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Do governments crowd out governments? Evidence from a natural experiment☆

Stuart Baumann [a], Margaryta Klymak [b,*]

[a] Independent Researcher
[b] King's College London, United Kingdom

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ABSTRACT

Many governments operate budgets that expire at the end of the fiscal year and rush to spend large amounts at this time. The scale and breadth of this heightened spending raises the possibility of government departments crowding out each other at the year-end while competing with one another for limited suppliers. This may exacerbate the extent of year-end spending spikes. We investigate this possibility using expenditures of all overseas embassies and offices of the UK. We leverage a unique setting where embassies share the UK fiscal year for their budgeting but operate in countries with varying fiscal years. Our results show that: (1) in every country embassies spend more at the UK fiscal year-end than in the average month; (2) the extent of this extra spending is greater in countries that have a fiscal year that overlaps with the UK; (3) embassies spend more at the end of the fiscal years of local firms.

1. Introduction

Governments around the world typically operate under annually expiring budgets and spend substantially more at the end of the fiscal year than at any other time. This pattern has been observed in the United States (Liebman and Mahoney, 2017), the United Kingdom (Baumann, 2019) and across 27 OECD countries (Eichenauer, 2020). The size of this effect can be substantial. For instance, in the United Kingdom capital expenditure in the last month of the fiscal year is about twice as much as in the average month (Baumann, 2019), and the United States Government spends 4.9 times more in the last week of the fiscal year compared to the average week (Liebman and Mahoney, 2017). This phenomenon has recently attracted the attention of economists and policymakers due to the potential for waste.[1]

Many government departments simultaneously spending at high levels can have congestion effects in the economy. Specifically, this simultaneous spending can cause the crowding out of suppliers, which can impact government departments in a number of ways. First, government suppliers may raise their prices due to high demand Klymak and Baumann (2022).[2] If the quantity demanded is

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* Corresponding author.
E-mail addresses: stuart@stuartbaumann.com (S. Baumann), margaryta.klymak@kcl.ac.uk (M. Klymak).

[1] For instance, drawing on United States Government IT procurement data, Liebman and Mahoney (2017) found that projects commissioned at the end of the fiscal year were 2.2 to 5.6 times more likely to receive a "low quality" score.

[2] Based on Ukrainian government procurement auctions, Klymak and Baumann (2022) showed that firms charged significantly higher margins at the end of the fiscal year relative to other times of the year. There is also anecdotal evidence for price increases at year end in the UK from Hyndman et al. (2007, page 227). Specifically, an interview in the paper states *"you do [end up paying over the odds for spending to get rid of money at short notice]. There're two things — there are those [contractors] on our select list who have given us prices ... but you find in some years that none of them is willing to do it, as they are all fully committed and you end up paying over the odds (Interview K)".*

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relatively inelastic to price increases this could result in bigger spending spikes. Second, due to supplier unavailability, government departments may also have to change the goods they buy or the suppliers they buy from Hyndman et al. (2007). If the department faces switching costs or if the substitute goods/suppliers are less economical then this will further increase year-end spending. Substitute goods may also be higher quality and hence more costly than they would be at other times of the year.[3,4] Third, suppliers may hire more salespeople and change their good offerings at year-end to exploit a higher willingness to spend and induce greater spending. Salespeople may also intensify promotional campaigns and offer value-added services amidst heightened competition for government contracts.[5] To the extent these efforts are successful we would expect higher spending at year-end. Fourth, departments may buy fewer items than they otherwise would as they move some expenditures to other times of the year to avoid price increases or supplier unavailability. The first three of these mechanisms suggest higher spending at the end of the local fiscal year while the fourth suggests lower spending at year-end.

We study the impact of these crowding out effects on the sizes of observed year-end spending spikes. The identification challenge we face is to disentangle the impact of a department's fiscal year away from the impact of the fiscal years of other government agencies in the economy. Most government entities in a country operate under the same fiscal year rules, so the budgetary fiscal year for a department is the same as for all government departments operating in that economy. To overcome this, we analyse the purchasing decisions of all United Kingdom's (*"home"*) foreign office's embassies, high commissions,[6] consulates, missions and other offices (henceforth simply *"overseas offices"*) that are located outside of the UK (in *"host"* countries) over the period from 2008–2019. This setting is ideal to study our question as all overseas offices are operating under the home fiscal year but are located in countries with different fiscal year cycles which may or may not overlap with home.[7] Thus the novelty of our study is that we can disentangle an individual government's year-end spending behaviour from the competition they face from other the spending of other government departments at the year-end.[8] Furthermore, our dataset covers a substantial number of countries as the UK has a large network of overseas offices to support its foreign policy. According to the latest ranking of the Lowy Institute, the UK was ranked as having the 11th highest level of international diplomatic engagement (Lowy Institute, 2019).

