Difference (DID) and a DID with matching estimation techniques. The 'standard' DID estimation equation is:

$$\ln ln\,(Y_{it}) = \gamma f_i + \tau time + \beta X_{it} + \partial\left(I_i * Post\right) + \varepsilon_{it} \qquad \textbf{[1]}$$

Where:

- o $\ln ln\,(Y_{it})$ is the natural logarithm of our outcome variables of interest, namely investment, total sales, the total wage bill and number of employees.
- o f_i is a firm-level fixed effect that controls for firm specific time-invariant characteristics.
- o $time$ is a time trend that is assumed to be the same for both CIT exempt and non-exempt firms, and captures common shocks, such as macroeconomic shocks, that would affect firms' outcome variables in the same way.
- o X_{it} is a vector of time-varying firm-specific characteristics. Specifically, the leverage of a firm as proxied by the level of interest expense and a dummy variable for t = 6 to capture any time-specific shocks that affect both exempt and non-exempt firms in the same way at that particular time.
- o I_i is a dummy variable equal to 1 for firms that are beneficiaries of the CIT exemption (=0 for control group firms).

- $Post$ is a dummy variable equal to 1 for the periods FY18/19 and later, which is the time when the CIT exemption is in existence. The coefficient on the interaction term between $Post$ and the dummy variable for treated firms captures the effect of the CIT exemption. This is our coefficient of interest.
- ε_{it} is a time-varying firm specific error term, and it is assumed to be uncorrelated with the variables specified in Equation [1].

The estimation of Equation [1] is founded on the assumption of parallel trends, that is, without the provision of the CIT exemption, the changes in the outcome variables of interest would be the same over time for both the treatment and control groups (Angrist and Pischke, 2008). In practice, however, the parallel trends assumption may not hold – a formal test of the assumption is conducted by regressing the indicator for treatment on the outcome variables of interest for periods before the CIT exemption was introduced. If the CIT exemption and not any other factors, were to cause the trends in the outcome variables of the treated firms to be different form the comparison group, then there should not be any significant effects for periods before the CIT exemption was introduced. In the event that parallel trends assumption is violated, with multiple periods of data before the treatment date, Glewwe and Todd (2022) suggest that the impact of treatment can be estimated in a more flexible manner. That is, a non-parallel linear time trend can be modelled, and the impact of the income tax incentive can be allowed to differ at different periods. Allowing for non-parallel linear trends and for the effect of the tax incentive to vary over time, the impact of the incentive is estimated according to Equation **[2]:**

$$\ln ln\left(Y_{it}\right) = \gamma f_i + \tau_0 time + \tau_1\left(time * I_i\right) + \beta X_{it} + \delta_1\left(1\ year\ post\ exemption * I_i\right) + \delta_2\left(2\ years\ p\right)$$

[2]

This equation largely mirrors Equation [1], but we allow for a different time trends for treated and comparison group firms, and the treatment effect is allowed to vary for periods after the CIT exemption. The next section discusses our results.

4. Results

4.1 Baseline Specification

The results from Equation [1] for firms' sales revenues, total wage bill, fixed assets and number of employees are shown in **Tables 4.1 – 4.4**, respectively. Each of these tables follows a similar format. Specification (1) shows results from a difference-in-differences estimation without any control variables, but includes a common time trend to account for macroeconomic shocks that affect firms' sales revenues, total wage bill, fixed assets and total employees in the same way, a year specific dummy variable for t=6 to capture any time-specific shocks that affect both exempt and non-exempt firms in the same way at that particular time, and firm-level fixed effects to control for unobserved time-invariant

firm-specific characteristics. Specification (2) adds log interest expenses as a control variable to account for the leverage of a firm since firms might borrow to invest, allowing them to benefit from the income tax incentive. Finally, Specification (3) shows results for treated firms that are matched on the pre-treated covariate to comparison group firms. For this specification, effects are measured for exempt firms for which similar non-exempt firms, in terms of leverage, can be found in the data. This specification also uses log interest expenses as a control variable.

The estimates in specification (1) of **Table 4.1** show that the sales revenues of incentivised firms were 3 times higher than those of the comparison group firms. This result is only statistically significant at the 10 percent level. Including log interest expenses as a control for firm leverage in Specification (2) results in a relatively smaller effect – the results suggests that incentivised firms had sales revenues that were 2.5 times higher relative to the comparison group. Notably, the effect of the income tax incentive on firms' sales revenues remains positive, even after matching on the pre-treated leverage of firms. This result is in Specification (3), and it suggests that incentivized firms registered sales revenues that were 2.7 times higher than the comparison group firms. This result is statistically significant at the 5 percent level. While matching reduces the sample size significantly, which might detrimentally affect the statistical power, it ensures that there is improved balance between the exempt firms and the comparison group firms before the income tax incentive was granted. Note that as there are very few treated firms, matches were found for only 61 percent of the treated sample. Nonetheless, a statistically significant effect is observed on the coefficient of interest.

