Corporate Tax Policy in Developed Countries and Economic Activity in Africa*

Jeffrey L. Hoopes† Daniel Klein‡ Rebecca Lester§
Julian Marenz¶ Marcel Olbert‖

September, 2025

Abstract

We study whether corporate tax policies in developed countries generate investment in developing economies. Exploiting a major U.K. corporate tax cut, we document a 20% increase in African subsidiaries of U.K. multinational firms relative to similar non-U.K. firms. Using nighttime lights and household surveys, we estimate an approximately 5% increased local economic activity and employment near U.K.-owned subsidiaries relative to areas near non-U.K. subsidiaries. Effects are concentrated in lower-skilled jobs and are not accompanied by gains in educational attainment. The findings highlight that developed-country tax policy can spur economic activity abroad, while immediate changes in broader socioeconomic outcomes appear limited.

Keywords: Multinational Firms, Tax Rates, Foreign Investment, Economic Development

JEL classifications: D22, D25, F14, F21, F23, F63, J23, O1

*We thank Daphne Armstrong, Katarzyna Bilicka, Jennifer Blouin, Anne Brockmeyer, Kate Casey, Lisa De Simone, Alex Edwards (discussant), Zach Fox, Daniel Garrett (discussant), Jonas Hjort, Diego Kaenzig, David Kenchington, John Kepler, Douglas Jean Laporte, Stacie Laplante, Adam Looney (discussant), Nathan Nunn, Eric Ohrn, Elias Papaioannou, Joe Piotroski, Joshua Rauh, Thomas Rauter, Nadiene Riedel, David Samuel, Sandra Sequeira (discussant), Kevin Standridge, Juan Carlos Suárez Serrato (discussant), Eddy Tam (discussant), Maximilian Todtenhaupt (discussant), Lydia Wang, Brian Webb, and Ryan Wilson (discussant) for helpful comments. We acknowledge helpful feedback from conference participants at the 7th Zurich Conference on Public Finance in Developing Countries 2022, the 2022 Stanford Summer Camp, 2021 NBER Conference on Business Taxation in a Federal System, the 2021 Oxford CBT Doctoral Conference, the 2021 Annual Mannheim Taxation Conference, 2021 BYU Accounting Symposium, the 2021 Berlin-Vallendar Conference on Tax Research, the 2021 EIASM Conference on Current Research in Taxation, and the 2021 VHB Business Tax Meeting, as well as seminar participants at OMG Transatlantic Talks, Online Public Finance Seminar (OPFS), Stanford GSB Accounting and Finance, the University of Connecticut, Arizona State University, the Ohio State University, and the University of Wisconsin-Madison. We thank Bihter Erbaş and Inga Schulz for excellent research assistance. Marcel Olbert acknowledges the financial support of the Research and Materials Development Fund (RAMD_Olbert_MO_2022-23_8934) and the Wheeler Institute at London Business School. Daniel Klein and Marcel Olbert acknowledge funding from the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – Project-ID 403041268 – TRR 266 (Accounting for Transparency).

†University of North Carolina at Chapel Hill, E-mail: hoopes@unc.edu
‡University of Mannheim, Schloss, 68131 Mannheim, Germany; E-mail: d.klein@uni-mannheim.de
§Stanford Graduate School of Business, E-mail: rlester@stanford.edu
¶London Business School, E-mail: jmarenz@london.edu
‖London Business School, E-mail: molbert@london.edu

1 Introduction

Does tax policy in developed countries affect economic activity in developing countries? This paper exploits a major U.K. tax reform to show that corporate tax cuts in developed countries can increase local economic activity in Africa through investment responses of multinational firms. Multinational firms play an important role in the transmission of global capital (Nunn and Trefler, 2013; Cravino and Levchenko, 2017), with evidence suggesting that foreign FDI can spur more growth than domestic FDI (Borensztein et al., 1998). However, there is little systematic empirical evidence on the causes and consequences of multinational firms' investment in the developing world.

Using annual data on multinational firms' global subsidiary ownership, we find that a major U.K. corporate income tax rate cut increased U.K. multinational investment in sub-Saharan Africa. Exploiting geographic variation in subsidiary locations and geo-coded data on economic outcomes in the local area surrounding these subsidiaries, we show that this increased foreign investment coincides with greater economic activity and employment in subsequent years. However, these employment gains are concentrated in lower-skilled manual occupations and are not accompanied by increases in educational attainment. Our findings indicate that corporate tax regimes in developed countries can serve as an economically significant driver of cross-border private sector investment into developing economies. However, such investment alone does not necessarily translate into improvements in broader socioeconomic outcomes, such as occupational upgrading and education.

Understanding whether home country tax policy motivates foreign investment in developing nations is important for analysis of tax policies and foreign aid. Billions of dollars are spent annually to bolster the economies of less developed nations. However, questions remain about the economic efficiency and effectiveness of such spending given that these transfers are often politically motivated and susceptible to foreign capture (Burnside and Dollar, 2000; Temple and Van de Sijpe, 2017; Andersen, Johannesen and Rijkers, 2022). Moreover, recent cuts to U.S. taxpayer-funded foreign aid increase the relevance of understanding the development effects of private sector investment (OECD, 2025). We study the extent to which cross-border investment triggered by multinational firms' responses to domestic tax cuts is a potential alternative channel to increasing local economic activity in Africa.

Whether a domestic tax cut affects multinational firms' foreign investment depends on firms' domestic investment response, the substitution or complementarity between domestic and foreign investment, and the scale effect of the tax cut on firms' (domestic and foreign) inputs. Subject to certain assumptions, *domestic* investment should increase af-

ter a corporate tax rate cut as the after-tax cost of capital decreases (Hall and Jorgenson, 1967). Prior empirical work provides evidence of such investment response to both tax rate changes and tax base incentives (e.g., Zwick and Mahon, 2017; Ohrn, 2019; Lester, 2019; Akcigit, Grigsby, Nicholas and Stantcheva, 2022; Chodorow-Reich, Smith, Zidar and Zwick, 2024). Because the tax cut also changes the relative price of investment, *foreign* investment will increase if domestic and foreign investment are complements (Desai, Foley and Hines Jr, 2005, 2009; Kovak, Oldenski and Sly, 2021) but may decrease if they are substitutes. Further, *foreign* investment is expected to increase because the tax cut lowers the average cost of production, leading the firm to expand its scale of operations at home and abroad. In sum, whether increased investment in Africa occurs is an open empirical question.

Our empirical tests focus on a major U.K. tax cut announced in 2010 as a shock to firms' investment in developing African nations. As of 2008, the U.K. had two features of its tax system that were widely viewed as uncompetitive. The first was the relatively high U.K. corporate income tax rate of 28%, above the average OECD rate of 23.98% and much higher than the low rates of countries with favorable corporate tax regimes like Ireland. Second, unlike almost all other countries at the time, the U.K. had a "worldwide" tax system wherein the profits of U.K. multinationals were taxed both in the U.K. and in the country where they were earned.[1] In response to this perceived uncompetitive tax system, in 2009, the U.K. changed from its worldwide system of taxation to a territorial system. Next, in 2010, the U.K. announced a series of successive corporate tax rate cuts and the intention to continue lowering the corporate tax rate in future years. Online Appendix Section A.1 provides additional details about these changes, and Figure A.1 shows a timeline of these reforms.

Our analyses exploit this U.K. tax reform for five reasons. First, the tax rate reductions were substantial, providing an almost 30% decline in the corporate tax burden over a five year period. This large corporate tax rate change had a meaningful effect on U.K. firms' user cost of capital, a necessary condition for stimulating large corporate investment decisions, including foreign expansion.[2] Second, the primary focus of the U.K. tax reform

[1] Like in the U.S. system at the time, U.K. firms could defer taxation until the foreign subsidiaries paid dividends to the U.K. parent, as well as utilize foreign tax credits to reduce the U.K. tax liability (Egger et al., 2015*a*). As a consequence, U.K. firms engaged in substantial tax planning activities to shift income, and, in some cases, real factors to other lower-taxed jurisdictions (Tax Gap Reporting Team, 2009; Trades Union Congress, 2010; Goodley, 2010; Chapman, 2019). For example, several prominent U.K. firms reincorporated outside of the U.K. during this period, primarily to lower their tax burdens (Killgren, 2008; Kollewe, 2008; Armitage, 2008).

[2] Consistent with the negative relation between the user cost of capital and investment, Sir Alan Budd, the Chair of the U.K. Office for Budget Responsibility, stated, "The measures to reform corporation tax, which are estimated to reduce the cost of capital faced by firms by about 3%, should have a positive effect

was to encourage domestic investment in the U.K. While domestic tax policy is often endogenous to corporate decisions and domestic growth, these U.K. tax changes should be exogenous to corporate investment decisions in the developing world.[3] Third, the U.K. government pre-committed to a series of tax rate reductions over several years, thereby reducing regulatory and policy uncertainty that may otherwise preclude firm investment. Fourth, the U.K. has close historical and colonial ties with Africa, making it a plausible destination for cross-border investment. Finally, the setting provides variation in a large sample of both firm- and destination country-characteristics across the 46 African nations included in our sample. This variation helps us rule out alternative explanations for increased investment, such as contemporaneous policy changes in African countries or other U.K. tax changes during this time, such as the change to a territorial tax system.

To address the empirical challenge of measuring firm-level foreign investment in developing countries, we use the number of subsidiaries a multinational firm operates in a given country-year as a proxy for foreign investment. This approach allows us to capture investment activity in settings where conventional measures—such as capital expenditures—are sparse or unavailable. We construct a panel dataset for 2005–2018 from the Bureau van Dijk Orbis historical database, aggregating the number of subsidiaries at the parent firm–African country–year level (e.g., the number of Unilever subsidiaries in Kenya in 2008) for more than 15,000 unique parent firms from 143 headquarter countries.[4] While our data offer broad coverage and meaningful variation across time and developing countries, the subsidiary count measure does not cleanly separate extensive from intensive investment margins: a higher count may reflect expansion within existing operations or new entries, or simply legal restructurings without changes in physical investment. Consistent with results from our tests, we view the subsidiary count primarily as a within-country intensive margin measure. That is, conditional on a firm's presence in a country, increases in subsidiary count reflect foreign investment expansion.

Our main difference-in-differences estimates, based on a sample of more than 686

on investment" (Bowers, 2010).

[3]Our research of the legislative history revealed no discussion that these changes were intended to stimulate foreign investment and instead focuses on benefits to the local U.K. economy.

[4]Specifically, we identify majority-owned subsidiaries and track these subsidiaries across hierarchical layers in nearly all countries of the world. Our final regression sample includes 15,306 distinct parent firms that own over 40,000 African subsidiaries, approximately 21,00 of which are owned by foreign parent firms and 14,500 of which are owned by firms headquartered in OECD countries. We aggregate over 250,000 subsidiary-years to the parent level, resulting in a sample of 96,126 parent firm-country-year observations for which a parent firm-country appears at least two times (i.e., excluding singletons). Ideally, we could also use financial accounting data to examine the magnitude of investment. However, such data are typically only available for subsidiaries in developed countries that mandate the publication of financial reports for private firms, which is not the case in African countries.

unique U.K. firms—with an average of 2.9 subsidiaries per firm in a given African country—show that U.K. multinationals increased their number of African subsidiaries by approximately 25% following the tax reform. This result is robust to alternative control groups, including French multinationals and using firm-level observable control variables, and to specifications with narrow sets of fixed effects. While the magnitude appears large, it reflects a response to a sizable 9 percentage point cut in the U.K. corporate tax rate (from 28% to 19%), corresponding to a semi-elasticity of 2.44. This is somewhat smaller than recent estimates in the literature from other tax policy settings (e.g., 3.98 in Ohrn (2018), 7.2 in Zwick and Mahon (2017), and 9.55 in Ohrn (2019)).

Regarding the mechanisms motivating U.K. firms' foreign investment, we first confirm that the corporate tax rate cuts, rather than the U.K. switch from worldwide taxation to territorial taxation in 2009, drive the results. A switch to a territorial regime may have induced foreign investment, but such investment should have occurred in low-tax countries (Liu, 2020). However, African nations generally have high statutory tax rates, and we confirm that firms effectively pay these relatively high rates. Further consistent with the U.K. tax cuts driving our results, we observe that dynamic investment effects correlate with successive tax rate reductions in the post-period. Finally, we examine heterogeneity based on the short-window stock market response to the U.K. corporate tax cut announcement. Assuming that more favorable equity investor responses capture greater future benefits from tax policy changes (Sialm, 2009; Wagner, Zeckhauser and Ziegler, 2018; Gomez Cram and Olbert, 2023), then cross-sectional differences in stock market responses should systematically predict variation in future investment spending. Consistent with this, we find that the increased African subsidiary presence by U.K. firms is concentrated in the same firms with the highest market response to the June 22, 2010 announcement of the U.K. tax rate reductions. In contrast, we do not observe this pattern when looking at stock market response around the 2009 announcement of the territorial regime shift.[5]

Having shown that U.K. firms expanded in Africa after the tax cuts, we examine in our main tests how this investment affected local communities. Ex ante, it is unclear how U.K. multinational firm investment will impact local economic activity, particularly given the mixed evidence about FDI into countries characterized by weak institutions (Barro, 1991; Englebert, 2000). Investment could have positive effects on economic development

[5]We also assess whether domestic and foreign investment act as complements or substitutes in response to the U.K. tax cuts. Consistent with theory (Hall and Jorgenson, 1967), firms increased domestic investment in the U.K.. However, the rise in African subsidiaries was relatively somewhat larger than the domestic increase. While this suggests complementarity at the margin, we cannot reject that the Morishima elasticity of substitution between domestic and foreign investment is statistically indistinguishable from zero. We therefore interpret the strong foreign investment response as reflecting an overall increase in firm scale.

through direct and spillover investment and employment, as in (Keller and Yeaple, 2009). Alternatively, foreign firms may simply compete with local firms for a fixed market base, contributing little to the local economy aside from the indirect effects of increased competition. To assess local effects, we examine changes in economic activity around U.K.-owned subsidiaries in sub-Saharan Africa around the 2010 U.K. tax cuts. We hand-collect precise subsidiary locations for both U.K. and French multinationals, using the latter as a benchmark given France's similarly long investment history in Africa. Equipped with more than 2,600 African subsidiary locations of 587 unique multinational firms from France and the U.K., we then estimate difference-in-differences models leveraging geospatial and time variation in local economic outcomes. In the absence of firm-level financial or employment data, we use two proxy datasets to study local economic activity and potential socioeconomic effects.

First, we use nighttime luminosity from the United States Air Force Defense Meteorological Satellite Program (DMSP) (Henderson, Storeygard and Weil, 2011, 2012; Chen and Nordhaus, 2011; Gennaioli, La Porta, Lopez-de Silanes and Shleifer, 2013; Michalopoulos and Papaioannou, 2013). We construct 10 km radii around each subsidiary and track annual changes in luminosity. Since subsidiary locations are based on their most recent addresses (not observed over time), this measure captures increased activity around both newly established subsidiaries and expansions at existing ones. We find a 2.6–5.8% increase in luminosity in grid cells with a U.K. subsidiary following the U.K. tax cuts, relative to grid cells with a French subsidiary in the same African country and year. Additional tests show that much of this effect occurs within a 2–5 km ring around U.K. affiliates, consistent with positive local spillovers. This is consistent with the evidence in Keller and Yeaple (2009), which finds that foreign firms investing in the U.S. spurred productivity in nearby U.S. domestic firms. Using the elasticity of GDP with respect to light growth from Henderson et al. (2011) (0.3), this implies local GDP increases of 0.78-1.74% as U.K. multinationals expand in Africa.

Second, while luminosity proxies for broader economic activity, we directly test for changes in local employment. Using Demographic and Health Survey (DHS) data, we link each respondent's geocoded location to the nearest U.K.-owned subsidiary in the same country.[6] We test whether individuals living within 10 km of a U.K.-owned subsidiary were more likely to be employed after the tax cut, relative to individuals living

[6]The DHS survey is funded by the United States Agency for International Development (USAID) and collects information from African citizens about their employment and health status. These data are used as a common measure of social outcomes in Africa (e.g., Kingdon and Knight, 2007; Hjort and Poulsen, 2019), largely because they do not suffer from reliability concerns that plague other available unemployment data (Jerven, 2013).

near French-owned subsidiaries in the same country. Employment increases by about 3 percentage points—equivalent to a 5.0% rise at the sample mean.

Third, we examine whether increased local economic activity and formal employment from multinational firm investment bring broader socioeconomic benefits to African communities. This analysis is motivated by the idea that private sector investment may contribute to modernization through rising incomes and human capital development (Acemoglu et al., 2014). However, we find that the total employment gains are concentrated in unskilled jobs—even partly at the expense of skilled employment—likely reflecting multinationals' demand for manual labor as they expand operations during our sample period (2005–2018). This contrasts with the evidence in Feenstra and Hanson (1997), which finds that FDI flows into Mexico increased demand for skilled labor. We fail to find evidence of an increased likelihood of completing secondary or higher education in areas with greater U.K. multinational presence. This lack of evidence on occupational upgrading and educational attainment suggests that local income gains alone do not necessarily translate into institutional modernization—at least over the medium run that we are able to observe (Acemoglu et al., 2008, 2009).

The main identification concerns in our setting are that (i) multinational firms may face unobservable shocks that differ by headquarter country and influence expansion in Africa, and (ii) these shocks may also affect regional development around the firms' subsidiary locations given multinationals' strategic choices where to locate. Several diagnostic and robustness tests help mitigate these concerns. For example, we show that regional characteristics around French- and U.K.-owned subsidiaries are not systematically different[7] Furthermore, any such unobserved shocks would need to (i) differentially affect multinational investment within the same African country, industry, and year; (ii) not be captured by firm-level financial controls; and (iii) drive systematic differences between U.K. firms and various control groups, including French, U.S., and German multinationals, as well as placebo regions without foreign subsidiaries. Importantly, our cross-sectional results based on firm-specific stock market reactions suggest that correlated U.K.-specific factors—such as other tax or anti-tax-avoidance policies (Bilicka et al., 2022), or non-tax measures like foreign aid partnerships—are unlikely to explain the findings. These alternative factors would need to drive both the heterogeneity in firm-level stock price responses to the June 2010 tax cut announcement and the patterns of U.K. firm investment

[7]For instance, we observe relatively small differences in terms of distance to capitals or coasts, proxies for local income, and population characteristics such as education, gender, and labor market participation. Similar covariate balance tests suggest that our main sample at the African country–grid level does not suffer from substantial bias in terms of subsidiaries with available location data versus those we could not georeference.

in Africa. Additional tests show larger effects among U.K. firms with greater expected tax savings, consistent with a tax-induced mechanism. We are unaware of any concurrent policy change that could explain the full set of results.

Notwithstanding these results, U.K. firms' investment in Africa may have been on a pre-existing upward trajectory, independent of the tax cuts. However, applying the approach of Rambachan and Roth (2023), we find that any unobserved confound would need to generate post-treatment differences in nighttime luminosity that are *twice* as large as pre-treatment observable differences. Additional robustness checks suggest that our estimates are unlikely to be biased by (geographic) spillovers to control units. Finally, we perform diagnostics and find no evidence that our results are driven by systematic measurement issues in subsidiary coverage or geospatial data quality.