Table 4.1: *The Impact of granting a CIT Exemption on Firms' Sales Revenues*

	Log Sales Revenues		
	(1)	(2)	(3)
Exempt from CIT*After FY2018/19	3.043*	2.473*	2.715**
	(1.819)	(1.348)	(1.295)
Time trend	-0.104***	-0.111***	-0.479***
	(0.017)	(0.016)	(0.020)
Firm-level fixed effects	Yes	Yes	Yes
Dummy for t=6	Yes	Yes	Yes
Control variable	No	Yes	Yes
Matching on covariate	No	No	Yes
Observations	165,489	165,489	68,837
R-squared	0.001	0.033	0.073
Number of firms	54,766	54,766	17,219

*Robust standard errors in parentheses and are clustered at a firm level: ***, **, and * denote significance at the 1, 5 and 10 percent levels, respectively. The control variable is log interest expense which controls for leverage of firm. This control variable is used to generate the propensity score that is used for matching*

Table 4.2 estimates the effect of receiving the income tax holiday on firms' total wage bill, assuming that the parallel trends assumption holds. One of the (implicit) objectives of providing such incentives is to encourage job creation beyond what would have been created without the incentive. If that is indeed the case, there should be significant changes in the wage bill of treated firms relative to the comparison group. The results in Specification (1)

estimates that the wage bill for exempt firms was 2.8 times higher than that of comparison group firms; this result is statistically significant at the 10 percent level.

Table 4.2: *The Impact of Granting a CIT Exemption on Firms' Total Wage Bill*

	Log Total Wage Bill		
	(1)	(2)	(3)
Exempt from CIT*After FY2018/19	2.831*	2.384*	1.569
	(1.631)	(1.271)	(1.296)
Time trend	-0.202***	-0.207***	-0.375***
	(0.015)	(0.015)	(0.021)
Firm-level fixed effects	Yes	Yes	Yes
Dummy for t=6	Yes	Yes	Yes
Control variables	No	Yes	Yes
Matching on Covariate	No	No	Yes
Observations	165,489	165,489	68,842
R-squared	0.005	0.031	0.045
Number of firms	54,766	54,766	17,219

*Robust standard errors in parentheses and are clustered at a firm level: ***, **, and * denote significance at the 1, 5 and 10 percent levels, respectively. The control variable is log interest expense which controls for leverage of firm. This control variable is used to generate the propensity score that is used for matching.*

Adding leverage of a firm as a control variable results in an effect that is relatively smaller in magnitude, such that exempt firms' wage bill is about 2.4 times higher than the wage bill for comparison group firms (see column 2). The matching technique results in a relatively smaller effect which is shown in specification (3), and although the effect is still positive, it is not statistically significant. This is attributable to the loss in statistical power since the sample size decreases significantly due to the use of matching. There is thus some indication that treated firms had higher wage bills than control group firms, but the statistical significance of this result does not hold across different modelling assumptions and approaches.

The third outcome of interest is the effect of receipt of the income tax incentive on firm investment, which in this case is measured by the log fixed assets of a firm. Given the manner in which the incentive is structured, it is expected that benefiting firms must have invested a significant amount of capital before they are granted the income tax holiday. If this is indeed true, then one may expect to observe a significant increase in the fixed assets of the benefiting firms. The results on the effect of the income tax incentive on firm fixed assets are shown in **Table 4.3.**

Table 4.3: *The Impact of Granting a CIT Exemption on Firms' Total Fixed Assets*

	Log Total Fixed Assets		
	(1)	(2)	(3)
Exempt from CIT*After FY2018/19	4.025**	3.641**	2.320***
	(1.654)	(1.605)	(0.393)
Time trend	0.006	0.002	-0.399***

	(0.013)	(0.013)	(0.017)
Firm-level fixed effects	Yes	Yes	Yes
Dummy for t=6	Yes	Yes	Yes
Control variables	No	Yes	Yes
Observations	165,487	165,487	68,840
R-squared	0.000	0.025	0.056
Number of firms	54,766	54,766	17,219

*Robust standard errors in parentheses and are clustered at a firm level: ***, **, and * denote the significance at the 1, 5 and 10 percent levels, respectively. The control variable is log interest expense which controls for leverage of firm. This control variable is used to generate the propensity score that is used for matching.*