Related literature and contribution. Our study contributes to two strands of literature. First, we build on work examining fiscal policy spillovers (Auerbach and Gorodnichenko, 2013; Faccini et al., 2016). Suárez Serrato (2019) shows that U.S. anti-tax-haven regulation reduced U.S. domestic investment by increasing overall tax burdens. More recent studies document that tax changes in one country can affect firms' investment and employment decisions abroad (Glaeser, Olbert and Werner, 2023; De Vito, Jacob, Schindler and Xu, 2025; Lester, 2019; Garrett, Ohrn and Suárez Serrato, 2023). To our knowledge, no prior work has examined externalities from corporate tax reforms in developed countries on developing economies. Liu (2020) finds that the U.K.'s switch to a territorial system increased investment in low-tax European countries. However, because most African countries in our sample have similar or higher statutory tax rates than the U.K., our findings are unlikely to reflect the same mechanisms. We provide novel evidence linking developed-country tax policy to foreign subsidiary ownership, nighttime luminosity, and employment outcomes in Africa.

Second, we add to the work on economic growth in developing countries, in particular on the integration of developing countries into the global economy through foreign direct investment (for reviews, see Goldberg, 2015; Paul and Singh, 2017). One strand of literature has studied the role of host country characteristics, including corporate tax rates and property tax rates, in stimulating economic development (e.g., Hartman, 1985; Alfaro, Chanda, Kalemli-Ozcan and Sayek, 2004; Brockmeyer, Estefan, Ramirez Arras and Suarez Serrato, 2023). Another strand has studied how access to new technologies and foreign resources affects regional development. Hjort and Poulsen (2019) show that access to fast internet as a new communication technology has a positive impact on employment and average incomes in Africa. Similarly, Donaldson (2018) finds that additional physical

infrastructure through railroad lines in India increases real income in the local population. Goldberg, Khandelwal, Pavcnik and Topalova (2010) show that intermediate product imports from richer countries benefit local firms in India through innovations and higher productivity.

While the importance of recipient-country characteristics has been well studied (North, 1990), the specific role of parent-country policies in shaping foreign investment by multinational firms remains relatively underexplored. Our study extends prior work showing that foreign direct investment can yield positive spillovers in developing countries. Smarzynska Javorcik (2004) documents productivity gains among domestic firms following foreign firm entry in Lithuania, and Alfaro-Ureña, Manelici and Vasquez (2022) show that multinationals sourcing from local suppliers can spur domestic firm growth. However, other studies cite FDI as a potential source of income inequality (Feenstra and Hanson, 1997). Other studies highlight long-run development effects of specific historical or single-firm investments, such as colonial-era sugar factories in Java (Dell and Olken, 2020) or those by United Fruit Company in Costa Rica (Méndez and Van Patten, 2022). Our paper builds on this literature by linking developing country spillovers to a novel determinant: tax policy changes in developed countries which impact multinational firms' foreign investments. Specifically, we provide large-sample evidence that a U.K. corporate tax cut increased investment by U.K. multinationals in sub-Saharan Africa, with meaningful effects on local economic activity and lower-skilled employment. This is particularly relevant in light of growing concerns that development progress has stalled, and that some political leaders in the developed world may retreat from policies supporting open trade and direct foreign aid (The Economist, 2021; OECD, 2025). At the same time, leading developed economies such as the United States and Germany are implementing or maintaining lower corporate tax rates to stimulate domestic growth. Our findings suggest that these policies which may generate positive development spillovers.

References

Acemoglu, D., Gallego, F. A. and Robinson, J. A. (2014), 'Institutions, human capital, and development', *Annu. Rev. Econ.* **6**(1), 875–912.

Acemoglu, D., Johnson, S., Robinson, J. A. and Yared, P. (2008), 'Income and democracy', *American economic review* **98**(3), 808–842.

Acemoglu, D., Johnson, S., Robinson, J. A. and Yared, P. (2009), 'Reevaluating the modernization hypothesis', *Journal of monetary economics* **56**(8), 1043–1058.

Akcigit, U., Grigsby, J., Nicholas, T. and Stantcheva, S. (2022), 'Taxation and innovation in the twentieth century', *The Quarterly Journal of Economics* **137**(1), 329–385.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and Sayek, S. (2004), 'FDI and economic growth: The role of local financial markets', *Journal of international economics* **64**(1), 89–112.

Alfaro-Ureña, A., Manelici, I. and Vasquez, J. P. (2022), 'The effects of joining multinational supply chains: New evidence from firm-to-firm linkages', *The Quarterly Journal of Economics* **137**(3), 1495–1552.

Andersen, J. J., Johannesen, N. and Rijkers, B. (2022), 'Elite capture of foreign aid: Evidence from offshore bank accounts', *Journal of Political Economy* **130**(2), 388–425.

Armitage, J. (2008), 'Regus joins the rush of companies to quit UK', *Evening Standard* .
URL: *https://www.standard.co.uk/business/regus-joins-the-rush-of-companies-to-quit-uk-6894957.html*

Auerbach, A. J. and Gorodnichenko, Y. (2013), 'Output spillovers from fiscal policy', *American Economic Review* **103**(3), 141–46.

Barro, R. J. (1991), 'Economic growth in a cross section of countries', *The Quarterly Journal of Economics* **106**(2), 407–443.

Berg, T., Reisinger, M. and Streitz, D. (2021), 'Spillover effects in empirical corporate finance', *Journal of Financial Economics* **142**(3), 1109–1127.

Bilicka, K., Qi, Y. and Xing, J. (2022), 'Real responses to anti-tax avoidance: Evidence from the UK worldwide debt cap', *Journal of Public Economics* **214**, 104742.

Borensztein, E., De Gregorio, J. and Lee, J.-W. (1998), 'How does foreign direct investment affect economic growth?', *Journal of International Economics* **45**(1), 115–135.

Bowers, S. (2010), 'Budget 2010: corporation tax slashed to 24p', *The Guardian* .
URL: *https://www.theguardian.com/uk/2010/jun/22/budget-2010-corporation-tax-slashed-to-24p*

Brockmeyer, A., Estefan, A., Ramirez Arras, K. and Suarez Serrato, J. C. (2023), 'Taxing property in developing countries: Theory and evidence in Mexico', *Working paper* .

Burnside, C. and Dollar, D. (2000), 'Aid, policies, and growth', *American Economic Review* **90**(4), 847–868.

Chapman, B. (2019), 'UK by far the biggest enabler of global corporate tax dodging, groundbreaking research finds', *Independent* .
URL: *https://www.independent.co.uk/news/business/news/uk-corporate-tax-avoidance-havens-justice-network-dodging-a8933661.html*

Chen, X. and Nordhaus, W. D. (2011), 'Using luminosity data as a proxy for economic statistics', *Proceedings of the National Academy of Sciences* **108**(21), 8589–8594.

Chodorow-Reich, G., Smith, M., Zidar, O. M. and Zwick, E. (2024), Tax policy and investment in a global economy, Working Paper 32180, National Bureau of Economic Research.
URL: *http://www.nber.org/papers/w32180*

Comstock, A. (1920), 'British income tax reform', *The American Economic Review* **10**, 488–506.

Conley, T. G. (2010), *Spatial Econometrics*, Palgrave Macmillan UK, London, pp. 303–313.

Cravino, J. and Levchenko, A. A. (2017), 'Multinational firms and international business cycle transmission', *The Quarterly Journal of Economics* **132**(2), 921–962.

De Vito, A., Jacob, M., Schindler, D. and Xu, G. (2025), 'How do corporate tax hikes affect investment allocation within multinationals?', *Review of Finance* **29**(2), 531–565.

Dell, M. and Olken, B. (2020), 'The development effects of the extractive colonial economy: The dutch cultivation system in java', *Review of Economic Studies* **87**(1), 164–203.

Desai, M. A., Foley, C. F. and Hines Jr, J. R. (2005), 'Foreign direct investment and the domestic capital stock', *American Economic Review* **95**(2), 33–38.

Desai, M. A., Foley, C. F. and Hines Jr, J. R. (2009), 'Domestic effects of the foreign activities of us multinationals', *American Economic Journal: Economic Policy* **1**(1), 181–203.

Donaldson, D. (2018), 'Railroads of the Raj: Estimating the impact of transportation infrastructure', *American Economic Review* **108**(4-5), 899–934.

Egger, P., Merlo, V., Ruf, M. and Wamser, G. (2015*a*), 'Consequences of the new uk tax exemption system: evidence from micro-level data', *The Economic Journal* **125**(589), 1764–1789.

Egger, P., Merlo, V., Ruf, M. and Wamser, G. (2015*b*), 'Consequences of the new uk tax exemption system: Evidence from micro-level data', *The Economic Journal* **125**, 1764–1789.

Englebert, P. (2000), 'Solving the mystery of the africa dummy', *World development* **28**(10), 1821–1835.

Faccini, R., Mumtaz, H. and Surico, P. (2016), 'International fiscal spillovers', *Journal of International Economics* **99**, 31–45.

Feenstra, R. C. and Hanson, G. H. (1997), 'Foreign direct investment and relative wages: Evidence from mexico's maquiladoras', *Journal of International Economics* **42**(3), 371–393.
URL: *https://www.sciencedirect.com/science/article/pii/S0022199696014754*

Garrett, D. G., Ohrn, E. and Suárez Serrato, J. C. (2023), Effects of international tax provisions on domestic labor markets, Technical report, Working Paper.

Gennaioli, N., La Porta, R., Lopez-de Silanes, F. and Shleifer, A. (2013), 'Human capital and regional development', *The Quarterly Journal of Economics* **128**(1), 105–164.

Giroud, X., Lenzu, S., Maingi, Q. and Mueller, H. (2022), 'Propagation and amplification of local productivity spillovers', *National Bureau of Economic Research* .

Glaeser, S. A., Olbert, M. and Werner, A.-C. (2023), 'Tax competition and employment', *The Accounting Review* pp. 1–30.

Goldberg, P. (2015), *Trade and Inequality*, Edward Elgar Publishing.

Goldberg, P. K., Khandelwal, A. K., Pavcnik, N. and Topalova, P. (2010), 'Imported intermediate inputs and domestic product growth: Evidence from India', *The Quarterly Journal of Economics* **125**(4), 1727–1767.

Gomez Cram, R. and Olbert, M. (2023), 'Measuring the expected effects of the global tax reform', *Review of Financial Studies* .

Goodley, S. (2010), 'Moving Cadbury HQ to Switzerland could save Kraft millions in UK tax', *The Guardian* .
URL: *https://www.theguardian.com/business/2010/dec/03/moving-cadbury-management-tax*

Hall, R. E. and Jorgenson, D. W. (1967), 'Tax policy and investment behavior', *American Economic Review* **57**(3), 391–414.

Hartman, D. G. (1985), 'Tax policy and foreign direct investment', *Journal of Public Economics* **26**(1), 107–121.

Henderson, J. V., Storeygard, A. and Weil, D. N. (2012), 'Measuring economic growth from outer space', *American Economic Review* **102**(2), 994–1028.

Henderson, V., Storeygard, A. and Weil, D. N. (2011), 'A bright idea for measuring economic growth', *American Economic Review* **101**(3), 194–99.

Hjort, J. and Poulsen, J. (2019), 'The arrival of fast internet and employment in Africa', *American Economic Review* **109**(3), 1032–79.

Imbens, G. W. and Wooldridge, J. M. (2009), 'Recent Developments in the Econometrics of Program Evaluation', *Journal of Economic Literature* **47**(1), 5–86.

Ivanov, I., Pettit, L. and Whited, T. M. (2022), 'Taxes depress corporate borrowing: Evidence from private firms', *Available at SSRN 3694869* .

Jerven, M. (2013), *Poor numbers: how we are misled by African development statistics and what to do about it*, Cornell University Press.

Keller, W. and Yeaple, S. R. (2009), 'Multinational enterprises, international trade, and productivity growth: Firm level evidence from the united states', *The Review of Economics and Statistics* **91**(4), 821–831.
URL: *http://www.jstor.org/stable/25651379*

Killgren, L. (2008), 'Regus latest to leave UK for tax reasons', *Financial Times* .
URL: *https://www.ft.com/content/23e58540-7596-11dd-99ce-0000779fd18c*

Kingdon, G. and Knight, J. (2007), 'Unemployment in South Africa, 1995–2003: Causes, problems and policies', *Journal of African Economies* **16**(5), 813–848.

Kline, P. and Moretti, E. (2014), 'Local economic development, agglomeration economies, and the big push: 100 years of evidence from the Tennessee valley authority', *The Quarterly Journal of Economics* **129**(1), 275–331.

Kollewe, J. (2008), 'Tax avoidance: Regus quits Britain for Luxembourg', *The Guardian* .
URL: *https://www.theguardian.com/business/2008/aug/29/regusgroup.taxavoidance*

Kovak, B. K., Oldenski, L. and Sly, N. (2021), 'The Labor Market Effects of Offshoring by U.S. Multinational Firms', *The Review of Economics and Statistics* **103**(2), 381–396.

Langenmayr, D. and Liu, L. (2020), 'Where does multinational profit go with territorial taxation? evidence from the uk', *Working paper* .

Lester, R. (2019), 'Made in the usa? a study of firm responses to domestic production incentives', *Journal of Accounting Research* **57**(4), 1059–1114.

Liu, L. (2020), 'Where does multinational investment go with territorial taxation? Evidence from the United Kingdom', *American Economic Journal: Economic Policy* **12**(1), 325–58.

Méndez, E. and Van Patten, D. (2022), 'Multinationals, monopsony and local development: Evidence from the united fruit company', *Econometrica* **90**(6), 2685–2721.

Michalopoulos, S. and Papaioannou, E. (2013), 'Pre-colonial ethnic institutions and contemporary african development', *Econometrica* **81**(1), 113–152.

North, D. C. (1990), *Institutions, Institutional Change and Economic Performance*, Political Economy of Institutions and Decisions, Cambridge University Press.

Nunn, N. and Trefler, D. (2013), 'Incomplete contracts and the boundaries of the multinational firm', *Journal of Economic Behavior & Organization* **94**, 330–344.

OECD (2025), Cuts in official development assistance: Oecd projections for 2025 and the near term, Oecd policy briefs, OECD Publishing, Paris.
URL: *https://doi.org/10.1787/8c530629-en*

Ohrn, E. (2018), 'The effect of corporate taxation on investment and financial policy: Evidence from the DPAD', *American Economic Journal: Economic Policy* **10**(2), 272–301.

Ohrn, E. (2019), 'The effect of tax incentives on us manufacturing: Evidence from state accelerated depreciation policies', *Journal of Public Economics* **180**, 104084.

Paul, J. and Singh, G. (2017), 'The 45 years of foreign direct investment research: Approaches, advances and analytical areas', *The World Economy* **40**(11), 2512–2527.

Rambachan, A. and Roth, J. (2023), 'A more credible approach to parallel trends', *Review of Economic Studies* **90**, 2555–2591.

Sialm, C. (2009), 'Tax changes and asset pricing', *American Economic Review* **99**(4), 1356–1383.

Smarzynska Javorcik, B. (2004), 'Does foreign direct investment increase the productivity of domestic firms? in search of spillovers through backward linkages', *American Economic Review* **94**(3), 605–627.

Suárez Serrato, J. C. (2019), 'Unintended consequences of eliminating tax havens'.
URL: *https://www.nber.org/papers/w24850*

Tax Gap Reporting Team (2009), 'How to save a packet', *The Guardian* .
URL: *https://www.theguardian.com/business/2009/feb/05/tax-gap-walkers*

Temple, J. and Van de Sijpe, N. (2017), 'Foreign aid and domestic absorption', *Journal of International Economics* **108**, 431–443.

The Economist (2021), 'Growth in emerging markets - Unrest and economic underperformance haunt the emerging world', *The Economist* .

Trades Union Congress (2010), 'The corporate tax gap'.
URL: *https://www.tuc.org.uk/sites/default/files/extras/corporatetaxgap.pdf*

Wagner, A. F., Zeckhauser, R. J. and Ziegler, A. (2018), 'Company stock price reactions to the 2016 election shock: Trump, taxes, and trade', *Journal of Financial Economics* **130**(2), 428–451.

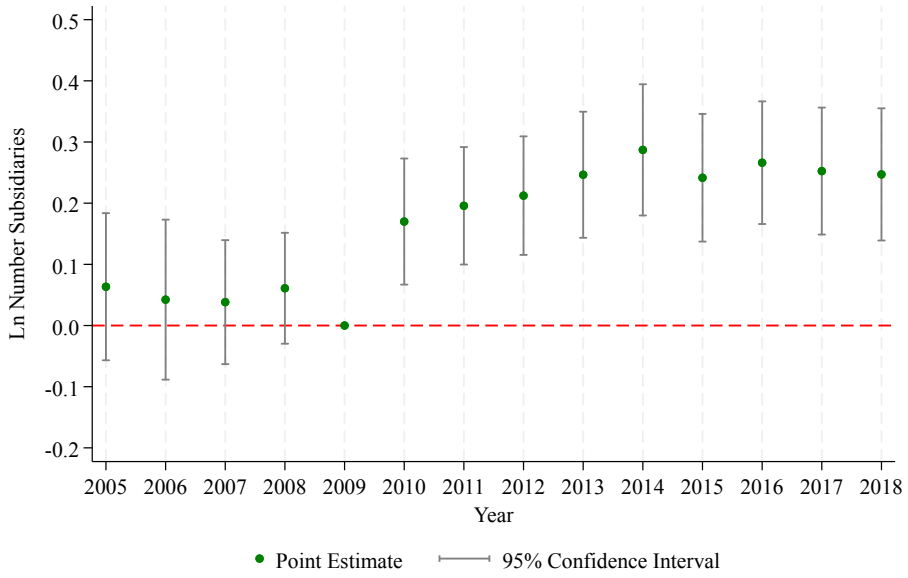
Zwick, E. and Mahon, J. (2017), 'Tax policy and heterogeneous investment behavior', *American Economic Review* **107**(1), 217–48.

Table 1: Summary Statistics

Variable	Obs	Mean	P10	P25	Median	P75	P90	SD
Subsidiary Presence Variables (Firm-Country-Year)								
Log. Number Subsidiaries (*in African-country*)	96,126	0.43	0.00	0.00	0.00	0.69	1.39	0.71
Number Subsidiaries (*in African-country*)	96,126	2.48	1.00	1.00	1.00	2.00	4.00	7.58
UK Firm	96,126	0.07	0.00	0.00	0.00	0.00	0.00	0.26
Number Subsidiaries (*worldwide*)	96,126	147.64	2.00	3.00	16.00	107.00	425.00	488.78
Number Subsidiary Countries (*worldwide*)	96,126	19.58	1.00	2.00	6.00	27.00	61.00	27.69
Tax Differential within Firm (*p.p.*)	96,126	21.07	0.00	0.00	17.49	38.50	55.00	19.15
Number Tax Haven Subsidiaries	96,126	11.48	0.00	0.00	1.00	6.00	28.00	58.73
UK Colonies	96,126	0.63	0.00	0.00	1.00	1.00	1.00	0.48
Home Country Controls (Firm-Country-Year)								
Population (*in millions*)	95,906	99.13	5.52	16.53	54.55	66.00	295.52	214.63
Inflation (*%*)	93,532	3.60	0.25	1.13	2.35	5.18	7.26	4.19
GDP (*USD in trillions*)	95,286	2.38	0.04	0.30	0.40	2.64	3.88	4.63
Nighttime Luminosity Analysis (Grid Cell-Year)								
Nighttime Luminosity (*10km*)	23,180	44.27	0.00	37.59	49.53	56.81	63.00	16.68
African Country Controls (Grid Cell-Year)								
GDP (*USD in billions*)	23,180	23.73	18.73	23.02	23.60	24.17	26.96	1.22
Population (*in millions*)	23,180	16.67	11.97	16.29	16.78	17.44	18.96	1.23
Local Employment (DHS) Analysis (Individual-Year)								
Employment (*0/1*)	610,064	0.64	0.00	0.00	1.00	1.00	1.00	0.48
U.K. Firm Presence (*km*)	610,064	117.05	2.43	9.11	60.05	156.09	329.69	149.76
Regional Employment (*Pre-period*)	610,064	0.64	0.47	0.55	0.65	0.73	0.81	0.13
Male	610,064	0.28	0.00	0.00	0.00	1.00	1.00	0.45
Household Members	610,064	6.33	3.00	4.00	6.00	8.00	11.00	3.79
Marital Status	602,870	0.96	0.00	0.00	1.00	1.00	2.00	1.09
Age	610,064	28.99	17.00	20.00	27.00	36.00	44.00	10.26
Urban Region	610,064	0.54	0.00	0.00	1.00	1.00	1.00	0.50

Notes: This table presents descriptive statistics for the samples used in the empirical tests. We report the unit of observation for each group of variables in parentheses. For the local economic effects analysis, grid-cells are defined as 0.1×0.1 decimal degrees, which is approximately 10×10 km. We construct equally-sized grid-cells for the nighttime luminosity and DHS outcome variable analysis.