Specification (1) of **Table 4.3** shows that exempt firms' investment in fixed assets was 4 times higher than those of the comparison group. This result is significant at the 5 percent level. Adding leverage of a firm as a control variable leads to a marginally smaller effect of 3.6 times more investment in fixed assets by exempt firms relative to the comparison group. This result is in Specification (2) and statistically significant at the 5 percent level. Matching on the pre-treated covariate (while also including leverage as a control variable) results in an effect of 2.3 times more investment in fixed assets for exempt firms relative to the comparison group. This result is shown in Specification (3) and it is statistically significant at the 1 percent level.

The results in Table 4.3 provide suggestive evidence that exempt firms are investing a lot more in fixed assets relative to the comparison group. As discussed, this result is expected. As a precondition for receipt of this income tax incentive, beneficiaries need to have invested up to a certain threshold, which will (all else equal) increase the total asset base. The findings in Table 4.3, therefore, confirm that the exempt firms are indeed investing more than comparison group firms.

Table 4.4 displays results where the dependent variable is the (log) number of employees. We see some evidence that treated firms' workforces grow significantly larger than the control group. Specifically, in columns 1 and 2, the effect of the interaction variable is positive and statistically significant at the 10% level. However, the result does not hold with matching on pre-treated outcomes.

***Table 4.4**: The Impact of granting a CIT Exemption on Firms' # of Employees*

	Log # of Employees		
	(1)	(2)	(3)
Exempt from CIT * After FY2018/19	0.504*	0.477*	0.099
	(0.294)	(0.277)	(0.246)
Time trend	0.070***	0.070***	0.104***
	(0.002)	(0.002)	(0.003)
Firm-level fixed effects	Yes	Yes	Yes
Dummy for t=6	Yes	Yes	Yes

Control variable	No	Yes	Yes
Matching on covariate	No	No	Yes
Observations	165,465	165,465	68,777
R-squared	0.051	0.060	0.077
Number of firms	54,766	54,766	17,219

*Robust standard errors in parentheses and are clustered at a firm level: ***, **, and * denote the significance at the 1, 5 and 10 percent levels, respectively. The control variable is log interest expense which controls for leverage of firm. This control variable is used to generate the propensity score that is used for matching.*

Combining the results from Tables 4.1-4.4, we can infer that receipt of the CIT holiday was successful in encouraging firms to invest significantly more and these firms report a higher sales revenue. The evidence with respect to the total wage bill and the number of employees also points toward positive effects, but our estimates are not statistically significant across specifications.

4.2 Relaxing the Parallel Trends Assumption

The results are to this point are based on the assumption of parallel trends. If the parallel trends assumption does not hold, then the results as discussed above will be biased, may not show the true causal effect of receipt of the tax holiday and might ultimately mislead policymakers toward invalid conclusions over the efficacy of 21(1)(af). We test whether the parallel trends assumption holds by regressing the outcome variables on the indicator for treatment for periods prior to the introduction of the income tax incentive. If there were other factors – apart from receipt of the income tax holiday – that caused firms' sales revenue, total wage bill, fixed asset stock or number of employees to differ significantly between control and comparison groups, then these would show up as significant effects on the indicator for treatment in periods before the tax incentive was introduced. The results from the test are shown in **Table 4.5.**

Table 4.5*: Checking for the effect of the tax incentive before the incentive was introduced*