Figure 1: Effect of U.K. Tax Reform on U.K. Presence in Sub-Saharan Africa



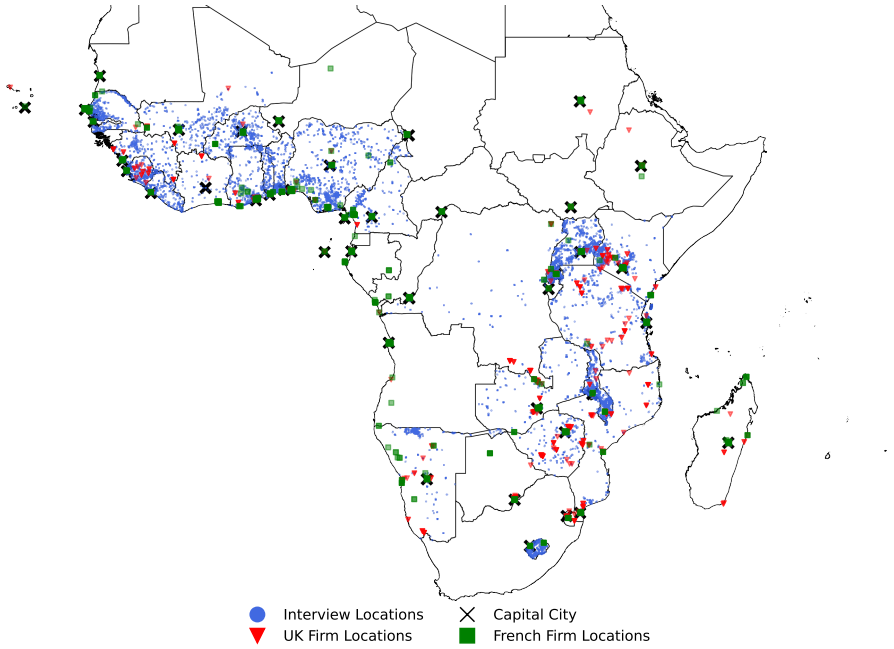
Notes: This figure displays the coefficient estimates and 95% confidence intervals for event study regressions estimating the difference in the natural logarithm of the number of U.K. multinational subsidiaries as compared to non-U.K. multinational firms over time relative to the year 2009. The specification is based on Eq. (1) and includes country-by-year and firm fixed effects. Standard errors are clustered at the firm level. Results from regressing the natural logarithm of the number of subsidiaries on a simple *U.K. Firm * After 2009* treatment indicator are presented in Panel (A) Column (1) of Table A.10. The same table presents results of alternative specifications that demonstrate the robustness of the main result.

Table 2: U.K. Corporate Tax Policy and Foreign Subsidiary Presence in Sub-Saharan Africa: Tax Rate Reduction versus Territorial Taxation

	(1)	(2)	(3)	(4)
	Ln Number Subsidiaries			
	Tax Rate Cut		Tax System Reform	
*High U.K. Return * Post*	0.203***	0.330**	0.093	0.119
	(0.07)	(0.14)	(0.08)	(0.18)
Obs.	4,110	1,243	4,081	1,255
Adj. R2	0.370	0.562	0.365	0.554
Balanced Presence	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes

Notes: This table reports coefficients from estimating the effect of the U.K. tax reform on the natural logarithm of the number of subsidiaries of a firm in a given country/year (*Ln Number Subsidiaries*) for the sample period 2005 to 2018, conditional on U.K. firms' stock market reactions to announcements of tax policy changes. In Columns (1) and (2), the market response is measured around the announcement of the U.K. tax rate reduction on June 22, 2010 (Tax Rate Cut). In Columns (3) and (4), the market response is measured around the announcement of the territorial regime shift on June 16, 2009 (Tax System Reform). U.K. firms with a positive stock market reaction on the event date and the day after (*High U.K. Return*) are compared to U.K. firms with a negative stock market reaction on the event date and the day after. *Post* is an indicator variable equal to one for years after 2009, zero otherwise. Standard errors are clustered at the firm level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Figure 2: Multinational Firm Subsidiary Locations throughout Sub-Saharan Africa



Notes: This figure shows the geographic distribution of subsidiaries across all Sub-Saharan African countries for which verified address data were obtained through manual data collection. Red and green triangles indicate the locations of subsidiaries of U.K. and French multinational firms, respectively. Blue dots mark the locations of DHS interviews used in the analyses reported in Section **??**. We retain and display firm locations for all countries included in our luminosity tests. DHS interview locations are shown only if they are part of our sample—that is, if we observe survey data for at least one 100km grid cell in a given country prior to 2010.

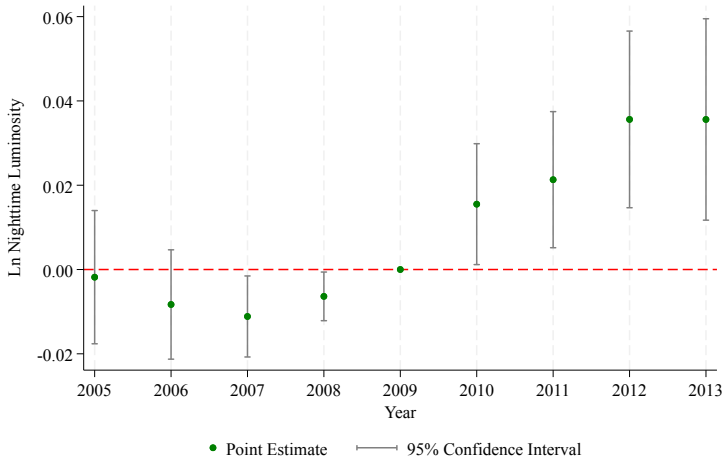
Table 3: Sample Characteristics - Address Availability and U.K. vs. French Locations

Panel A	Mean Multinational Firm or African Country Characteristics							
	Non-located Subsidiaries (N=2,306)			Located Subsidiaries (N=2,418)			Diff. in Means	
	Mean	Median	SD	Mean	Median	SD	Rel.	Std.
No. Subsidiaries	42.76	3.00	87.36	26.20	2.75	62.66	0.39	0.15
No. African Subsidiaries	71.19	15.40	115.27	59.66	17.29	96.15	0.16	0.08
Countries	36.31	34.00	29.52	42.50	38.00	31.12	0.17	0.14
Total Assets (m USD)	287,220.46	37,946.98	663,251.47	198,594.07	37,488.77	526,661.89	0.31	0.10
U.K. Firm	0.61	1.00	0.49	0.61	1.00	0.49	0.00	0.00
GDP (current USD m)	190,938.91	55,096.73	178,973.48	197,586.37	62,405.38	180,924.30	0.03	0.03
Population (m)	38.16	48.48	30.87	43.97	48.48	37.78	0.15	0.12
Panel B	Mean Regional Characteristics for UK-Firm vs. French-Firm Subsidiary Locations							
	UK Firm Presence			French Firm Presence			Diff. in Means	
	Mean	Median	SD	Mean	Median	SD	Rel.	Std.
Firms	(N = 1,295)			(N = 1,361)				
Luminosity (0.01×0.01)	50.50	60.00	19.34	54.04	60.00	13.61	0.07	0.15
Luminosity (0.05×0.05)	47.99	57.28	19.15	51.40	56.69	13.94	0.07	0.14
Luminosity (0.1×0.1)	41.60	48.36	18.27	45.09	49.37	14.75	0.08	0.15
Population (0.1×0.1)	3852.82	2776.23	3576.25	4477.01	4426.59	3182.62	0.16	0.13
Distance to Capital	167.04	6.54	259.43	118.47	6.26	178.13	0.29	0.15
Distance to Coast	321.74	284.11	322.06	203.49	4.81	316.48	0.37	0.26
Distance to Road	1.71	0.41	7.80	0.66	0.32	1.22	0.61	0.13
DHS	(N = 23,792)			(N = 75,779)				
Education	7.60	8	4.60	5.69	6	4.43	0.25	0.30
Gender	0.28	0	0.45	0.27	0	0.45	0.04	0.02
Working Share	0.60	1	0.49	0.60	1	0.49	0.00	0.00

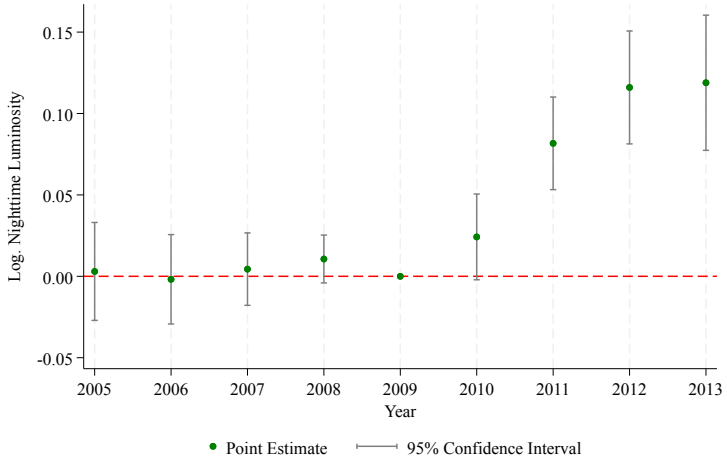
Notes: This table compares descriptive statistics across subsample choices that could potentially bias our analysis. Panel A contrasts firms for which we were able to obtain georeferenced subsidiary locations with those we could not locate. For the ultimate parent firms, we report the number of total subsidiaries, the number of African subsidiaries, the number of countries with existing operations, and the value of total assets. We also report the share of U.K. firms, as well as the average GDP and population of the countries in which their subsidiaries operate. Panel B compares areas surrounding U.K.-owned subsidiaries to areas surrounding French-owned subsidiaries. We construct population-weighted grids of various sizes around firm locations and report luminosity (based on 2009 data) and population (from 2010). In addition, we report summary statistics for DHS-surveyed individuals who live near either U.K. subsidiaries (within 10km) or French subsidiaries (within 25km, but not within 10km of a U.K. subsidiary). Education is reported in years, gender is coded as 1 for male, and the employment indicator equals 1 for individuals currently working. To assess comparability across subsamples in both panels, the columns on the right display signed relative differences and standardized differences in means. Standardized differences are calculated as the difference in means divided by the square root of the sum of the sample variances, following Imbens and Wooldridge (2009).

Figure 3: Effect of U.K. Presence in Sub-Saharan Africa on Local Economic Activity

(**A**) U.K. Presence vs. French Presence within 10 km Radius Grid-cells



(**B**) U.K. Presence vs. Placebo Regions within 10 km Radius Grid-cells



Notes: This figure displays the coefficient estimates and 95% confidence intervals over time for the event study regressions estimating the difference in the natural logarithm of average nighttime luminosity between 10 km radius grid-cells surrounding U.K. multinational firms as compared to those without U.K. multinational firms. Effects are plotted relative to the year 2009. In Panel (A), control observations are 10 km radius grid-cells centered around French subsidiaries. The specifications include country-by-year, parent firm, and grid-cell fixed effects, and standard errors are clustered at the grid-cell level. In Panel (B), we match 10 km radius grid-cells with U.K. subsidiary presence to control grid-cells within the same country that are at least 10 km away from the next U.K.-owned subsidiary and that exhibited average luminosity values within a $\pm$20% range of the treated observation in 2009.

Table 4: Foreign Subsidiary Presence and Local Economic Activity

	(1)	(2)	(3)	(4)
Panel (A)	*Ln Nighttime Luminosity (10km)*			
	All Subsidiaries with location data			
*U.K. Firm * After 2009*	0.026***	0.033***	0.031***	0.056***
	(0.01)	(0.01)	(0.01)	(0.02)
Obs.	23,640	23,663	21,417	16,724
Adj. R2	0.976	0.981	0.981	0.981
Control Grid-Cells	French subsidiaries			
Dense activity locations	Yes	Yes	Yes	No
Country Controls	Yes	.	.	.
Grid-cell FE	Yes	Yes	Yes	Yes
Parent FE	Yes	Yes	Yes	Yes
Year FE	Yes	.	.	.
Country-Year FE	No	Yes	Yes	Yes
Industry-Country-Year FE	No	No	Yes	Yes
Panel (B)	*Ln Nighttime Luminosity (10km)*			
	Only subsidiaries with verified incorporation date <2010			
*U.K. Firm * After 2009*	0.051*	0.078**	0.150**	0.212**
	(0.03)	(0.04)	(0.07)	(0.09)
Obs.	1,876	1,814	1,252	890
Adj. R2	0.974	0.975	0.973	0.971
Control Grid-Cells	French subsidiaries			
Dense activity locations	Yes	Yes	Yes	No
Country Controls	Yes	.	.	.
Grid-cell FE	Yes	Yes	Yes	Yes
Parent FE	Yes	Yes	Yes	Yes
Year FE	Yes	.	.	.
Country-Year FE	No	Yes	Yes	Yes
Industry-Country-Year FE	No	No	Yes	Yes

Notes: This table reports coefficient estimates of difference-in-differences specifications from Eq. (2), which tests the effect of the U.K. tax policy changes on local economic activity measured with nighttime luminosity in sub-Saharan Africa. The unit of observation is a luminosity grid-cell with a 10 km radius in a given country-year. *U.K. Firm* is an indicator variable equal to one if a grid-cell contains a U.K. subsidiary, zero otherwise. *After 2009* is an indicator variable equal to one for years after 2009, zero otherwise. Control observations are 10 km radius grid-cells centered around a French multinational subsidiary. In Panel (A), we use all subsidiary (i.e., grid-cell) observations of French and U.K. firms for which we successfully obtained geographic location data. In Panel (B), we restrict the sample to the 282 subsidiaries for which incorporation dates are available from the Orbis Browser database and where the incorporation occurred in the pre-reform period (before 2010). These subsidiaries were owned by 46 French and 82 U.K. firms, respectively. Of the 282 subsidiaries, 216 were incorporated before 2010. In Column (4), we exclude grid cells with a maximum nighttime luminosity value of 60 or more during the sample period (i.e., areas with dense economic activity). Luminosity data are obtained from the United States Air Force Defense Meteorological Satellite Program (DMSP). We use the annualized, processed (cloud-free-observation-weighted) average over all stable nightlight pixels from The National Geophysical Data Center (NGDC) from 2005 to 2013. The dependent variable *Log. Luminosity* is the natural logarithm of the annualized mean luminosity value. Robust standard errors are clustered at the grid-cell level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5: Foreign Subsidiary Investment and Regional Employment

Panel (A)	(1)	(2)	(3)	(4)
	Employment (0/1)			
	U.K. Firm Presence vs. French Firm Presence			
	Control Group < U.K. Firm		Control Group < 25km	
*U.K. Firm * Post*	0.036***	0.029***	0.026**	0.023**
	(0.008)	(0.007)	(0.012)	(0.011)
Regional Employment (Pre-period)	0.187***	0.152***	0.253***	0.194**
	(0.051)	(0.052)	(0.072)	(0.078)
Obs.	371,829	369,930	199,403	197,648
Adj. R2	0.066	0.210	0.033	0.194

Panel (B)				
	Skilled Employment (0/1)			
	U.K. Firm Presence vs. French Firm Presence			
	Control Group < U.K. Firm		Control Group < 25km	
*U.K. Firm * Post*	-0.036***	-0.031***	-0.020	-0.012
	(0.011)	(0.011)	(0.015)	(0.015)
Regional Employment (Pre-period)	-0.259***	-0.153**	-0.210**	-0.154**
	(0.085)	(0.065)	(0.085)	(0.077)
Obs.	239,395	238,178	122,966	121,872
Adj. R2	0.276	0.290	0.213	0.218
Individual Controls	No	Yes	No	Yes
Grid-cell FE * U.K. Firm Presence	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes

Notes: This table reports coefficient estimates of difference-in-differences specifications from Eq. (2), which tests the effect of the U.K. tax policy changes on local employment in sub-Saharan Africa from 1998 to 2019. The unit of analysis is a survey respondent. *U.K. Firm* is an indicator variable equal to one if a U.K. firm's subsidiary is located within a 10 km radius of a survey respondent's residence, zero otherwise. *After 2009* is an indicator variable equal to one for years after 2009, zero otherwise. In both panels, the control group consists of individuals who (i) live closer to French-owned than U.K.-owned subsidiaries and have no U.K.-owned subsidiary within a 10 km radius (Columns (1) and (2)), or (ii) live within 25 km of a French-owned subsidiary but not within 10 km of any U.K.-owned subsidiary (Columns (3) and (4)). Individual-level data are obtained from Demographic and Health Surveys (DHS), using only regions that had survey rounds both before and after the U.K. tax rate reduction. The dependent variable in Panel (A) is *Employment (0/1)*, an indicator variable equal to one if an individual indicates that he/she is employed following Hjort and Poulsen (2019), zero otherwise. The dependent variable in Panel (B), *Skilled Employment (0/1)*, is an indicator variable equal to one if an individual indicates that he/she is employed within the following DHS occupational categories: professional, sales, services, and skilled manual. It is equal to zero for the following DHS occupational categories: self-employed agriculture, domestic, and unskilled manual, consistent with the classification in Hjort and Poulsen (2019). Robust standard errors are clustered at the grid-cell level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Foreign Subsidiary Investment and Regional Educational Attainment

Panel (A)	(1)	(2)	(3)	(4)
	Higher or Secondary Education (0/1)			
	U.K. Firm Presence vs. French Firm Presence			
	Control Group < U.K. Firm		Control Group < 25km	
*U.K. Firm * Post*	-0.020***	-0.014**	-0.020*	-0.017
	(0.007)	(0.007)	(0.011)	(0.011)
Regional Employment (Pre-period)	-0.199*	-0.140	-0.180	-0.163
	(0.102)	(0.102)	(0.140)	(0.143)
Obs.	387,688	358,305	205,959	190,213
Adj. R2	0.261	0.315	0.190	0.236

Panel (B)				
	Education in Years			
	U.K. Firm Presence vs. French Firm Presence			
	Control Group < U.K. Firm		Control Group < 25km	
*U.K. Firm * Post*	-0.081***	-0.069***	-0.056***	-0.049***
	(0.013)	(0.013)	(0.017)	(0.018)
Regional Employment (Pre-period)	-0.399**	-0.301*	-0.315*	-0.306*
	(0.164)	(0.162)	(0.164)	(0.170)
Obs.	386,813	357,351	205,580	189,839
Pseudo R2	0.197	0.214	0.101	0.114
Individual Controls	No	Yes	No	Yes
Grid-cell FE * U.K. Firm Presence	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes

Notes: This table reports coefficient estimates of difference-in-differences specifications from Eq. (2), which tests the effect of the U.K. tax policy changes on local educational attainment in sub-Saharan Africa from 1998 to 2019. The unit of analysis is a survey respondent. *U.K. Firm* is an indicator variable equal to one if a U.K. firm's subsidiary is located within a 10 km radius of a survey respondent's residence, zero otherwise. *After 2009* is an indicator variable equal to one for years after 2009, zero otherwise. In both panels, the control group consists of individuals who (i) live closer to French-owned than U.K.-owned subsidiaries and have no U.K.-owned subsidiary within a 10 km radius (Columns (1) and (2)), or (ii) live within 25 km of a French-owned subsidiary but not within 10 km of any U.K.-owned subsidiary (Columns (3) and (4)). Individual-level data are obtained from Demographic and Health Surveys (DHS), using only regions that had survey rounds both before and after the U.K. tax rate reduction. The dependent variable in Panel (A) is *Higher or Secondary Education (0/1)*, an indicator variable equal to one if an individual indicates that she has indicated that the highest educational level is secondary school or higher education, and zero otherwise. In Panel (B), the dependent variable, *Education in Years*, is a continuous count variable capturing the number of years an individual reports having spent in education. Given its count nature, we estimate the specification in Panel (B) using a Poisson model. Robust standard errors are clustered at the grid-cell level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Online Appendix

A.1 - Institutional Setting

A.2 - Data Details

A.3 - Data Validation

A.4 - Supplementary Analyses

A.5 - Robustness Tests

Section A.1: Institutional Setting: U.K. Tax Reform

The U.K. has long been concerned with the competitiveness of its tax system and the effects of this system on the location of capital and investment (Comstock, 1920). These concerns came to head in the late 1980s, when the U.K. started a long trend towards lowering its corporate tax rates. In 1980, the rate was 52%, and, under Margaret Thatcher's leadership, the rate dropped to 35% by 1986. As one of the first developed countries to make major reductions in its corporate rate, the U.K. can be thought of as starting the so-called "race to the bottom." As of 2007, the corporate rate was 30%. However, as other countries lowered their rates, concerns were again raised that the U.K. was becoming less competitive.