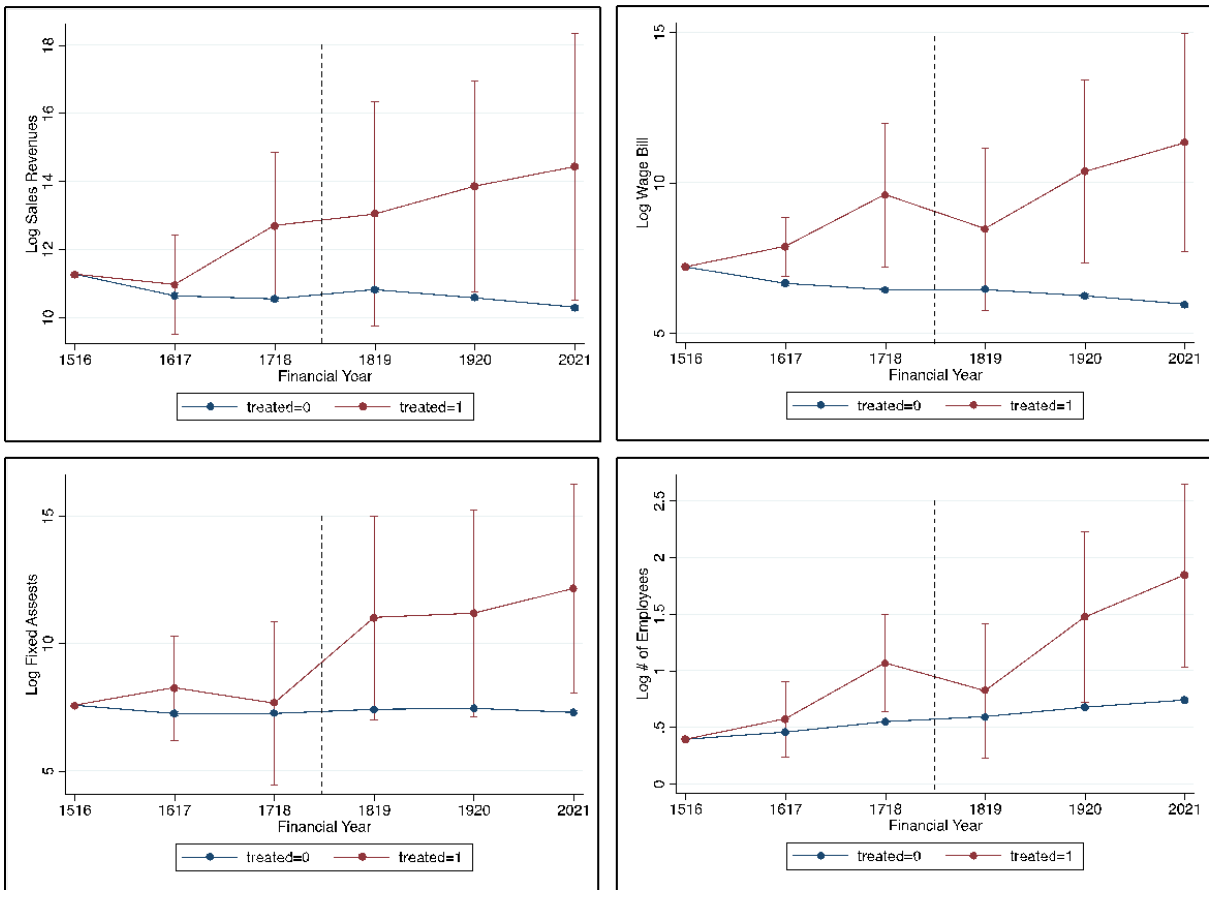
	(1) Log Sales Revenues	(2) Log Total Wage Bill	(3) Log Fixed Assets	(4) Log # of Employees
Financial Year = 2016/17 (t=2)	-0.466***	-0.431***	-0.218***	0.077***
	(0.050)	(0.045)	(0.038)	(0.004)
Financial Year = 2017/18 (t=3)	-0.207***	-0.441***	0.025	0.187***
	(0.059)	(0.053)	(0.045)	(0.005)
Exempt Firms *FY 2016/17 (t=2)	0.757	0.590*	0.769***	0.091
	(0.471)	(0.351)	(0.252)	(0.170)
Exempt Firms * FY 2017/18 (t=3)	1.501	2.743**	-0.082	0.509**
	(1.102)	(1.263)	(1.634)	(0.221)
Firm-level fixed effects	Yes	Yes	Yes	Yes
Control Variable	Yes	Yes	Yes	Yes
Observations	75,824	75,824	75,824	75,824

R-squared	0.027	0.022	0.016	0.016
Number of firms	37,007	37,007	37,007	37,007

*Robust standard errors in parentheses and are clustered at a firm level: ***, **, and * denote the significance at the 1, 5 and 10 percent levels, respectively. The control variable is log interest expense which controls for leverage of firm.*

Table 4.5 shows that for the wage bill, fixed assets and number of employees, the indicator for treatment has a significant effect before the income tax incentive was introduced. This is therefore suggestive evidence that the parallel trends assumption might not hold for these variables. We also see a positive and significant effect in the year immediately prior to the introduction of 21(1)(af) on the total number of employees. However, it appears as though the parallel trends assumption might hold with sales revenue as the outcome of interest. These results are also consistent with the graphical evidence in **Figure 4.1**, which plots the predictive margins of the outcome variables for treatment and control groups. This figure visually affirms that indeed the parallel trends assumption may not hold, hence the earlier discussed results might be biased.