The Finance Act of 2007 reduced the tax rate to 28%, receiving royal assent on July 19, 2007. While this reduction was welcomed by the business community, there was additional political momentum to further reduce the tax rate. As discussed in the main text, this was due to the fact that U.K. firms engaged in substantial tax planning activities to take advantage of lower, more competitive rates offered by neighboring countries. Second, the U.K. had a "worldwide" tax system wherein the profits of U.K. multinationals were taxed in the U.K. as well as in the country where they were earned (subject to a foreign tax credit and deferral, as in the U.S. system prior to 2017, Egger et al., 2015*b*). Concerns that the worldwide tax system might encourage capital flight from the U.K. were long-held (Comstock, 1920), particularly given that almost all other countries – with the exception of Japan and the U.S. – had converted to a territorial system. This system taxed earnings only where earned and did not subject them to a second tax in the parent's home country.

The U.K. started a serious reform of its tax system in 2009. Specifically, the Finance Act of 2009 proposed a switch to the territorial regime (but no change in corporate tax rate). This Act was approved by the Queen on July 21, 2009 and subsequently approved by royal assent on April 8, 2010. During this time, the corporate tax rate remained at 28%. Because the U.K. continued to have a corporate tax rate higher than other countries, incentives to shift abroad remained; indeed, directly following the shift to territorial taxation, Langenmayr and Liu (2020) show that the U.K. experienced more outbound income shifting to these lower-taxed countries.

On the 19th of May, 2010, Chancellor of the Exchequer George Osborne announced in a speech that corporate tax reform would be a priority for the newly formed coalition government. In his budget speech on June 22, 2010, Osborne outlined a plan for a phased reduction of the corporate tax rate over five years, beginning in 2010. Specifically, he stated, "Legislation will be introduced to cut the main rate of Corporation Tax to 27 per cent for the financial year starting 1 April 2011. There will be further cuts in the main rate in future years: 26 per cent in 2012-13, 25 percent in 2013-14, 24 percent in 2014-15." The speech was followed with the second Finance Act of 2010 (Finance (No. 2) Act 2010)), which did indeed reduce the tax rate to 27%. This Act was approved by the Queen on July 27, 2010 and effective for the financial year beginning April 1, 2011. Although the rate was only formally reduced from 28% to 27%, the Budget for 2010 (dated June 22, 2010) outlined a plan for the U.K. government to "create the most competitive corporate tax system in the G20." One of the ways this was to be achieved was to further "reduce the main rate of

corporation tax from 28 per cent to 24 per cent over the course of four financial years from April 2011. This will give the U.K. the lowest rate of corporation tax in the G7 and the fifth lowest rate in the G20."

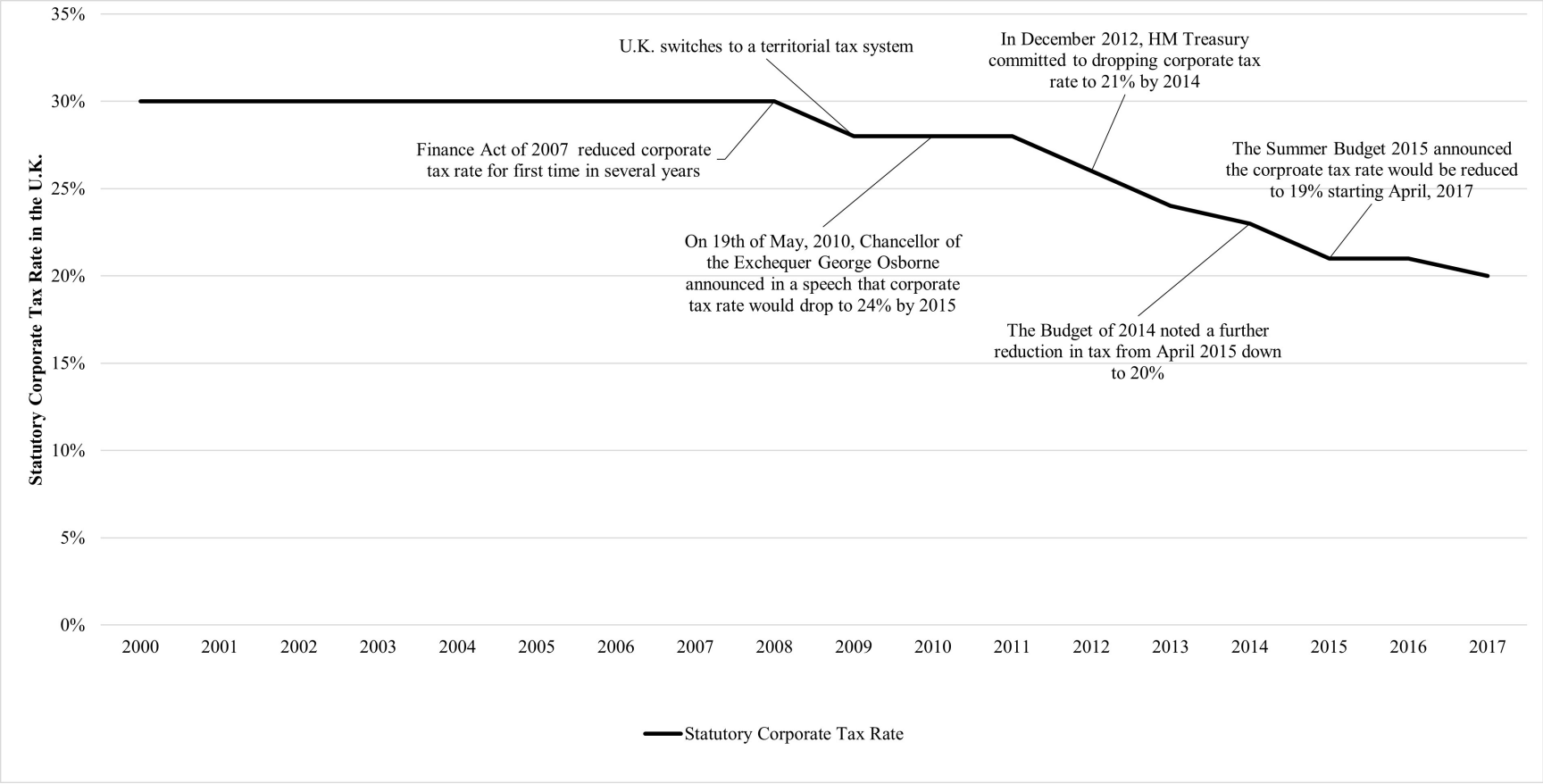
This plan was part of the Corporate Tax Road Map, which was formally introduced in November 2010. In addition to the framework of lowering tax rates, the road map also outlined the importance of a consistent fiscal policy. Specifically, the Road Map stated that a priority was "Maintaining stability – A stable tax system is vital to business. The Government will avoid unnecessary changes to tax legislation. In bringing forward reform, the Government will work with business to ensure that any changes improve the sustainability and long-term stability of the corporate tax system." This commitment to lower tax rates and a stable corporate tax system very likely boosted corporate confidence that longer-term investments would benefit from such tax changes (Ivanov et al., 2022).

The following year's budget proposal dated March 23, 2011 reflected this commitment to tax rate changes, reducing the rate to 26%, and including further commitments for future reductions. For example, the proposal stated, "From April 2011, the rate will be reduced to 26 per cent and, by 2014, it will be reduced to 23 per cent." Further, in addition to using tax rate reductions to improve the corporate tax climate, this budget also noted that the U.K. government would implement its "Corporate Tax Road Map, including introducing new Controlled Foreign Company (CFC) rules to allow groups based in the U.K. to compete more effectively with those based overseas, and consult on the Patent Box." These rates were formally incorporated in the Finance Act 2011, which was approved by royal ascent on July 19, 2011. Further, the rate for 2012 was legislated to be 25%.

In 2012, on March 21, 2012, the 2012 Budget included language that "the Government will reduce the main rate of corporation tax by an additional 1 per cent from April 2012. Therefore, the rate will fall by 2 per cent from 26 per cent to 24 per cent [down from the previous commitment of 25%] in April 2012, to 23 per cent in April 2013 and to 22 per cent in April 2014." These changes were ratified in the Finance Act 2012 by royal assent on April 8, 2012.

In its Autumn Statement 2012, released in December 2012, HM Treasury committed to further reduce the corporate tax, announcing that "The Government will reduce the main rate of corporation tax by a further 1 percentage point to 21% from April 2014." This reduction was reflected in the Budget of 2013, which was released March 20, 2013. The Budget of 2014 noted a further reduction in tax from April 2015 to 20%, which is where the rate remained until the Summer Budget 2015, when it was announced that it would be reduced to 19% starting April 2017. Figure A.1 outlines these key dates.

Figure A.1: Timeline of the U.K. Tax Reform



Notes: This figure graphs the statutory corporate tax rate in the U.K. from 2000 to 2017, along with key dates related to tax rate reductions.

A.2 - Data Details

Table A.1: Subsidiaries by African Country and Year

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Angola	9	35	46	59	69	143	227	283	389	599	672	785	820	757	4,893
Benin	4	4	7	7	31	48	55	62	74	78	96	113	134	129	842
Botswana	6	7	8	9	43	156	271	294	444	515	818	866	915	878	5,230
Burkina Faso	3	5	12	14	29	48	73	97	153	167	193	220	266	254	1,534
Burundi	3	3	2	2	7	14	17	29	29	30	44	50	60	61	351
Cameroon	14	20	23	28	96	133	153	166	199	210	222	244	294	286	2,088
Cape Verde	3	13	18	16	24	56	70	89	102	177	192	195	207	205	1,367
Central African Republic	0	0	1	2	11	13	19	27	35	26	35	36	42	38	285
Chad	1	2	3	6	17	19	23	27	36	41	42	48	59	61	385
Comoros	0	0	1	1	1	4	8	12	17	16	14	15	11	21	121
Congo	1	6	8	9	46	64	87	96	116	135	189	220	280	251	1,508
Cote d'Ivoire	22	38	42	50	149	191	230	253	320	358	471	525	643	666	3,958
Democratic Republic of Congo	4	10	17	15	47	92	126	161	216	243	306	348	464	467	2,516
Equatorial Guinea	0	2	1	3	15	29	32	38	51	59	75	82	99	91	577
Eritrea	0	0	1	2	2	3	3	8	13	15	12	15	14	16	104
Eswatini	3	3	3	3	12	51	78	97	114	140	209	219	258	261	1,451
Ethiopia	0	2	3	4	5	15	25	52	83	96	144	176	253	279	1,137
Gabon	6	13	22	23	73	92	123	128	188	208	235	271	312	287	1,981
Gambia	1	1	2	3	11	13	21	27	29	43	45	57	65	66	384
Ghana	25	39	44	43	87	190	258	308	446	508	651	1,897	1,959	1,997	8,452
Guinea	1	3	7	11	27	44	65	89	107	112	150	173	205	199	1,193
Guinea-Bissau	0	2	2	1	2	8	13	13	20	23	24	36	37	35	216
Kenya	18	71	67	76	105	261	381	479	587	791	1,005	1,137	1,390	1,515	7,883
Lesotho	3	3	3	3	5	36	48	57	69	72	111	380	381	577	1,748
Liberia	2	2	2	5	20	156	225	541	719	765	832	1,036	1,046	2,858	8,209
Madagascar	7	14	19	20	64	86	110	129	192	181	234	259	286	300	1,901
Malawi	8	10	11	12	21	69	89	117	159	167	224	248	298	297	1,730
Mali	1	2	4	6	29	50	85	109	153	154	179	195	238	244	1,449
Mauritania	0	3	3	5	16	42	52	60	67	82	109	127	143	134	843
Mozambique	4	25	39	44	48	140	211	287	357	596	827	991	1,123	1,132	5,824
Namibia	6	6	8	9	23	208	330	390	511	644	999	1,155	1,222	1,220	6,731
Niger	3	6	5	5	18	22	32	41	61	59	69	74	90	86	571
Nigeria	49	149	107	130	234	477	655	775	1,014	1,262	1,533	1,808	1,986	1,955	12,134
Rwanda	2	3	3	4	10	25	32	38	46	82	119	142	175	193	874
Sao Tome and Principe	1	1	1	1	3	5	7	9	14	36	44	57	61	50	290
Senegal	14	20	24	29	98	142	198	226	290	297	338	377	444	437	2,934
Sierra Leone	2	3	3	4	8	25	33	46	73	78	105	127	152	150	809
Somalia	0	0	0	0	4	4	3	7	8	9	9	10	11	15	80
South Africa	774	836	964	1,065	3,238	6,048	7,941	9,678	11,095	11,228	18,895	20,693	21,951	21,705	136,111
South Sudan	0	0	0	0	0	1	3	4	5	9	16	22	23	26	109
Sudan	2	3	10	13	19	58	76	97	181	182	198	222	231	215	1,507
Tanzania	12	14	20	22	37	156	212	277	416	490	652	729	843	902	4,782
Togo	3	4	4	5	19	32	43	59	76	81	89	103	123	119	760
Uganda	10	22	15	17	27	102	136	184	220	247	303	343	392	398	2,416
Zambia	15	25	34	39	43	122	178	235	331	373	550	610	688	692	3,935
Zimbabwe	25	28	30	35	51	196	239	331	457	526	883	978	1,050	1,080	5,909
Total	1,067	1,458	1,649	1,860	4,944	9,889	13,296	16,532	20,282	22,210	33,162	38,414	41,744	43,605	250,112

*Notes:*This table presents the number of subsidiary observations in the sample by African country and year.

Table A.2: Subsidiaries by African Country and Parent Home Country

Country	Belgium	France	Germany	Italy	Portugal	Spain	U.K.	U.S.	African Domestic Groups	African Multinationals	Rest of World	Total
Angola	41	254	86	135	2,064	172	214	186	297	780	664	4,893
Benin	14	264	50	13	0	12	25	15	60	154	235	842
Botswana	35	126	132	18	4	18	458	304	327	2,895	913	5,230
Burkina Faso	33	334	42	11	0	4	129	36	62	133	750	1,534
Burundi	27	47	7	5	0	0	8	9	21	113	114	351
Cameroon	32	779	43	74	4	42	146	105	110	229	524	2,088
Cape Verde	12	16	5	100	673	160	24	14	129	120	114	1,367
Central African Republic	3	94	22	9	0	7	24	6	8	41	71	285
Chad	8	157	8	0	0	3	11	11	14	80	93	385
Comoros	0	41	0	0	0	0	3	7	11	49	10	121
Congo	50	425	20	78	9	26	85	74	66	163	512	1,508
Cote d'Ivoire	112	1,284	85	200	13	89	275	147	346	456	951	3,958
Democratic Republic of Congo	337	239	52	105	6	12	240	77	219	320	909	2,516
Equatorial Guinea	13	124	4	7	18	172	30	83	26	29	71	577
Eritrea	10	11	0	13	0	0	14	0	20	3	33	104
Eswatini	11	30	34	25	9	0	151	64	171	844	112	1,451
Ethiopia	24	16	23	77	0	6	105	38	194	195	459	1,137
Gabon	13	834	33	47	14	46	112	81	96	207	498	1,981
Gambia	16	27	16	6	7	9	31	15	50	125	82	384
Ghana	114	322	102	101	17	101	366	357	3,886	1,126	1,960	8,452
Guinea	24	245	9	18	12	24	167	74	63	171	386	1,193
Guinea-Bissau	1	15	2	3	50	21	0	9	20	54	41	216
Kenya	62	279	260	120	30	81	1,034	599	1,416	2,103	1,899	7,883
Lesotho	5	45	32	4	0	0	116	50	800	599	97	1,748
Liberia	60	45	162	54	0	16	294	298	172	2,322	4,786	8,209
Madagascar	54	608	64	54	3	29	108	71	111	364	435	1,901
Malawi	5	61	39	19	43	0	233	134	250	598	348	1,730
Mali	12	299	28	28	8	11	93	41	78	209	642	1,449
Mauritania	31	126	23	10	0	61	30	19	156	113	274	843
Mozambique	27	182	93	229	1,776	123	538	139	347	1,086	1,284	5,824
Namibia	88	126	144	72	35	147	619	215	600	3,580	1,105	6,731
Niger	2	212	12	11	0	4	38	38	22	71	161	571
Nigeria	220	702	257	321	36	62	1,120	1,102	2,721	3,101	2,492	12,134
Rwanda	61	45	23	0	1	1	54	36	114	300	239	874
Sao Tome and Principe	2	9	0	0	98	12	1	1	8	97	62	290
Senegal	96	982	75	240	26	177	119	173	154	287	605	2,934
Sierra Leone	11	48	19	15	8	14	129	39	53	160	313	809
Somalia	0	23	1	0	0	0	3	0	11	17	25	80
South Africa	837	2,937	3,593	1,461	292	954	10,132	7,561	37,672	54,466	16,206	136,111
South Sudan	3	10	0	1	0	0	17	5	7	42	24	109
Sudan	3	41	7	10	0	0	72	9	637	351	377	1,507
Tanzania	44	138	127	97	9	18	650	263	518	1,028	1,890	4,782
Togo	22	234	55	14	1	7	44	22	31	153	177	760
Uganda	32	117	54	38	20	17	281	214	244	715	684	2,416
Zambia	39	111	72	49	0	6	535	225	473	1,342	1,083	3,935
Zimbabwe	9	90	111	87	8	15	1,110	289	1,168	2,514	508	5,909
Total	2,655	13,154	6,026	3,979	5,294	2,679	19,988	13,255	53,959	83,905	45,218	250,112

Notes: This table presents the number of subsidiary-year observations by African country and by the home country of the parent firm.