Figure 4.1: *Trends in Sales Revenues, Wage Bill, Fixed Assets and # of Employees*



Source: Authors' Estimations

The findings depicted in Table 4.5 and Figure 4.1 suggest that the parallel trends assumption might be violated for at least some of our outcome variables. We thus estimate Equation [2] –

which allows for a case where parallel trends does not hold. The results are shown in **Table 4.6**.

Specification (1) estimates the effect of receiving the income tax exemption on firms' sales revenues. After allowing for non-parallel linear trends, we see that exempt firms experience a decrease in sales revenues by 3.8 percent in first post-tax incentive, and then increases of 4.9 percent and 5.8 percent in the second- and third-year post-incentive, respectively, relative to the comparison group. However, these results are not statistically significant.

Specification (2) shows the effect of the income tax incentive on the firm's wage bill. The results suggest that exempt firms registered a decrease in their wage bill relative to the comparison group firms. The effects over the three years post-tax incentive are between 1.4 and 2.2 times lower than the comparison group. These effects are again not statistically significant. This suggests that the income tax incentive might not have had any significant effect on the wage bill of treated firms. It is worth mentioning that the statistical significance at the 5 percent level on the coefficient for the time trend for exempt firms affirms that indeed the parallel trends assumption may not be reasonable, and hence the earlier results in Table 4.2 might be biased.

Table 4.6: *The Impact of Granting a CIT Exemption on Key Outcome Variables while Relaxing the "Parallel Trends" Assumption*

	(1)	(2)	(3)	(4)
	Log Sales Revenues	Log Total Wage Bill	Log Fixed Assets	Log # of employees
Exempt firm*One year post exemption (t=4)	-0.038	-2.162	3.092	-0.527***
	(1.380)	(1.668)	(2.022)	(0.175)
Exempt firm*Two years post exemption (t=5)	0.049	-1.448	3.207	-0.213
	(1.541)	(2.317)	(2.453)	(0.383)
Exempt firm*Three years post exemption (t=6)	0.058	-1.639	4.235	-0.177
	(2.637)	(3.130)	(3.175)	(0.461)
Time trend for Exempt firms	0.832	1.405**	0.050	0.267**
	(0.554)	(0.614)	(0.825)	(0.110)
Time trend	-0.111***	-0.207***	0.002	0.070***
	(0.016)	(0.015)	(0.013)	(0.002)
Firm-level fixed effects	Yes	Yes	Yes	Yes
Dummy variable for t=6	Yes	Yes	Yes	Yes
Control Variable	Yes	Yes	Yes	Yes
Matching on covariate	No	No	No	No
Observations	165,489	165,489	165,487	165,465
R-squared	0.033	0.031	0.025	0.060
Number of firms	54,766	54,766	54,766	54,766

*Robust standard errors in parentheses and are clustered at a firm level: ***, **, and * denote the significance at the 1, 5 and 10 percent levels, respectively. The control variable is log interest expense which controls for leverage of firm*

The estimates from specification (3) suggest that there are positive effects of the income tax incentive on beneficiaries' fixed assets, which might suggest that the incentive is having large positive effects, but these effects are also not statistically significant. Notably, these results are of a similar magnitude to those discussed earlier in Table 4.3.

In column 4 we specify the outcome variable as the log of firms' number of employees. We see negative coefficients for each of the years, although this is only statistically significant in the first year following the introduction of the incentive. The significance of the time trend affirms that the parallel trends assumption might not hold in this case.

Finally, we re-estimate equation **[2]** while matching on firms' leverage, but the results do not differ – either qualitatively or quantitatively - from what has already been discussed. These results are in **Table 4.7**.

Table 4.7: *The Impact of Granting a Corporate Income Tax Exemption on Key Outcome Variables while Relaxing the "Parallel trends" Assumption and Matching on Covariates*

	(1) Log Sales Revenues	(3) Log Total Wage Bill	(3) Log Fixed Assets	(4) Log # of employees
Exempt firm * One year post exemption (t=4)	-0.111	-1.692	0.629	-0.245
	(0.473)	(1.490)	(0.687)	(0.157)
Exempt firm * Two years post exemption (t=5)	-1.094	-3.114	1.122	-0.174
	(1.211)	(2.092)	(1.173)	(0.549)
Exempt firm * Three years post exemption (t=6)	-3.049	-5.541*	1.880	-0.353
	(2.817)	(3.202)	(1.514)	(0.656)
Time trend for Exempt firms	1.414*	1.717**	0.380	0.122
	(0.742)	(0.738)	(0.270)	(0.144)
Time trend	-0.480***	-0.375***	-0.399***	0.104***
	(0.020)	(0.021)	(0.017)	(0.003)
Firm-level fixed effects	Yes	Yes	Yes	Yes
Dummy variable for t=6	Yes	Yes	Yes	Yes
Control variable	Yes	Yes	Yes	Yes
Matching on covariate	Yes	Yes	Yes	Yes
Observations	68,816	68,821	68,840	68,821
R-squared	0.073	0.045	0.056	0.077
Number of firms	17,219	17,219	17,219	17,219

*Robust standard errors in parentheses and are clustered at a firm level: ***, **, and * denote the significance at the 1, 5 and 10 percent levels, respectively. The control variable is log interest expense which controls for leverage of firm. This control variable is used to generate the propensity score that is used for matching.*

4.3 Effects on Imports

The strongest finding from the previous discussion – that treatment firms are investing more – warrants further investigation. This is because there may be a stronger justification for providing tax incentives to encourage projects that will require costly capital investments.[11] In order to better understand the type of investment carried out amongst beneficiaries, we examine the composition of imports according to treatment status. Specifically, we classify imports as 'capital imports' and 'other imports'. Capital imports are identified as any good classified under Chapter 84 and 85 of the East African Community Common External Tariff.[12]

We find that treated firms are, on average, much more likely to import a higher share of capital goods in total imports than are control group firms. However, this is true both pre- and post-treatment. **Table 4.8** presents results from two-way t-tests of equivalence of means for (i) log total imports (ii) log capital imports and (iii) the share of capital imports in total imports according to treatment statues both pre- and post-treatment.

Table 4.8: *Share of Capital Imports in Total Imports, by treatment status and pre/post FY18/19.*

Variable	Time Period	Control Group Mean	Treatment Group Mean	Diff	t	Pr(T>t)
Capital Imports / Total Imports	Before 18/19	0.219	0.373	0.154	2.833	0.0046**
	After 18/19	0.246	0.403	0.157	3.613	0.0003***
(Log) Capital Imports	Before 18/19	17.090	20.030	2.940	6.658	0.000***
	After 18/19	17.300	20.881	3.580	10.973	0.000***
(Log) Total Imports	Before 18/19	18.620	21.782	3.162	8.081	0.000***
	After 18/19	18.693	22.417	3.724	12.050	0.000***

Source: Authors' Estimates

We see from Table 4.8 that prior to the treatment date (18/19), the average share of capital imports in all imports was 21.9% for the control group, compared with 37.3% for the treatment group. This represents an average difference of 15.4%-pts. Following the treatment date, the share increases for both groups, but crucially the difference remains very similar, at about 15.7%-pts. This suggests firstly that there was an upward trend in capital imports across all firms, and secondly that there does not appear to be any additional increase prompted by receiving the tax exemption under 21(1)(af). We also see these trends reflected in the lower two panels of Table 4.8: both total imports and capital imports increase on average across both groups, but the differences grow almost proportionately.

In Appendix 2 we estimate equation [1] with the capital imports/total imports ratio as the dependent variable. The results in **Table A2** suggest that there is no significant increase in the capital import share for treatment firms vis-à-vis the control group and a visual inspection of

[11] Although as mentioned earlier, generous capital allowances do exist within Uganda's ITA.

[12] Chapter 84 incorporates "machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles", whilst Chapter 85 incorporates "Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles" (EAC, 2017)

the predictive margins between control and treatment groups (**Figure A|2**) suggests that if anything, the effect might even be negative for treatment firms. Therefore, we do not find any conclusive evidence that treated firms were any more likely to be making large capital imports. Similarly, we do not find evidence that treated firms significantly increase their total *value* of capital imports vis-a-vis the control group.[13]

5. Discussion, Limitations and Policy Implications

5.1 Discussion

In recent years, the suite of tax exemptions available to strategic investors in Uganda has grown dramatically. One of the most prominent of these is that outlined in Section 21(1)(af) of the Income Tax Act which, since July 2018, has offered 10-year CIT holidays to investors meeting certain criteria in priority sectors. Against a backdrop of rising public debt and increasing estimates of revenue foregone from tax expenditures, this study represents the first attempt to better understand the potential benefits to the economy of offering such exemptions. Ideally, firms in receipt of a tax exemption would provide net benefits to the economy over and above the fiscal cost of foregone CIT revenue. Otherwise, there would be a fairly weak case for continuing to offer such exemptions. It should be noted that this study does not represent a full cost-benefit analysis of the exemption offered under 21(1)(af).