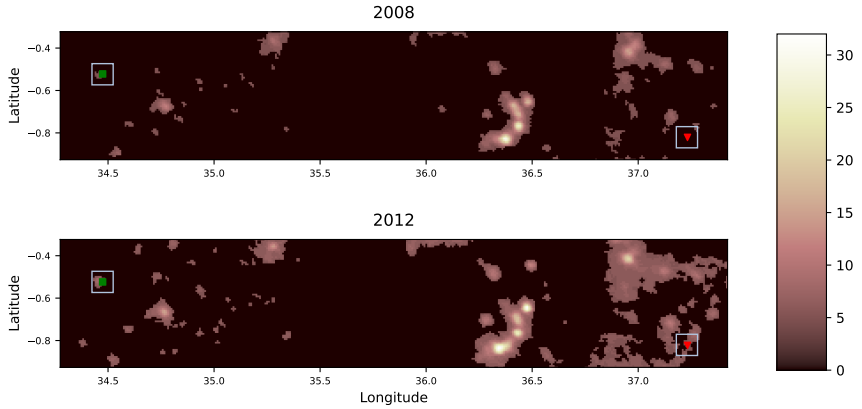
Table A.3: Parent Firm Presence by African Country and Parent Home Country

Country	Belgium	France	Germany	Italy	Portugal	Spain	U.K.	U.S.	African Domestic Groups	African Multinationals	Rest of World	Total
Angola	32	193	50	79	1,324	143	124	166	172	384	462	3,129
Benin	12	171	28	10	0	11	16	15	39	131	170	603
Botswana	29	77	66	15	4	5	192	163	127	934	560	2,172
Burkina Faso	20	262	28	10	0	4	74	34	42	112	390	976
Burundi	26	36	7	5	0	0	6	9	13	91	85	278
Cameroon	28	532	25	53	4	42	111	87	77	173	316	1,448
Cape Verde	10	16	5	63	524	130	19	6	58	99	73	1,003
Central African Republic	2	77	17	9	0	7	16	6	3	36	56	229
Chad	7	102	8	0	0	3	8	11	10	72	76	297
Comoros	0	35	0	0	0	0	3	7	8	28	7	88
Congo	45	287	18	67	8	24	62	66	38	135	363	1,113
Cote d'Ivoire	76	764	45	132	13	64	158	107	173	291	557	2,380
Democratic Republic of Congo	178	137	37	78	4	12	135	63	103	235	484	1,466
Equatorial Guinea	9	100	4	7	16	140	24	48	14	19	62	443
Eritrea	10	8	0	5	0	0	14	0	10	1	29	77
Eswatini	11	27	28	11	6	0	82	47	65	518	87	882
Ethiopia	20	13	20	59	0	5	82	38	90	100	274	701
Gabon	11	456	25	47	9	28	91	76	50	104	310	1,207
Gambia	12	23	13	3	5	8	31	11	17	111	72	306
Ghana	91	215	82	82	16	79	250	292	1,503	648	1,292	4,550
Guinea	23	176	9	15	11	23	78	68	32	134	291	860
Guinea-Bissau	0	13	2	3	35	18	0	8	6	47	37	169
Kenya	50	173	173	100	19	50	417	462	488	892	1,317	4,141
Lesotho	3	19	26	4	0	0	88	29	263	462	65	959
Liberia	25	29	48	25	0	12	89	115	113	1,557	856	2,869
Madagascar	38	500	47	29	3	24	73	53	69	198	275	1,309
Malawi	3	39	31	14	6	0	138	103	90	302	231	957
Mali	12	221	25	19	7	11	58	35	33	158	380	959
Mauritania	30	103	18	9	0	45	25	17	44	98	222	611
Mozambique	24	129	70	157	1,278	88	273	119	175	680	806	3,799
Namibia	64	67	90	44	21	75	192	100	219	1,072	648	2,592
Niger	2	131	12	10	0	4	38	37	16	63	138	451
Nigeria	130	355	181	192	31	58	467	705	1,225	1,052	1,577	5,973
Rwanda	42	34	22	0	1	1	46	26	46	243	182	643
Sao Tome and Principe	2	9	0	0	76	12	0	0	5	77	41	222
Senegal	57	638	34	207	23	154	78	154	102	173	442	2,062
Sierra Leone	11	36	16	13	8	14	93	36	30	139	201	597
Somalia	0	21	1	0	0	0	3	0	3	16	19	63
South Africa	430	1,187	1,371	671	137	387	2,049	3,133	12,302	5,205	6,602	33,474
South Sudan	3	6	0	0	0	0	14	5	4	38	24	94
Sudan	3	34	7	10	0	0	44	9	202	136	327	772
Tanzania	30	86	93	56	9	13	304	196	218	641	1,132	2,778
Togo	19	162	32	13	1	6	26	19	9	90	133	510
Uganda	18	79	48	30	20	12	183	175	121	539	516	1,741
Zambia	28	74	48	22	0	5	281	162	203	860	657	2,340
Zimbabwe	8	60	56	25	8	9	224	145	363	587	348	1,833
Total	1,684	7,912	2,966	2,403	3,627	1,726	6,779	7,163	18,993	19,681	23,192	96,126

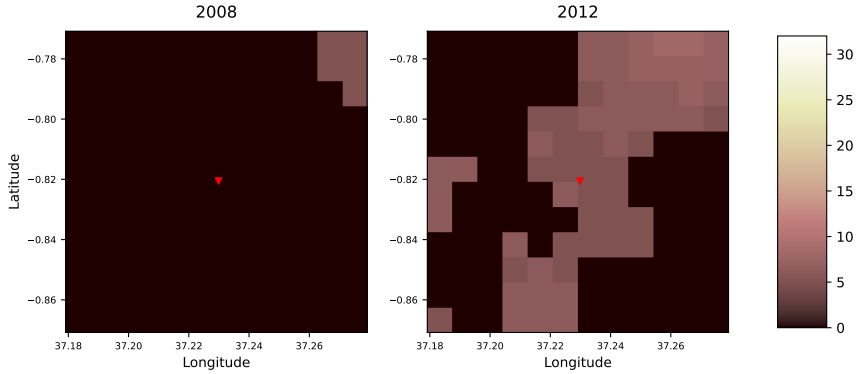
Notes: This table presents the number of parent firm-country-year observations by African country and by the parent's home country.

Figure A.2: Example of Nighttime Luminosity around Multinational Firm Presence in Africa

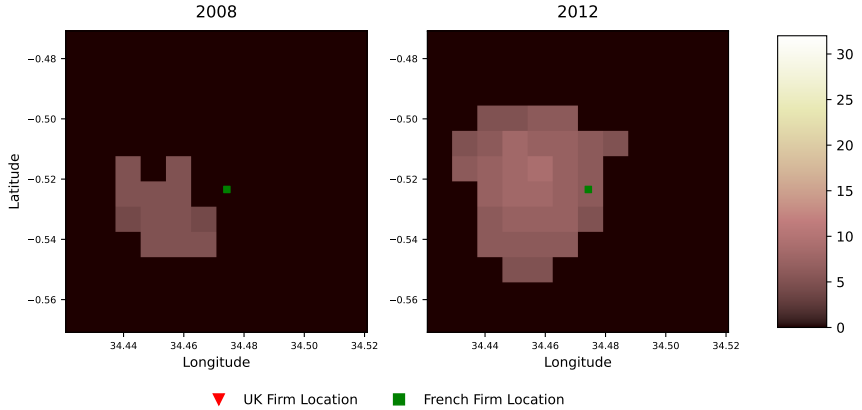
(**A**) Area in Kenya with U.K. and French Multinational Firm Presence



(**B**) Pixel-level Luminosity within 10 km Grid-cell of U.K. Firm Location



(**C**) Pixel-level Luminosity within 10 km Grid-cell of French Firm Location



Notes: This figure shows nighttime luminosity around the locations of a U.K. multinational firm subsidiary (red triangles) and French multinational firm subsidiary (green squares) in Kenya. Panel (A) presents the geographic distribution of pixel-level luminosity in 2008 and 2012. Panel (B) presents the pixel-level luminosity in the 10 km grid-cell around the U.K. firm highlighted in Panel (A) in 2008 and 2012. Panel (C) presents the pixel-level nighttime luminosity in the 10 km grid-cell around the French firm highlighted in Panel (A) in 2008 and 2012.

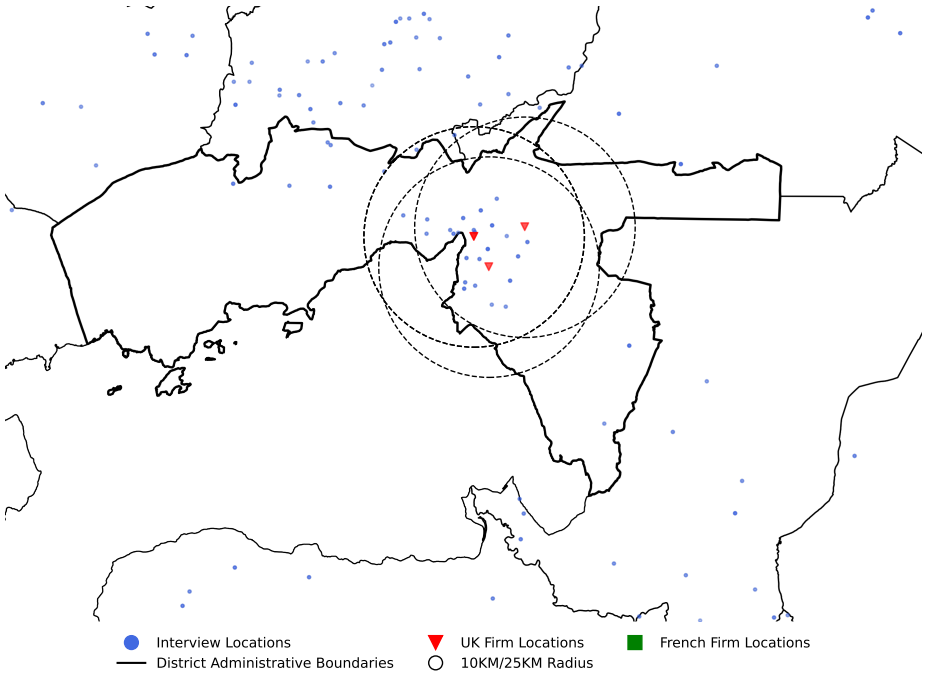
Table A.4: DHS Survey Waves

Country	Years of Survey Rounds										
Burkina Faso	1998	1999	2003	2010							
Benin	2001	2011	2012	2017	2018						
Democratic Republic of Congo	2007	2013	2014								
Cote d'Ivoire	1998	1999	2011	2012							
Cameroon	2004	2011	2018	2019							
Ghana	1998	1999	2003	2008	2014						
Guinea	1999	2005	2012	2018							
Kenya	2003	2008	2009	2014							
Liberia	2007	2013									
Lesotho	2004	2005	2009	2010	2014						
Mali	2001	2006	2012	2013	2018						
Malawi	2000	2004	2005	2010	2015	2016					
Mozambique	2009	2011	2015								
Namibia	2000	2006	2007	2013							
Nigeria	2003	2008	2013	2018							
Sierra Leone	2008	2013	2019								
Senegal	2005	2010	2011	2012	2013	2014	2019				
Togo	1998	2013	2014								
Tanzania	1999	2003	2004	2007	2008	2009	2010	2011	2012	2015	2016
Uganda	2001	2006	2011	2016							
Zambia	2007	2013	2014	2018	2019						
Zimbabwe	1999	2005	2006	2010	2011	2015					

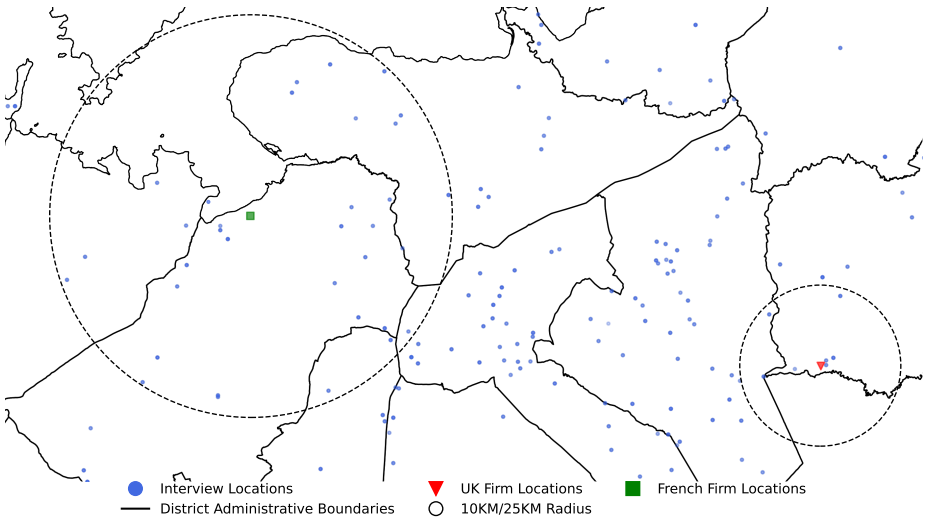
Notes: This table presents the years of DHS surveys waves used in the empirical analysis.The sample is restricted to DHS survey rounds (i) with available geographic data to match individual respondents' locations to the multinational firm subsidiary locations and (ii) in regions (10 km grid-cells) surveyed at least once before and after the U.K. tax policy changes.

Figure A.3: Example of DHS Survey and Subsidiary Locations in Kenya

(**A**) Example of DHS Survey Clusters in the Kisumu Area and Locations of U.K. Subsidiaries



(**B**) Example of DHS Survey Clusters in the Oyugis Area and Locations of U.K. and French Subsidiaries



Notes: This figure shows the locations of DHS interviews (blue dots) and U.K. or French multinational firm subsidiaries (red triangle or green square, respectively). Panel (A) presents the geographic distribution of subsidiaries in the area surrounding Kisumu. Panel (B) presents the geographic distribution of subsidiaries in the area surrounding Oyugis. We include a 10km radius around the U.K. subsidiary and a 25km radius around the French subsidiary (the dotted circle).

A.3 Data Validation

Table A.5: Multinational Firm Subsidiary Presence in Sub-Saharan Africa and Foreign Revenue

	(1)	(2)	(3)
	Log. Number Subsidiaries		
% Foreign	0.374***	0.403*	0.420*
	(0.14)	(0.22)	(0.24)
Obs.	1,645	1,610	1,508
Adj. R2	0.045	0.194	0.355
Year FE	Yes	Yes	.
Firm FE	No	Yes	Yes
Country-Year FE	No	No	Yes

Notes: This table reports coefficient estimates of regressions estimating the relation between U.K. firms' foreign revenue and the natural logarithm of the firms' total number of subsidiaries in a given sub-Saharan country from Orbis. *Log. Number Subsidiaries* refers to the total number of subsidiaries in a sub-Saharan country owned by multinational firms from the U.K.. *% Foreign* refers to the ratio of foreign revenue to total worldwide revenue. Robust standard errors are clustered at the country-pair and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table A.6: Multinational Firm Subsidiary Presence in Sub-Saharan Africa and Aggregate Bilateral FDI

	(1)	(2)	(3)	(4)
	Log. Number Subsidiaries			
Outward FDI Flow	0.165***	0.180***		
	(0.03)	(0.03)		
Outward FDI Stock			0.049***	0.050***
			(0.01)	(0.01)
Obs.	4,014	4,014	4,022	4,022
Adj. R2	0.050	0.087	0.214	0.252
Year FE	No	Yes	No	Yes

*Notes:*This table reports coefficient estimates of regressions estimating the relation between outward FDI from an OECD country to a sub-Saharan African country using data from OECD.Stat and the natural logarithm of the total number of multinational firm subsidiaries in a given sub-Saharan country from Orbis. *Log. Number Subsidiaries* refers to the total number of subsidiaries in a sub-Saharan country owned by multinational firms from one OECD country. *Outward FDI Flow* refers to the pairwise outward FDI flow from an OECD country to a sub-Saharan country during a calendar year. *Outward FDI Stock* refers to the pairwise outward FDI stock that an OECD country holds in a sub-Saharan country at the end of a calendar year. Table A.7 reports the number of subsidiary observations across country pairs in the sample period used for this analysis. Robust standard errors are clustered at the country-pair and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table A.7: Orbis Data Coverage of Multinational Firm Subsidiaries and Home Country FDI Outflow