We find, firstly, that the number of firms qualifying for this tax holiday has risen steadily and, at the time of writing, stands at 38. The qualifying sectors for the tax holiday have been expanded year after year in amendments to the Income Tax Act. There are no signs that the pace of qualifying investments will subside in the coming years. There is, then, a growing risk that the majority of new investments in the qualifying sectors listed will qualify for a 10-year CIT exemption.

The results of our empirical analysis suggest that while, in general, the tax holidays granted seem to have resulted in higher investment by benefiting firms, we do not find any robust evidence that exempt firms are either selling more (because of the price advantage that the incentive gives them), employing more staff or paying relatively more in wages relative to the comparison group. Narrowing the sample to only consider firms very similar in nature to the treated firms (according to pre-treatment leverage) – which roughly corresponds to the subsample of pre-existing investors who currently benefit from the exemption – does not yield further insights. The result that beneficiaries seem to have invested more than comparison firms is not surprising – it is, after all, the main qualifying criteria in order to benefit from the tax holiday.

It is important to note that at the time of writing, none of the beneficiary firms have yet posted a positive chargeable income. This is likely due to the fact that all qualifying

[13] Results not shown but available upon request from the authors.

investments are still in the early years of operation, a period in which they are not likely to be profitable. Thus, at present, there is likely a small net benefit to the economy of the provision of 21(1)(af) due to the increases in investment. We do not find any significant effects on our other outcomes of interest. Ultimately, it is not clear whether an investment incentive that only boosts investment and does not provide further direct or indirect benefits to the economy has met its objectives. A more plausible conclusion is that it has inflicted distortions on the economy (by, for example, altering the timing of otherwise planned investments) and further contributed to harmful, regional tax competition.

5.2 Limitations

The estimates presented in this study are subject to a number of inherent limitations, to which the discussion now turns.

Firstly, this study does not represent a holistic cost-benefit analysis of the impact of receiving a CIT exemption under 21(1)(af). An initial exemption on, for example, CIT, may show a net revenue loss and few directly observable economic benefits (as we uncover in this study). However, if the firm in question creates employment that would not otherwise have existed, then one must also attempt to factor in the PAYE receipts of the new employees, and the associated fiscal multipliers that result from their increased spending (on VAT, excises, etc.). Capturing the costs or benefits to other firms (spill-overs) is complex. Whilst on the one hand, a foreign investor that has benefitted from a tax exemption may boost activity of firms with which they have forward or backward linkages, domestic firms that cannot compete on an even footing without a tax exemption of their own, may suffer from the new competition. Capturing the extent of the disadvantage to other firms may be difficult. On the contrary, there may also be positive effects on local suppliers – one of the qualifying criteria for 21(1)(af) is that 70% of the raw materials used must be sourced locally. Modelling these linkages and accounting for such 'second round effects' is beyond the scope of this paper, but would be a worthy exercise in future.[14] It is also worth noting that a true evaluation of the economic (and societal) costs and benefits of the tax exemption might not be fully possible until after the ten-year period has elapsed (and beyond).

Secondly, we noted in section 2 that there has not yet been any observed revenue foregone due to projects under this provision. However, this only takes into account the scope of 21(1)(af) and not the associated provisions available under the VAT, Stamp Duty and Excise Duty Acts, which many of the treated firms in our sample also benefit from. A more holistic study of the fiscal cost of this suite of incentives to the tax system, and economy as a whole, might also be warranted in future.

[14] With respect to increased employment, our estimates at this point do not show any evidence of significant increases in (formal sector) job creation amongst treated firms.

6. Concluding Remarks and Policy Implications

A pertinent question exists over whether tax holidays – such as that discussed here – are necessary to boost investment in Uganda. The Income Tax Act in Uganda already contains generous provisions such as accelerated depreciation, initial capital allowances and indefinite carry-forward of losses. Thus, it is fair to suggest that firms making a significant capital investment need not be provided with an income tax exemption, as there will not normally be an income tax liability in the early years of operation after commencing investment. In one sense, this might make 10-year tax holidays largely redundant, yet firms still lobby for these kinds of exemptions and the Government of Uganda appears willing to provide them.[15] However, firms – especially large ones – are savvy: the qualifying investments for 21(1)(af) are substantial and thus they must, over the lifecycle of the investment, expect that the benefit of the 10-year holiday will make the initial investment (or the bringing forward of other, future planned investments) worthwhile. This suggests that government should expect to see potentially significant, positive, amounts of revenue foregone under this provision in the future, when beneficiaries begin to post positive chargeable incomes. Our analysis suggests that, at least to date, the benefits in terms of sales, wages and employment appear to be insignificant.