	AT	AU	BE	CH	CL	CO	DE	DK	EE	ES	FI	FR	GB	GR	HU	IE	IL	IS	IT	JP	KR	LT	LU	LV	NL	NO	NZ	PL	PT	SE	SI	TR	US	Total
Angola	2	5	4	0	0	4	8	9	1	2	3	14	1	0	0	3	3	0	14	8	3	0	8	0	6	1	0	3	14	10	0	0	13	139
Benin	3	4	2	0	0	0	8	6	0	0	3	5	3	0	0	3	2	0	9	1	0	0	8	0	6	2	0	0	0	3	0	0	6	74
Botswana	0	3	3	0	0	0	8	10	0	1	3	0	11	0	0	7	0	0	9	6	0	0	6	0	8	0	0	1	4	5	0	3	8	96
Burkina Faso	0	7	5	0	0	3	8	6	0	1	0	8	5	2	0	3	0	0	4	2	0	0	8	0	6	0	0	0	0	7	0	2	9	86
Burundi	0	4	7	0	0	0	6	8	0	0	0	0	2	0	0	0	0	0	5	4	0	0	6	0	9	0	0	0	0	5	0	0	6	62
Cameroon	0	2	7	5	0	4	12	9	0	2	4	14	10	0	0	3	0	0	9	1	2	0	7	0	8	0	0	0	0	7	0	0	12	118
Cape Verde	0	0	0	0	0	0	4	9	0	1	2	0	5	0	0	0	0	3	11	0	0	0	4	0	2	0	0	3	14	1	0	0	7	66
Central African Republic	0	0	2	0	0	0	8	0	0	0	0	2	7	0	0	2	0	0	7	1	0	0	5	0	1	0	0	0	0	0	0	0	0	35
Chad	0	0	1	0	0	0	7	0	0	2	0	10	4	0	0	3	0	0	0	4	0	0	11	0	0	0	0	0	0	0	0	0	0	42
Comoros	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	10
Congo	0	2	6	0	0	0	8	7	0	2	0	13	3	2	0	1	2	0	9	4	0	0	9	0	7	1	0	0	2	4	0	0	4	86
Cote d'Ivoire	0	2	9	13	0	4	10	9	0	2	0	14	9	0	0	3	0	0	14	2	0	0	9	0	11	1	0	2	2	3	0	0	12	131
Democratic Republic of Congo	3	9	9	0	0	0	8	6	0	2	0	5	3	0	0	3	1	0	14	4	6	0	9	0	7	0	0	0	2	7	0	0	4	102
Equatorial Guinea	0	0	4	0	0	0	4	2	0	2	0	4	4	0	0	3	0	0	3	1	0	0	6	0	4	0	0	0	5	0	0	0	12	54
Eritrea	0	6	4	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	21
Ethiopia	0	6	3	0	0	0	7	6	0	1	2	0	2	0	0	1	2	0	9	4	0	0	5	0	5	0	3	0	0	10	0	6	7	79
Gabon	1	1	4	0	0	0	8	6	0	2	4	14	6	0	0	3	0	0	9	6	0	0	8	0	10	0	0	0	1	1	3	4	10	101
Gambia	0	2	7	0	0	0	8	6	0	1	0	0	5	0	0	0	0	0	3	3	0	0	2	0	5	0	0	0	0	4	0	0	6	52
Ghana	2	2	8	0	0	3	10	9	0	0	8	8	14	2	0	6	3	0	10	10	2	0	11	0	11	0	0	0	5	12	0	4	12	152
Guinea	0	4	4	0	0	2	8	5	0	1	6	3	0	0	0	0	1	0	6	2	0	0	6	0	6	0	0	0	0	7	0	0	4	65
Guinea-Bissau	0	0	1	0	0	0	2	6	0	2	0	0	0	0	0	0	0	0	3	1	0	0	4	0	5	0	0	0	11	0	6	0	4	45
Kenya	2	4	7	13	0	0	11	10	0	2	7	14	13	10	0	5	2	0	9	10	3	0	7	0	12	1	1	0	4	9	0	4	14	174
Lesotho	0	1	3	0	0	0	8	10	0	0	0	4	2	0	0	0	0	0	4	0	0	0	2	0	3	0	0	0	0	0	0	0	9	46
Liberia	2	1	4	0	2	0	8	8	0	2	0	2	4	9	0	2	3	0	9	9	1	1	9	5	4	0	1	1	0	7	0	3	14	111
Madagascar	0	9	5	0	0	0	8	6	0	2	0	8	3	0	0	8	1	0	9	5	0	0	6	0	8	0	0	0	3	0	5	2	12	100
Malawi	0	0	0	0	0	0	8	5	0	0	0	0	12	0	0	1	0	0	8	8	0	0	1	0	6	1	0	0	0	0	0	0	10	60
Mali	0	5	7	0	0	4	8	6	0	1	1	12	3	0	0	3	0	0	7	1	0	0	8	0	5	0	0	0	0	8	0	6	10	95
Mauritania	0	10	4	0	0	2	8	6	0	1	0	1	3	0	0	1	0	0	5	3	0	0	6	0	2	1	0	0	0	0	0	0	7	60
Mozambique	1	1	2	0	0	0	10	8	1	0	4	3	9	0	0	5	2	0	13	6	3	0	7	0	6	0	0	3	14	9	0	0	9	116
Namibia	1	0	4	0	0	2	11	8	0	5	6	0	6	0	0	3	0	3	8	6	0	0	7	0	8	0	0	0	2	9	0	3	10	102
Niger	0	5	0	0	0	0	8	8	0	2	0	7	4	3	0	3	1	0	6	1	0	0	8	0	3	0	0	0	0	0	0	0	10	69
Nigeria	5	4	10	13	0	0	14	12	0	2	6	14	12	13	2	5	3	0	14	8	9	0	11	0	11	3	0	6	10	7	0	7	14	215
Rwanda	0	6	4	0	0	0	6	8	0	1	0	0	4	0	0	0	1	0	0	5	1	2	8	0	9	0	0	0	0	1	0	3	9	68
Sao Tome and Principe	0	0	0	0	0	0	0	0	0	2	0	7	1	0	0	0	0	0	0	1	0	0	5	0	5	0	0	0	14	0	0	0	1	36
Senegal	2	2	7	0	0	0	8	6	0	2	6	14	2	1	0	2	1	0	10	8	0	0	11	0	6	0	0	5	6	6	0	0	14	119
Sierra Leone	0	6	1	0	0	0	8	9	0	1	0	3	3	0	2	5	0	0	8	1	0	0	8	0	7	0	0	0	2	0	0	0	4	68
Somalia	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	10
South Africa	7	11	10	13	1	2	14	14	0	3	14	14	11	14	0	10	9	12	14	13	12	0	12	0	14	3	2	10	14	14	1	6	14	288
South Sudan	0	0	3	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	5	21
Sudan	0	0	0	0	0	0	5	5	0	0	0	1	5	7	0	0	0	0	7	5	2	0	4	0	1	0	0	0	0	0	0	6	6	54
Swaziland	0	5	6	0	0	2	8	9	0	0	0	2	5	0	0	0	0	0	9	6	0	0	4	0	6	0	0	0	0	5	0	3	0	70
Tanzania	2	0	8	5	0	4	8	9	0	2	6	2	12	0	0	10	1	0	9	10	4	3	8	0	8	1	0	0	1	9	0	0	7	129
Togo	0	1	10	0	0	0	8	8	0	2	6	1	3	0	0	3	0	0	9	1	0	0	6	0	6	0	0	0	0	0	0	0	8	72
Uganda	0	6	8	0	0	0	9	8	0	1	6	2	12	1	0	5	3	0	7	6	0	0	7	0	7	1	1	0	1	7	0	3	10	111
Zambia	0	0	4	0	2	0	8	9	0	1	6	8	11	0	0	7	0	0	5	8	0	0	6	0	8	0	0	0	0	5	0	0	13	101
Zimbabwe	0	9	1	0	0	0	9	8	0	2	7	5	12	0	0	6	0	0	9	8	0	0	6	0	8	0	0	0	2	8	0	0	3	103
Total	33	145	198	62	5	36	335	300	2	58	110	241	260	64	4	128	41	18	333	204	48	6	289	5	272	16	8	34	133	190	15	65	356	4,014

Notes: This table reports the number of OECD country-African country pairs that are used in Table A.6. Thus, the table shows the number of country-pair-year observations that overlap in the Orbis multinational firm subsidiary database used in the main tests (Table A.10) and the OECD bilateral FDI Outbound database available at https://stats.oecd.org/index.aspx?DataSetCode=FDI_FLOW_PARTNER.

Orbis Data Validation. In this section, we describe the Orbis data validation steps that we conducted. As discussed in the Data Section we use Orbis data to identify firm presence in Africa. While Orbis does not have full financial data for all affiliates, particularly those in Africa due to lack of financial disclosure requirements, we understand that the data provider uses several methodologies to identify the presence of affiliates. Because we rely on this affiliate presence for our tests, we invested considerable time in further trying to validate the data. Our validation focused on confirming that the incorporation dates of affiliates in our sample aligned with the initial appearance of these companies as affiliates of U.K.-owned companies in BvD. We also validated a subset of subsidiaries' geographic information using alterantive methods to obtain geo-references.

Confirming Incorporation Dates:

To confirm incorporation dates, we first identified the primary data source for each country as listed by Orbis in the Orbis manual. The specific data providers is listed under Data details - Geographic data - Information providers. From this, we identified that a substantial portion of the country data is obtained from Worldbox. Other sources include Asap Information Services Limited (Kenya), Bureau van Dijk Research (Cameroon, Lesotho, Niger, and Senegal), DataPro Limited (Nigeria), OpenCorporates (Uganda), Quantum (Angola, Cape Verde, Mozambique), Registrar General (Ghana), and TransUnion ITC (South Africa). We then went to each of these sources to obtain, check, and confirm the data in BvD when possible.

First, we obtained data from Worldbox. Worldbox provides six different types of reports for companies in the database, each of which has to be purchased. These include a Credit Report ($69), a Short Credit Report ($35), a Company Profile ($35), a Short Profile ($30), a Full Financial Report Online ($62), and a Financial Report Online ($53). We invested substantial time and cost in purchasing and reviewing the reports, but ultimately determined that these data did not allow for a high-quality, systematic data validation approach for three reasons. First, because of the cost of the reports, we focused on looking up U.K. and French firms in Worldbox so as to focus on the sample of companies that we use most in our paper's empirical analysis. However, due to name differences in BvD and Worldbox, as well as the necessity of implementing a scraping approach on the WorldBox site that further complicated the name-matching process, we were able to find only approximately 55 percent of companies on Worldbox. Second, among the firms found on Worldbox, only 250 had data readily available for download. In contrast, the vast majority of companies had reports only available by mail; unfortunately, despite requesting and paying for several of these reports, we did not ultimately receive the statements from Africa. It is unclear why certain firms had information available online versus by mail, and thus we were concerned about coverage bias. Third, even among the reports available, we found mixed coverage of incorporation dates – but it was not possible to determine if incorporation dates were included until *after* we paid for several of the reports. Thus, while we spent considerable time and money on attempting to perform a systematic validation check, we ultimately determined that checking Worldbox reports was not a viable path due to our concerns about consistency and comparability in the data.

Second, we searched for each of our sample's multinational firm with a presence in Uganda using the Open Corporates site. The Open Corporates site is a U.K.-based com-

pany that provides data on over 140 jurisdictions in a standardized global scheme using data from primary public sources. Our goal was to obtain the incorporation dates for the Ugandan subsidiaries in the data. To do so, we wrote a script to query Open Corporates for the names of the multinational firm subsidiaries in our sample. There were 854 unique Ugandan subsidiaries in our dataset. We obtained data from Open Corporates for 128 of these subsidiaries, for which we found incorporation dates for 124. After acquiring the incorporation dates, we compared these dates to the Bureau van Dijk (BvD) data in which our tests rely on determining when a subsidiary first entered the sample. We found that 56 incorporation dates exactly match the year in which we first observe a subsidiary in our Orbis panel data. For the matched subsidiaries, the average difference between the incorporation year in the Open Corporates data and the year in which we first observe a subsidiary in Orbis is -2.01. That is, the average subsidiary enters the sample on average two years after its formal local incorporation date in Uganda.

Third, we looked into other data sources for other countries in our sample. These include Kenya (ASAP Information), Nigeria (DataPro), Angola / Cape Verde / Mozambique (Quantum), Ghana (Registrar General's Department), and South Africa (TransUnion). We reached out to the data providers and, based on both the response of the data providers (some did not respond) and on the relative size of the sample, we proceeded with purchasing data from ASAP Information on the Kenya sub-sample and on obtaining the data for the South African sub-sample.

The Kenya data provider is described as a "business intelligence provider company that conducts services, such as company data collection and company background checks, some of which uses administrative data." This data provider provided the incorporation data, registration address, and operating address. There were 2,576 unique Kenyan subsidiaries in our dataset. We obtained data from the Kenyan data provider for 705 of these subsidiaries, for which we found incorporation dates for 699. After acquiring the incorporation dates, we compared these dates to the Bureau van Dijk (BvD) data in which our tests rely on determining when a subsidiary first entered the sample. We found that 337 incorporation dates exactly match the year in which we first observe a subsidiary in our Orbis panel data. For the matched subsidiaries, the average difference between the incorporation year as per the data provider and the year in which we first observe a subsidiary in Orbis is 0.05. That is, the Kenyan formal local incorporation dates seem to accurately match the year in which we first observe a Kenyan subsidiary in Orbis.

For South Africa, we found that the "ground truth" (source data for TransUnion ITC) came from CIPC, which is the South African administrative data source for incorporation dates. Because of the academic purpose of our project, CIPC graciously shared all of their data on incorporation dates for our sample companies with us under the terms of the 2008 Companies Act after providing CIPC with a formal request for information and a waiver of the disclosure fee pursuant to Section 187(7)(b) of that Act.

There were 31,293 unique South African subsidiaries in our dataset. We obtained data from the Kenyan data provider for 31,609 of these subsidiaries, for which we found incorporation dates for 31,293. After acquiring the incorporation dates, we again compared these dates to the Bureau van Dijk (BvD) data. We found that 16,434 incorporation dates exactly match the year in which we first observe a subsidiary in our Orbis panel data. For the matched subsidiaries, the average difference between the incorporation year as per the

data provider and the year in which we first observe a subsidiary in Orbis is 1.2. That is, the formal local incorporation dates seem exhibit a slight lag as the average South African subsidiary appears one year before that date in Orbis.

Confirming Geographic Locations of Subsidiaries:

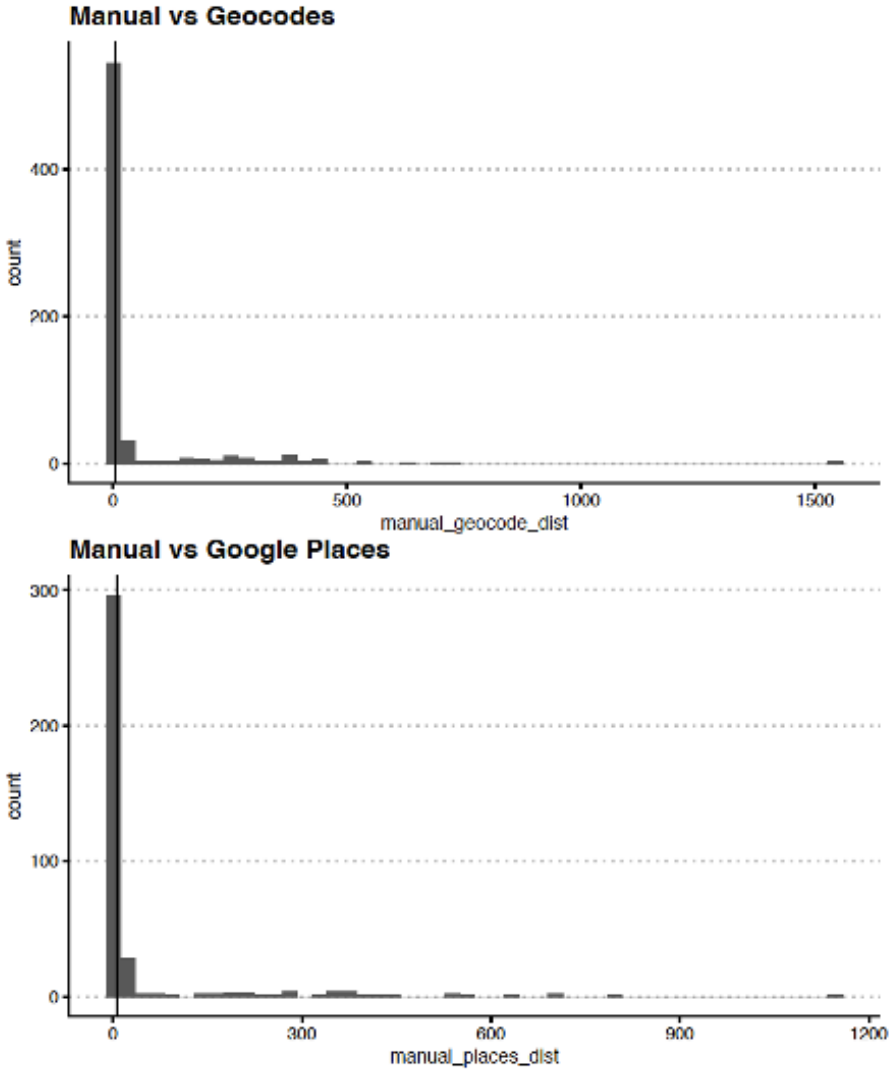
We also invested considerable time into confirming the geographic location of multinational firms' subsidiaries as used in our analysis. Recall that our methodology to identify the geographic location of subsidiaries is to look up the name of each subsidiary on the internet, identify an address if one is provided, and then obtain the latitude and longitude coordinates of the address to merge with the other geo-coded datasets that we use (luminosity, DHS data, etc.). To validate our approach, we also embarked on an alternative methodology to confirm these addresses.

Specifically, we use two Google API libraries to automatically gather latitude and longitude information for our sample of U.K.-owned subsidiaries in sub-Saharan African countries (except for South Africa). The first library, *Google Geocodes*, uses our manually collected addresses as an input and returns corresponding latitude and longitude information. The second library, *Google Places*, uses subsidiaries' names as an input and returns a list of registered places that are the most similar. We compare the latitude and longitude information of the place with the address most similar to our manually collected information and then examine the distances between Google's reported latitude and longitude information and the corresponding coordinates from our manual search.

As discussed in Section **??**, we obtained addresses and longitude and latitude information for around 50% of the approximately 3,500 U.K. subsidiaries in sub-Saharan Africa (excluding South Africa). The number of locations identified via Google's API libraries was higher, consistent with the automated search not dropping non-sensical search results. For those locations covered both in our manual search and in the Google API libraries, we documented that, in only 23% of the cases, the locations are more than 5km apart from each other. Overall, the distribution of the distances is closely centered around 0km, with only a few outliers above 100km (see Figure **??** below). Overall, this exercise lends comfort to our approach using exact location information to study the effects on local economic outcomes.

We also took the reverse approach and first used the Google API to identify addresses and GPS coordinates based on all subsidiary names present in our Orbis data for four relevant multinational parent countries: U.K., France, Germany, and U.S. (as used in our main analysis or robustness tests). We then manually verified the addresses reported by Google. We typically could only find addresses for two thirds of the subsidiaries Google's API had provided an address for. For the cases with overlapping information, we documented a high match rate between Google API's output and our manual search. For the U.K., France, and Germany, the manual search yielded different addresses in only 2-5% of the cases, with a slightly higher mismatch rate for U.S. subsidiaries. Overall, this exercise further supports the validity of our location information obtained via manual search.

Figure A.4: Distribution of Distances between Google API-based and Manual Location Search of U.K. Subsidiaries in Sub-Saharan Africa



A.4 - Supplementary Analyses

Table A.8: Cross-sectional Heterogeneity in Benefits from U.K. Corporate Tax Policy and Foreign Subsidiary Presence in Sub-Saharan Africa

	(1)	(2)	(3)
	Log. Number Subsidiaries		
	ETR Median	ETR (26%-32%)	Loss
*ETR * Post*	0.113*	0.163**	
	(0.07)	(0.07)	
*Loss * Post*			-0.104
			(0.28)
Obs.	6,699	6,699	6,699
Adj. R2	0.397	0.397	0.397
Firm FE	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes

Notes: This table reports coefficient estimates of difference-in-differences specifications from Eq. (1), which tests the effect of the U.K. tax policy changes on the natural logarithm of the number of subsidiaries in an African country (*Log. Number Subsidiaries*), comparing within the subset of U.K. multinational firms for the sample period 2005 to 2018. *Post* is a binary indicator equal to one for years after 2009. In Column (1), the sample of U.K. multinational firms is partitioned based on the median consolidated effective tax rates (ETRs) of all U.K. firms in 2009. In Columns (2), the sample of U.K. multinational firms is partitioned based on whether firms' consolidated effective tax rates (ETRs) in 2008 were similar to the relatively high corporate tax rate of 30% in 2008, measured based on a range between 26% and 32%. In Columns (3), the sample of U.K. multinational firms is partitioned based on whether firms have an accumulated operating loss (as a proxy for tax losses) for the two year period of 2007-2008. Standard errors are clustered at the firm level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table A.9: Statutory and Effective Tax Rates in Sub-Saharan African Countries

		Statutory Corporate Income Tax Rate		Public Firms' Average Effective Tax Rate	
Country	Country Alpha 3	2008	2013	2008	2013
Angola	AGO	35.00	35.00	n/a	n/a
Burundi	BDI	n/a	n/a	n/a	n/a
Benin	BEN	30.00	30.00	n/a	n/a
Burkina Faso	BFA	30.00	27.50	n/a	n/a
Botswana	BWA	25.00	22.00	17.71	20.25
Central African Republic	CAF	n/a	30.00	n/a	n/a
Cote d'Ivoire	CIV	n/a	25.00	20.33	22.10
Cameroon	CMR	38.50	38.50	n/a	39.98
Democratic Republic of Congo	COD	40.00	35.00	n/a	n/a
Congo	COG	38.00	33.00	n/a	n/a
Comoros	COM	n/a	n/a	n/a	n/a
Cape Verde	CPV	n/a	25.00	n/a	n/a
Eritrea	ERI	n/a	30.00	n/a	n/a
Ethiopia	ETH	30.00	30.00	n/a	n/a
Gabon	GAB	35.00	30.00	n/a	n/a
Ghana	GHA	25.00	25.00	26.16	26.47
Guinea	GIN	35.00	35.00	n/a	n/a
Gambia	GMB	n/a	n/a	n/a	n/a
Guinea-Bissau	GNB	n/a	25.00	n/a	n/a
Equatorial Guinea	GNQ	35.00	35.00	n/a	n/a
Kenya	KEN	30.00	30.00	29.31	30.13
Liberia	LBR	25.00	25.00	n/a	n/a
Lesotho	LSO	25.00	25.00	n/a	n/a
Madagascar	MDG	25.00	20.00	n/a	n/a
Mali	MLI	n/a	30.00	n/a	n/a
Mozambique	MOZ	32.00	32.00	n/a	n/a
Mauritania	MRT	25.00	25.00	n/a	n/a
Malawi	MWI	30.00	30.00	30.21	30.52
Namibia	NAM	35.00	33.00	28.97	34.39
Niger	NER	30.00	30.00	46.49	24.47
Nigeria	NGA	30.00	30.00	22.89	22.01
Rwanda	RWA	30.00	30.00	n/a	25.70
Sudan	SDN	15.00	35.00	9.78	84.16
Senegal	SEN	25.00	30.00	18.76	29.62
Sierra Leone	SLE	30.00	30.00	n/a	n/a
Somalia	SOM	n/a	n/a	n/a	n/a
South Sudan	SSD	n/a	n/a	n/a	n/a
Sao Tome and Principe	STP	n/a	n/a	n/a	n/a
Eswatini	SWZ	30.00	30.00	8.53	n/a
Chad	TCD	n/a	40.00	n/a	n/a
Togo	TGO	n/a	n/a	n/a	n/a
Tanzania	TZA	30.00	30.00	31.76	29.79
Uganda	UGA	30.00	30.00	22.99	25.28
South Africa	ZAF	28.00	28.00	27.60	28.53
Zambia	ZMB	35.00	35.00	34.57	25.54
Zimbabwe	ZWE	30.90	25.75	30.30	n/a

Notes: This table presents statutory tax rates in sub-Sahara Africa, as well as publicly listed firms' effective tax rates in those countries, as of 2007 and 2013. To derive effective tax rates, we download financial statement information on all publicly listed firms in a given African country from Worldscope as of 2008 and 2013. We than aggregate the tax expense and pre-tax income (Worldscope items ITEM1401 and ITEM1451) for profitable and tax-paying firms by country and scale aggregated tax expenses by aggregated pre-tax income.

Table A.10: U.K. Corporate Tax Policy and Subsidiary Presence in Sub-Saharan Africa

	(1)	(2)	(3)	(4)	(5)	(6)
Panel (A)	*Ln No. Subsidiaries*					
*U.K. Firm * After 2009*	0.200***	0.208***	0.218***	0.245***	0.196***	0.240***
	(0.04)	(0.08)	(0.06)	(0.07)	(0.05)	(0.07)
Obs.	96,126	20,230	93,364	19,942	77,328	18,649
Adj. R2	0.546	0.690	0.661	0.794	0.660	0.795
Balanced Presence	No	Yes	No	Yes	No	Yes
Firm Controls	No	No	Yes	Yes	Yes	Yes
Firm Country Controls	No	No	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair FE	No	No	Yes	Yes	Yes	Yes
Industry-Year FE	No	No	No	No	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel (B)	*Ln No. Subsidiaries*					
Control Group:	Foreign	OECD	EU	Empire	France	U.S.
*U.K. Firm * After 2009*	0.286***	0.344***	0.324***	0.301***	0.281***	0.419***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.10)
Obs.	14,210	12,644	9,563	7,826	5,335	3,581
Adj. R2	0.555	0.554	0.555	0.551	0.532	0.553
Balanced Presence	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel (C)	*No. Sub.*	*asinh(No. Sub.)*	*No. Sub. (0s)*	*Dummy Sub.*	*Ln No. Sub.*	*No. Sub.*
*U.K. Firm * After 2009*	0.495***	0.180**	-0.057	0.002	0.208***	0.495***
	(0.17)	(0.07)	(0.11)	(0.01)	(0.07)	(0.11)
Obs.	20,230	20,230	470,926	472,192	20,230	20,230
Adj. R2 / Pseudo R2	0.695	0.687	0.512	0.270	0.690	0.695
Estimator	Poisson	OLS	Poisson	OLS	OLS	Poisson
Balanced Presence	Yes	Yes	No	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports coefficient estimates from difference-in-differences specifications based on the following equation:

$$Ln\ Number\ Subsidiaries_{fct} = \alpha + \beta U.K.\ Firm_f * After2009_t + \gamma Controls + \eta_f + \zeta_{ct} + \epsilon_{fct}$$

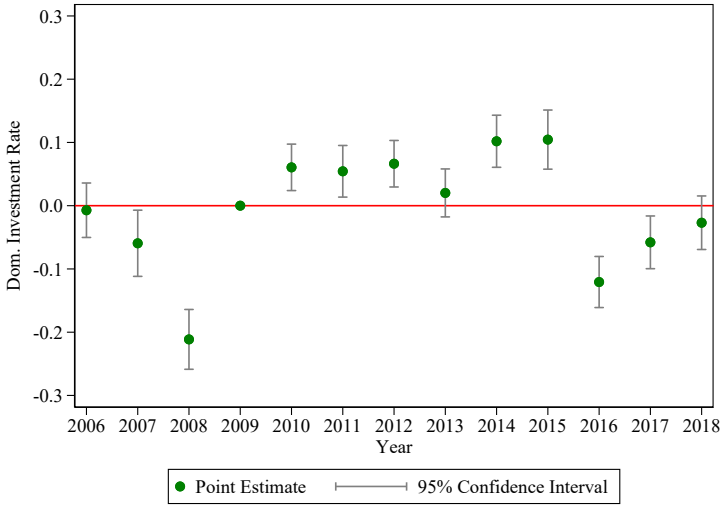
The unit of observation is at the multinational firm (f)-African country (c)-year (t) level. The model tests the effect of the U.K. tax policy change on the natural logarithm of the number of a firm's subsidiaries in a given sub-Saharan African country (*Ln. Number Subsidiaries*) over the period 2005–2018. *U.K. Firm* is an indicator equal to one if the multinational firm's parent is incorporated in the U.K., and zero otherwise. *After 2009* is an indicator equal to one for post-2009 years. Panel (A) presents results using the full sample of multinational firms. Panel (B) restricts the control group to alternative sets of non-U.K. multinationals: those with foreign parent entities, those headquartered in OECD countries, EU countries, former colonial empires (Belgium, France, Germany, Italy, Portugal, Spain), France, and the U.S. Parent firm data are from BvD Orbis. Panel (C) presents alternative estimates based on the specification from Panel (A), Column (2). Column (1) uses the unlogged count of subsidiaries as the outcome, estimated via OLS and Poisson regression, respectively. Column (2) uses the inverse hyperbolic sine transformation of the count of subsidiaries as the outcome, estimated via OLS. Columns (3) and (4) are based on a fully interpolated firm–African country–year panel in which missing subsidiary data are coded as zero to capture extensive margin effects. These are estimated using a Poisson count model and an OLS linear probability model with a dummy equal to one if the subsidiary count in a given country is greater than zero, respectively. The list of control variables is provided in Table 1. Standard errors are clustered at the firm level, except in Columns (5) and (6) of Panel (C), where clustering is at the parent-country level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table A.11: Tax Rate Reductions versus Territorial Taxation: Japanese Multinational Firms as the Control Group

	(1)	(2)
	Log. Number Subsidiaries	
*U.K. Firm * Post*	0.303***	0.438***
	(0.09)	(0.13)
Obs.	1,334	885
Adj. R2	0.371	0.198
Balanced Presence	No	Yes
Firm FE	Yes	Yes
Country-Year FE	Yes	Yes

Notes: This table reports coefficient estimates of difference-in-differences specifications from Eq. (1), which tests the effect of the U.K. tax policy changes on the natural logarithm of the number of subsidiaries in an African country (*Ln Number Subsidiaries*) for the sample period 2006 to 2011. *U.K. Firm* is a binary variable equal to one if a multinational firm's parent entity is incorporated in the U.K. *After 2009* is a binary indicator equal to one for years after 2009. The sample of control firms is restricted to multinational parent firms from Japan. This sample period includes the Japanese tax system change from territorial to a worldwide tax system but excludes future Japanese tax rate reductions. Thus, it controls out the effect of the territorial tax regime shift, such that observed result can be attributed to the U.K. tax rate reduction. The model in Column (1) includes all firm-by-African country-year observations. The model in Column (2) only includes firm-by-African country-year observations for firms that already had a subsidiary presence in a given African country in the pre-period (balanced presence) to mitigate concerns about improving data coverage over time. Firm data are from BvD Orbis. The list of control variables is displayed in Table 1. Standard errors are clustered at the firm level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Figure A.5: Effect of U.K. Tax Reform on Subsidiary-level Gross Investment Rate



Notes: This figure displays the coefficient estimates and 95% confidence intervals for event study regressions estimating the difference in the gross investment rate of U.K. multinational subsidiaries as compared to non-U.K. multinational firms' subsidiaries over time relative to the year 2009. The domestic gross investment rate is defined as the ratio between a subsidiaries' current-year gross investment spending and beginning-of-year net fixed capital assets, as in Liu (2020). Gross investment spending is the difference between end-of-year fixed tangible and intangible assets plus depreciation. We include all multinationals that are present in our African subsidiary sample and exlude observations from the financial services sector. The specifications include year and subsidiary fixed effects. Standard errors are clustered at the subsidiary country-industry level.

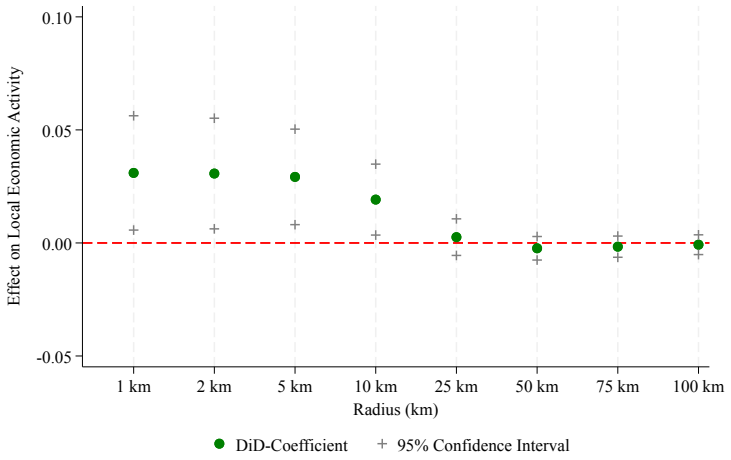
Table A.12: U.K. Corporate Tax Policy and Multinational Firms' Domestic Investment

	(1)	(2)	(3)	(4)
	Log. Domestic Fixed Assets		*Log. (Domestic Fixed Assets/ African Subsidiaries)*	
*U.K. Firm * Post*	0.242**	0.185*	-0.319	-0.305
	(0.09)	(0.10)	(0.21)	(0.24)
Obs.	30,174	30,174	1,454	1,440
Adj. R2	0.185	0.185	0.648	0.615
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No
Industry-Year FE	No	Yes	No	Yes

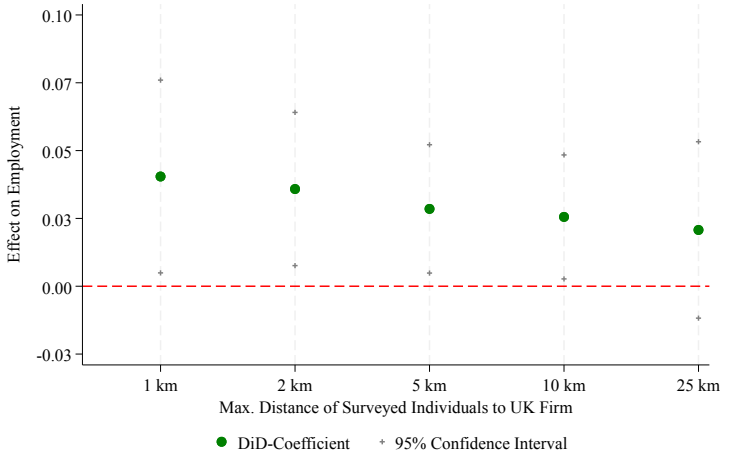
Notes: This table reports coefficient estimates of difference-in-differences specifications that compare domestic subsidiary-level investment activity after the U.K. tax reform between U.K. multinational and non-U.K. multinational firms. We estimate changes in the fixed tangible capital stock between the years 2009 and 2014. In Columns (1) and (2), the unit of observation is the subsidiary-year level. *Log. Domestic Fixed Assets* is the natural logarithm of multinational firms' domestic subsidiaries' unconsolidated fixed tangible and intangible assets. In Columns (3) and (4), the unit of observation is the multinational firm-year level. *Log. Domestic Fixed Assets/African Subsidiaries* is the natural logarithm of the ratio of all domestic subsidiaries' unconsolidated fixed tangible and intangible assets and one plus the number of African subsidiaries of the same multinational firm. *U.K. Firm* is an indicator variable equal to one if a multinational firm is incorporated in the U.K., zero otherwise. *Post* is an indicator variable equal to one for 2014, the chosen post-tax reform year after 2009, zero otherwise. Standard errors are clustered at the domestic country-industry level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Figure A.6: Treatment Effects of Multinational Firm Presence on Local Economic Activity and Employment by Grid-cell Size

(**A**) Local Economic Activity by Luminosity Grid-cell Size



(**B**) Local Employment by Interviewee Distance from Subsidiary Location



Notes: Panel A of this figure plots coefficient estimates of *U.K. Firm* * *After 2009* from Eq. (2) and 95% confidence intervals. The dependent variable *Ln. Luminosity* reflects varying grid-cell radii of 1 km, 2 km, 5 km, 10 km, 25 km, 50 km, 75 km, and 100 km. Treated observations refer to grid-cells with centered U.K. multinational firm presence, while control observations are grid-cells with centered French multinational firm presence. The specifications include country-by-year and grid-cell fixed effects. Standard errors are clustered at the grid-cell level. Panel B of this figure plots coefficient estimates of *U.K. Firm* $*$ *After 2009* from Eq. (2) and 95% confidence intervals that correspond to results presented in Table 5. We estimate the effect on *Employment* for varying distances of 1 km, 2 km, 5 km, 10 km, and 25 km between the surveyed individual and the closest U.K.-owned subsidiary. Control observations are surveyed individuals living within a 25 km distance to a French-owned subsidiary but at least 10 km or 25 km away from the closest U.K.-owned subsidiary. The specifications include country-by-year and grid-cell $*$ U.K. firm presence fixed effects. Standard errors are clustered at the grid-cell level.

Analysis of Spillover Effects on Control Firms: One concern is that the difference-in-differences estimates are driven by changes in economic activity in control areas indirectly affected by the treatment (i.e., the SUTVA is violated).

On the one hand, when U.K.-owned subsidiaries increase their economic activity, they may engage in predatory behavior; for example, U.K. firms may hire workers and capture existing market share from local competitors. If so, our difference-in-differences estimates would be overstated because the control firms would be negatively impacted by the U.K. firm's increased presence, increasing the total estimated effect of the U.K. tax change. On the other hand, increased U.K. investment could have broader effects on economic activity in the region or country due to agglomeration benefits (input-output linkages or knowledge externalities; see Kline and Moretti (2014); Giroud et al. (2022)). In this case, our difference-in-differences estimates would be understated because the control firms would also be positively impacted, reducing the net difference between the treatment and control firms in the post-period.

To formally address this issue and quantify potential spillover effects, we examine the potential spillover effects. To do so, we follow Berg et al. (2021) and estimate the effect of the U.K. tax change on nighttime luminosity around U.K.-owned subsidiaries (the treatment group) and in French-owned subsidiaries (the control group), conditional on the intensity of the treatment. To implement this approach, we consider each Sub-Saharan country a distinct geographic group in which spillover effects are likely to occur, which reflects that multinational investment decisions are usually made on a country-specific basis.

Figure A.7 presents the spillover analysis that corresponds to the specifications from Table 4, Panel B. We measure treatment intensity using two different transformations of the amount of U.K. multinational firms' subsidiaries in a given African country. Panel A plots results based on the intensity of U.K. multinational firm activity as the (sample median's) sum product of U.K.-multinational firms' total assets and the number of subsidiaries in a given African country, scaled by the African country's total GDP in thousand USD. The intuition behind this measure is that we capture the capital intensity of U.K. corporate FDI relative to the total size of a country's economy as we weight each observable subsidiary using the total firm size of its U.K. parent entity (recall financial data for the local African subsidiary are not available). In Panel B, U.K. multinational firm activity is defined as the number of U.K.-owned subsidiaries scaled by the sum of the number of U.K.-owned and French-owned subsidiaries, multiplied by 100, in a given country. The intuition behind this measure is that we capture the FDI-related market share of U.K. firms relative to the sample of French firms, which is our key control group.

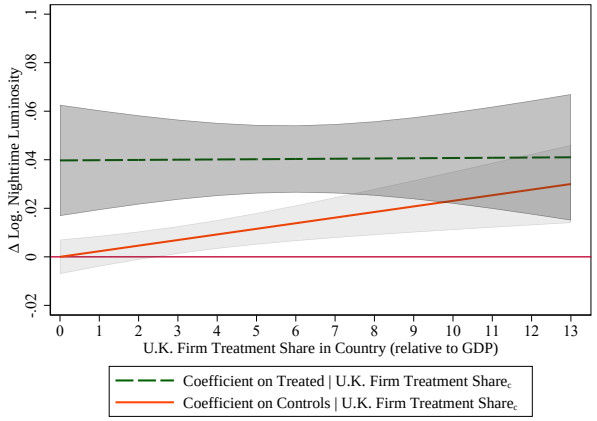
The dashed green line plots the effect of the U.K. reform on luminosity in the absence of spillovers (i.e., when the U.K. treatment intensity share is zero). This treatment effect ranges between 0.040 (Panel A) and 0.065 (Panel B). The fact that the estimates are larger than the estimates in Table 4, which range from 0.028 to 0.036, suggests that there are positive spillover effects in the control groups – meaning that the control firms also are positively affected by the U.K. tax change.

The orange line and confidence bands capture the effects for control firms. Observing confidence bands overlapping with the red line at 0 would mean that there are no spillover effects on control firms. When the confidence bands around the orange line no longer overlap with the 0-effect line, indirect effects of U.K. tax cuts on the control group observations are likely present. This occurs after the U.K. treatment intensity exceeds approximately 3% of assets to domestic GDP (in Panel (A)) or 17% of the sum of U.K. and French-owned subsidiaries in a given country (Panel (B)). However, while we observe spillover effects on the control units, we note that the main estimated difference-in-differences effect appears to be driven by the U.K. treated units. That is because, for the median and mean U.K. treatment intensity ratio (1.57% and 3.22% in Panel (A) and 41.45% and 39.23% in Panel (B)), the direct effects on the treatment group and the indirect effects on the control group are significantly different from each other (non-overlapping confidence bands between the U.K. firms and the control firms). For highly treated countries in which the U.K. firms have a very large market share, a standard difference-in-difference estimate would be insignificantly different from zero due to the relatively large indirect effect on control units.