In terms of the policy implications of our findings, at the very least the potential benefits of the tax exemption explored herein should continue to be monitored on an ongoing basis. The methods employed in this study could be expanded and incorporated into a fuller cost-benefit analysis of the provision that also attempted to account for knock-on effects to (i) competing firms and (ii) horizontal and vertically integrated firms. The number of beneficiaries under 21(1)(af) has been growing rapidly in recent years and there is, thus, a real concern that a lot of future investments in Uganda will receive income tax exemptions. Many of these may have been likely to proceed even without the exemption. In order to protect its future CIT base, Government might consider the insertion of a sunset clause on the provision or reduce the number of qualifying sectors and activities.

[15] Another possible explanation for firms' seeking exemptions is that having an income tax exemption largely keeps the tax authority away, since there is no incentive for them to closely monitor the actions of a tax-exempt firm. However, this can be problematic because it creates opportunities for benefiting firms to abuse the incentive and act in an opaque manner. Ongoing efforts within the URA to closely monitor beneficiaries and ensure that they comply with their filing obligations etc., are welcome.

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Appendix 1: Summary Statistics

Variable	Obsv.	Mean	Std. Dev.	Min	Max
Log Total Wage Bill	165,543	6.453	8.147	0.000	26.103
Log Sales Revenue	165,536	10.670	9.620	0.000	28.582
Log Total Fixed Assets	165,547	7.365	8.881	0.000	27.996
Log Number of Employees	165,549	0.576	1.198	0.000	10.071
Log Interest Expense	165,543	1.451	4.782	0.000	24.487
Log Total Imports	31,076	18.672	2.563	8.008	28.427
Log Total Capital Imports	16,961	17.224	2.657	8.132	28.200
Capital Imports Share	31,076	0.234	0.357	0.000	1.000

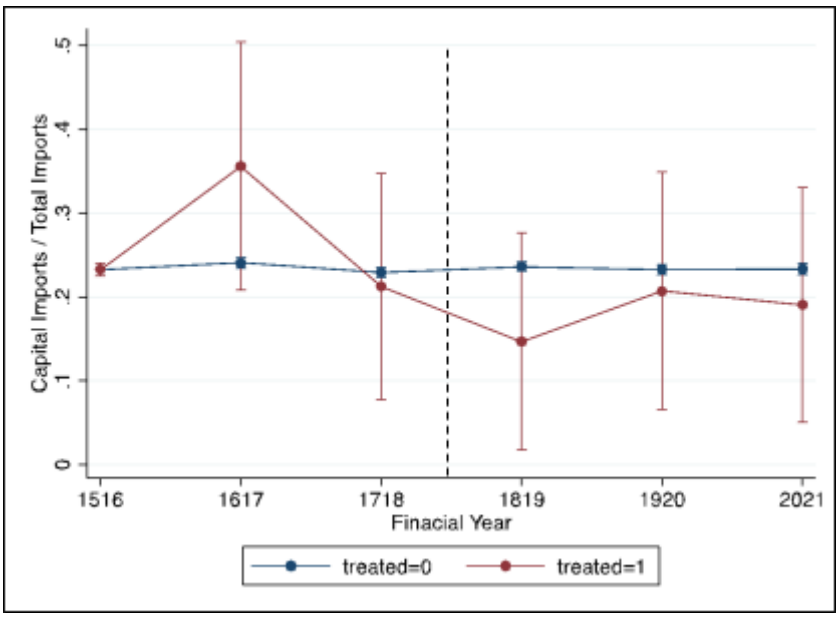
Appendix 2. Full results of Capital Import Share DiD

Table A.2

	Capital Imports Share		
	(1)	(2)	(3)
Exempt from CIT * After FY2018/19	-0.085	-0.085	-0.042
	(0.074)	(0.073)	(0.084)
Time trend	-0.001	-0.001	-0.002
	(0.001)	(0.001)	(0.001)
Firm-level fixed effects	Yes	Yes	Yes
Dummy for t=6	Yes	Yes	Yes
Control variable	No	Yes	Yes
Matching on covariate	No	No	Yes
Observations	31,064	31,064	19,916
R-squared	0.000	0.000	0.000
Number of firms	12,714	12,714	6,378

*Robust standard errors in parentheses and are clustered at a firm level: ***, **, and * denote the significance at the 1, 5 and 10 percent levels, respectively. The control variable is log interest expense which controls for leverage of firm. This control variable is used to generate the propensity score that is used for matching.*

Figure A.2


Capital Imports / Total Imports
0
.1
.2
.3
.4
.5
1516
1617
1718
1819
1920
2021
Finacial Year
treated=0
treated=1

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