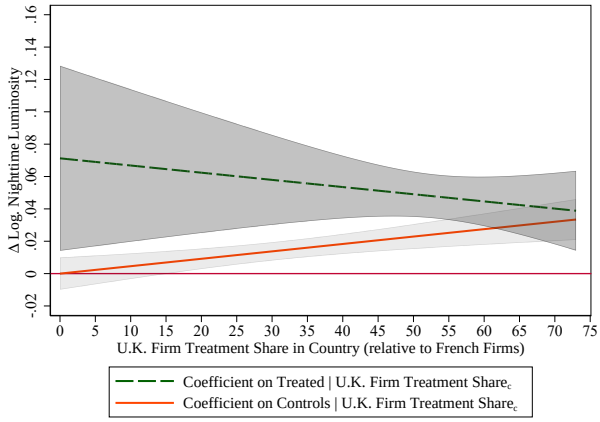
In summary, U.K. multinational firm investment in Sub-Saharan Africa likely induced positive spillover effects into the economic areas where other multinational firms operate, suggesting possible agglomeration effects (Kline and Moretti, 2014; Giroud et al., 2022). Consistent with this interpretation, we find the strongest effects in the areas immediately surrounding the UK subsidiaries (Figure A.6A), with effects that dissipate as the radii increase. In short, there are stronger spillover effects when treatment and control areas have greater overlap and control areas likely include more indirectly-affected non-U.K. multinational firms.

Figure A.7: U.K. Firm Investment and Spillover Effects on other Multinationals in Africa

(**A**) Aggregate U.K. Treatment Intensity Relative to Domestic GDP



(**B**) Aggregate U.K. Treatment Intensity to Relative French Multinational Firm Presence



Notes: This figure shows spillover effects of the U.K. tax cuts on economic activity in the grid cells of U.K.-owned (treated) and French-owned (control) multinational firm subsidiaries. Following Berg et al. (2021), we first estimate the following model.
$\Delta\, Ln.\, Nighttime\, Luminosity_{il} = \beta_0 + \beta_1 Treated_{il} + \beta_T Treated_{ic} * U.K.\, Firm\, Treatment\, Share_l + \beta_C(1 - Treated_{il}) * U.K.\, Firm\, Treatment\, Share_l + \epsilon_{il}$.
The figure then plots changes in nighttime luminosity around the U.K. tax cuts for treated and control units as a function of the intensity of U.K. multinational firm activity located in a given African country *l* using the coefficients β_0, β_1 and β_T for the treated units (grid-cells with U.K.-owned subsidiaries) and β_0 and β_C for the control units (grid-cells with U.K.-owned subsidiaries) of our main analysis. In Panel (A), the intensity of U.K. multinational firm activity is defined as the (sample median's) sum product of U.K.-multinational firms' total assets and the number of their subsidiaries in a given African country, scaled by the African country's total GDP in thousand USD. We plot estimates for the range of 0 to 13% in this intensity ration. The sample median is 1.57%, and the mean is 3.22% In Panel (B), the intensity of U.K. multinational firm activity is defined as the number of U.K.-owned subsidiaries scaled by the sum of the number of U.K.-owned and French-owned subsidiaries, multiplied by 100, in a given country. We plot estimates for the range of 0 to 75% in this intensity ratio. The sample median is 41.45%, and the mean is 39.23%. The figure also shows 90% confidence intervals. Standard errors are clustered at the grid-cell level.

Analysis of Regional Spillover Effects around Multinational Locations: The prior appendix documented positive spillovers on other multinational *companies*. We next test whether there are other increases in economic activity in the *local area* around a U.K.-owned subsidiary above and beyond the immediate impact on other multinational companies (our control group in the main tests). Specifically, we test whether there are local spillover effects, such as increased housing, retail, or other business activity, in the same grid-cell as the U.K. firm by removing the inner circle (1 km, 2 km, or 5 km) around an exact subsidiary location. We then examine by how much the coefficient of interest changes. Because the control firms cannot be within the same grid-cell, any effect we detect would be a distinct local spillover effect attributable to the U.K. firm.

Table A.13 presents results from separating the effects attributable to direct U.K. subsidiary investment (in the narrowly defined specific location where operations are located) versus spillover effects in the region where a U.K. subsidiary operates. Column 1 first repeats the analysis from Table 4, Panel B, Column (2). We then remove the inner 1 km from the grid-cell containing the U.K. subsidiary, finding that the coefficient is similar. This suggests either that the predominant effects occur in areas outside the central 1 km around the subsidiary location, or that the effects both within the center 1 km and outside the center 1 km are approximately similar in magnitude and effect, such that removing the center does not affect the point estimate. We also find that the coefficient size is similar when increasing the size of the center hole to 2 km. In contrast, we observe a smaller effect once the inner size is increased to 5 km, suggesting that a substantial portion of the effect occurs in the ring of 2 to 5 km around the U.K. affiliate. We conclude from this analysis that U.K. multinational investment has important effects beyond the immediate subsidiary location.

Table A.13: Focal Multinational Firm Subsidiary Activity versus Regional Spillovers

	(1)	(2)	(3)	(4)
	Ln Nighttime Luminosity (10km)			
	U.K. Firm Presence vs. French Firm Presence			
	Full	w/o inner 1km	w/o inner 2km	w/o inner 5km
*U.K. Firm * After 2009*	0.036***	0.035***	0.034***	0.025***
	(0.01)	(0.01)	(0.01)	(0.01)
Obs.	23,188	23,188	23,188	23,188
Adj. R2	0.981	0.981	0.982	0.986
Grid-cell FE	Yes	Yes	Yes	Yes
Parent FE	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes

Notes: This table reports coefficient estimates of difference-in-differences specifications from Eq. (2), which test the effect of the U.K. tax policy changes on local economic activity measured with nighttime luminosity in sub-Saharan Africa. As in the main analysis reported in Table 4, the unit of observation is a luminosity grid-cell with a 10 km radius in a given country-year. *U.K. Firm* is equal to one if a grid-cell contains a U.K. subsidiary. *After 2009* is a binary indicator equal to one for years after 2009. Control observations are 10 km radius grid-cells centered around a French multinational subsidiary. The inner 1 km, 2 km, or 5 km grid-cells centered around the U.K. or French multinational subsidiary are excluded in columns (2), (3), and (4), respectively, to separate the direct investment in a subsidiary location from local spillovers in the region. Luminosity data are obtained from the United States Air Force Defense Meteorological Satellite Program (DMSP), and we use the annualized, processed (cloud-free-observation-weighted) average over all stable nightlight pixels from The National Geophysical Data Center (NGDC) from 2005 to 2013. The dependent variable *Log. Luminosity* is the natural logarithm of the annualized mean luminosity value. Robust standard errors are clustered at the grid-cell level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

A.5 - Robustness Tests

Table A.14: U.K. Corporate Tax Policy and Foreign Subsidiary Presence in Sub-Saharan Africa - Additional Specifications

	(1)	(2)	(3)	(4)	(5)	(6)
Panel (A)	*Log. Number Subsidiaries*					
*U.K. Firm * Post*	0.264***	0.249***	0.147***	0.154**	0.234***	0.241***
	(0.05)	(0.07)	(0.04)	(0.06)	(0.05)	(0.07)
Obs.	93,510	19,966	78,835	18,832	77,444	18,667
Adj. R2	0.567	0.758	0.540	0.700	0.560	0.759
Balance Presence	No	Yes	No	Yes	No	Yes
Firm Controls	Yes	Yes	No	No	Yes	Yes
Firm Country Controls	Yes	Yes	No	No	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Year FE	No	No	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel (B)	*Log. Number Subsidiaries*					
Control Group:	Foreign	OECD	EU	Empire	France	U.S.
*U.K. Firm * Post*	0.185***	0.217***	0.211***	0.198***	0.171***	0.240***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
Obs.	67,518	49,980	34,523	27,059	14,633	13,865
Adj. R2	0.428	0.434	0.431	0.429	0.404	0.423
Balance Presence	No	No	No	No	No	No
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports coefficient estimates of difference-in-differences specifications from Eq. (), which tests the effect of the U.K. tax policy change on the natural logarithm of the number of a firm's subsidiaries in a given sub-Saharan country (*Log. Number Subsidiaries*) for the sample period 2005 to 2018. *U.K. Firm* is a binary variable equal to one if a multinational firm's parent entity is incorporated in the U.K. *Post* is a binary indicator equal to one for years after 2009. Panel (A) presents results using all firms in our sample. Panel (B) presents results restricting the sample of control firms to multinational parent firms, multinational firms from OECD countries, EU countries, former colonial empires (Belgium, France, Germany, Italy, Portugal, Spain), France, and the U.S. Firm data are from BvD Orbis. The list of control variables is displayed in Table 1. Standard errors are clustered at the firm level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table A.15: U.K. Corporate Tax Policy and Foreign Subsidiary Presence in Sub-Saharan Africa - Robustness Tests

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.	*Log. Number Subsidiaries*				*Number Subsidiaries (asinh)*	
Specification	*w/o Kenya & South Africa*		*w/o Financial Firms*		*asinh Specification*	
*U.K. Firm * Post*	0.160***	0.198***	0.201***	0.191**	0.171***	0.180**
	(0.05)	(0.07)	(0.04)	(0.08)	(0.04)	(0.07)
Obs.	58,121	9,487	77,853	15,567	96,126	20,230
Adj. R2	0.487	0.507	0.547	0.699	0.539	0.687
Balanced Presence	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair FE	No	No	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports coefficient estimates of difference-in-differences specifications from Eq. (1), which tests the effect of the U.K. tax policy change on the natural logarithm of the number of a firm's subsidiaries in a given sub-Saharan country (*Log. Number Subsidiaries*) for the sample period 2005 to 2018. *U.K. Firm* is a binary variable equal to one if a multinational firm's parent entity is incorporated in the U.K. *Post* is a binary indicator equal to one for years after 2009. In Columns (1) and (2), we exclude Kenya and South Africa from our estimation. In Columns (3) and (4), we exclude financial firms (NACE code: K). In Columns (5) and (6), we change the dependent variable and use the asinh specification of *Number Subsidiaries*. Standard errors are clustered at the firm level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table A.16: Foreign Subsidiary Presence and Local Economic Activity - Robustness

	(1)	(2)	(3)	(4)
Panel (A)	*Ln Nighttime Luminosity (10km)*			
U.K. Firm * After 2009	0.046**	0.048**	0.078***	0.082***
	(0.02)	(0.02)	(0.02)	(0.02)
Obs.	8,720	8,682	7,115	6,860
Adj. R2	0.981	0.985	0.983	0.983
Control Grid-Cells	Placebo regions			
Distance of placebo	>10km	>10km	>10km	>20km
Dense activity locations	Yes	Yes	No	No
Country Controls	Yes	.	.	.
Grid-cell FE	Yes	Yes	Yes	Yes
Parent FE	Yes	Yes	Yes	Yes
Year FE	Yes	.	.	.
Country-Year FE	No	Yes	Yes	Yes
Panel (B)	*Ln Nighttime Luminosity (10km)*			
*U.K. Firm * After 2009*	0.031***	0.018*	0.028***	0.028***
	(0.01)	(0.01)	(0.01)	(0.01)
Obs.	13,766	15,494	23,164	23,164
Adj. R2/Centered R2	0.976	0.975	0.977	0.029
Control Grid-Cells	DE subs.	US subs.	French subs.	
Cluster	Grid-cell	Grid-cell	Country-Year	HAC spatial (100km)
Dense activity locations	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes
Grid-cell FE	Yes	Yes	Yes	Yes
Parent FE	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	Yes

Notes: This table reports robustness tests based on difference-in-differences specifications from Eq. (2) using the model from Column (1) of the main Table 4 as the baseline. In Panel (A), we use placebo regions as controls instead of regions with subsidiaries owned by non-U.K. parent firms. Specifically, we match 10 km radius grid-cells with U.K. subsidiary presence to control grid-cells within the same country that are at least 10 km away from the next U.K.-owned subsidiary and that exhibited average luminosity values within a $\pm$20% range of the treated observation in 2009. In Column (4), we further restrict the sample to placebo regions at least 10 km away from the next U.K.-owned subsidiary. In Panel (B), we again use subsidiaries owned by other multinational firms as controls but vary the composition of the control group and the choice of standard error clustering. In Column (1), control observations are 10 km radius grid cells centered around subsidiaries of German multinationals. In Column (2), the controls are centered around subsidiaries of U.S. multinationals. Columns (3) and (4) replicate the main result from Column (1) of Table 4, using alternative clustering methods. Column (3) clusters standard errors at the African country–year level, while Column (4) applies spatial standard errors following Conley (2010), allowing for arbitrary spatial correlation and imposing a 100 km cutoff for independence. Luminosity data are obtained from the United States Air Force Defense Meteorological Satellite Program (DMSP), and we use the annualized, processed (cloud-free-observation-weighted) average over all stable nightlight pixels from The National Geophysical Data Center (NGDC) from 2005 to 2013. The dependent variable *Log. Luminosity* is the natural logarithm of the annualized mean luminosity value. Robust standard errors are clustered at the grid-cell level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table A.17: Foreign Subsidiary Investment and Regional Employment - Robustness

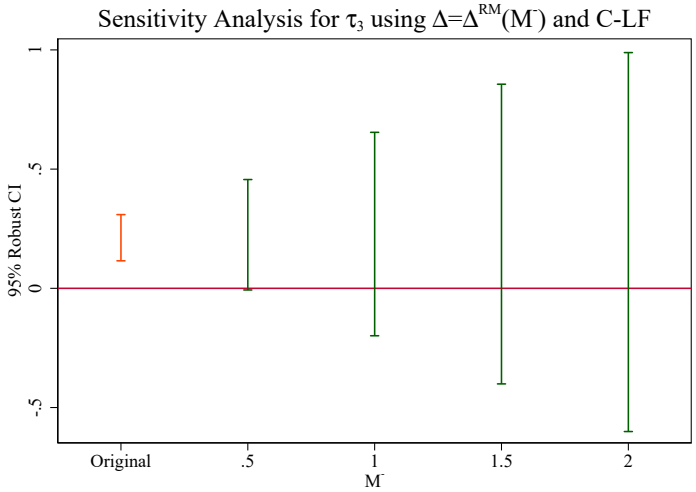
Panel (A)	(1)	(2)	(3)	(4)
	Employment (0/1)			
	U.K. Firm Presence vs. Non-U.K. Presence			
	Control Group > 10km		Control Group > 25km	
*U.K. Firm * Post*	0.032***	0.027***	0.032***	0.026***
	(0.006)	(0.006)	(0.006)	(0.006)
Regional Employment (Pre-period)	0.193***	0.167***	0.194***	0.172***
	(0.046)	(0.047)	(0.050)	(0.050)
Obs.	622,128	614,935	570,605	564,271
Adj. R2	0.080	0.212	0.082	0.213

Panel (B)	*Employment (0/1)*			
	U.K. Firm Presence vs. German or US Firm Presence			
	UK Firm < DE Firm		UK Firm < US Firm	
*U.K. Firm * After 2009*	0.048***	0.043***	0.038***	0.037***
	(0.013)	(0.013)	(0.013)	(0.012)
Regional Employment (Pre-period)	0.294***	0.207***	0.257***	0.219***
	(0.058)	(0.075)	(0.076)	(0.078)
Obs.	184,353	182,381	186,733	185,000
Adj. R2	0.031	0.195	0.032	0.195
Control Group	DE subs.	DE subs.	US subs.	US subs.
Individual Controls	No	Yes	No	Yes
Grid-cell FE * U.K. Firm Presence	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes

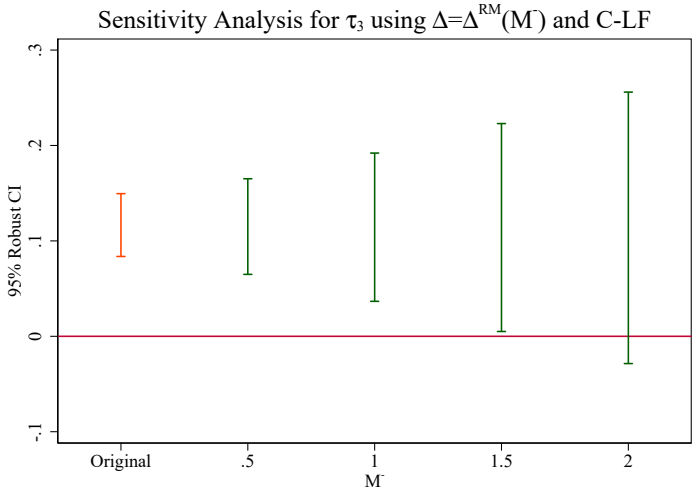
Notes: This table reports results for alternative specifications based on the main results from Panel (A) in Table 5. Specifically, the table reports coefficient estimates of difference-in-differences specifications from Eq. (2), which tests the effect of the U.K. tax policy changes on local employment in sub-Saharan Africa from 1998 to 2019. The unit of analysis is the surveyed individual. *U.K. Firm* is equal to one if a U.K. firm's subsidiary is located within a 10 km radius of a survey respondent's residence. *After 2009* is a binary indicator equal to one for years after 2009. Individual-level data are obtained from Demographic and Health Surveys (DHS). We use DHS data for regions that had survey rounds both before and after the U.K. tax rate reduction. The dependent variable *Employment (0/1)* is an indicator equal to one if an individual indicates that he/she is employed following Hjort and Poulsen (2019). In Panel (A), the control group consists of individuals living more than 10 or 25 km away from the nearest U.K.-owned subsidiary. In Panel (B) Columns (1) and (2), the control group consists of individuals living within a 25 km radius of a German-owned subsidiary and not living within a 10 km radius of a U.K.-owned subsidiary. In Columns (3) and (4), the control group consists of individuals living within a 25 km radius of a U.S.-owned subsidiary and not living within a 10 km radius of a U.K.-owned subsidiary. Robust standard errors are clustered at the grid-cell level and presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Figure A.8: Sensitivity of Difference-in-Differences Estimates to Pre-trends

(**A**) Multinational Firm Subsidiary Presence



(**B**) Multinational Firm Presence and Local Economic Activity (Luminosity)



Notes: This figure presents robustness checks of our difference-in-differences estimates with respect to the 3rd post-treatment year (2012) with robust confidence intervals. Following Rambachan and Roth (2023)'s tools for robust inference in event-study and difference-in-differences models, we perform a sensitivity analysis based on relative magnitudes (RM) approach for our event study results for U.K. presence in Sub-Saharan Africa. We have chosen the *bounds on RM* approach as we are aware of other shocks apart from the treatment that might lead to violations in our parallel trends assumption. For example, an increase in Chinese investments in Africa around 2012 might explain the magnitude of tolerance we obtain for the post-treatment violation of parallel trends. In Panel (A), we provide sensitivity analysis based on the event study results presented in Figure 1 where the dependent variable is *Ln Number subsidiaries*. The breakdown value for $\overline{M}$ is 0.5, suggesting that our treatment effects remain significant unless we allow for a post-treatment violation of parallel trends that is half the maximum violation in the pre-treatment period. In Panel (B), we provide the sensitivity analysis based on the specification in panel (A) of Figure 3, where the dependent variable is *Ln Nighttime Luminosity*. The breakdown value of 2 implies that post-treatment violation of parallel trends can be no more than twice than in the pre-treatment period, in order to have non-null effects.