We find that overseas offices on average spend more at the end of the UK fiscal year in March than in other months and we observe this pattern in all countries. Fiscal year-end spending is greater in countries that share a fiscal year with the UK. This finding is consistent with a crowding out effect coming from the year-end spending of the host government. Our results imply that greater spending in the economy can fuel even greater spending and in that sense, there is a multiplier effect on year-end spending coming from all government departments spending at the same time.[9]

As a secondary aim we investigate the extent to which the fiscal years of firms in the local economy can influence year-end spending. One mechanism through which this can occur is that salespeople in supplier firms may attempt to move sales between fiscal years to maximise their commissions, given targets in their incentive structure (Oyer, 1998). This can be a sizable effect, Price Waterhouse Coopers (2023) suggests that one reason firms may want to change their fiscal year is to avoid year-end coinciding with that of other firms. They state that *"Moving sales targets to a non-calendar year-end may reduce pricing pressures or resource constraints at customers that are typically driven by high volumes of vendors seeking to meet sales targets at the same time".*[10] Therefore in certain settings, we might expect higher spending right before the end of the firm fiscal year as accelerated sales are moved to these times. There is some evidence of increased advertising at year-end with Décaire and Sosyura (2022) using data on the adverting budgets of US firms to find that managers with surplus funds rush to spend before their budget would expire. More generally previous studies have highlighted the importance of fiscal year-end of firms in various other ways. It has been found that firms at the year-end strategically time investments to reduce taxes (Kinney and Trezevant, 1993); undertake more capital investments (Shin and Kim, 2002); report lower working capital to signal greater efficiency (Frankel et al., 2017); strategically time asset sales as a low cost way to alter earnings (Bartov, 1993); and produce in excess to lower the reported cost of goods sold (Roychowdhury, 2006).

While there is not in general one fiscal year used by all firms in any given country,[11] there is often rough alignment in the fiscal year choices of each firm in a country. This alignment varies between countries and we exploit this variation to estimate the effect of a firm fiscal year on the spending patterns of overseas offices at the year-end. We find that overseas office spending increases later in the fiscal years of local firms.

[3] Note that while Liebman and Mahoney (2017) found that IT projects delivered at year-end are of lower quality than other spending (in terms of delivering value for taxpayers), this does not imply that the specific items being bought are of lower quality.

[4] This substitution may be more likely for types of procurements that deliver personal utility for the public sector workers. As an example a recent (OpenTheBooks.com, 2019) report found that in September 2018 US government departments spent $4.6 million on lobster. This may be higher quality catering (and at higher cost) than the department normally consumes.

[5] Some trade exhibitions, for instance the annual "Warrior Expo" in the defence procurement industry, are strategically scheduled to coincide with the spending increase at the end of the U.S. government's fiscal year (U.S. Securities and Exchange Commission, 2011).

[6] The United Kingdom, as well as other commonwealth countries, have a naming convention of calling the principal diplomatic mission to other commonwealth countries a "High Commission" rather than an embassy.

[7] We examine how the local fiscal year-end affects the spending of each overseas office. While the scale of spending of an overseas office will generally be small in relation to their local economy, the spending of the host government will be significantly larger. We ascertain the crowding out effect of this host government's spending on the overseas office's spending patterns.

[8] We will disentangle a further mechanism of overlapping firms' fiscal year-ends.

[9] More generally however our setting is an ideal one to study the extent to which government agencies crowd out other government agencies in the economy. Similar crowding out is also likely to occur at other times of heightened spending such as when there is an expansionist fiscal policy. The spending response of embassies, which do not have the same fiscal year as other governmental agencies in their local economy, provides a view on the extent of this crowding out.

[10] In certain countries (such as Australia) retailers advertise "year-end sales" with the ostensible goal to reduce inventory before the end of the fiscal year.

[11] For some countries, firms typically align with the national governmental fiscal year (e.g. Australia) while in other countries (e.g. the USA) they do not.

Our findings contribute to the year-end spending literature, which has primarily attributed this behaviour to the budgeting of government departments at the fiscal year-end (i.e. internal factors) rather than external factors (e.g. spending of external government departments). Specifically, Liebman and Mahoney (2017) suggest that government departments build up precautionary savings funds which they expend at year-end when funds would otherwise expire. As they cannot roll over funds into the following fiscal year, these departments spend the remaining amount at the end of the year. Baumann (2019) suggested that the behaviour was motivated by procrastination on the part of government departments. Eichenauer (2020) proposed that year-end spending is a result of government departments being unable to effectively plan ahead. These explanations agree on spending being driven by a government department's internal budgetary and reporting fiscal year and neither paper considers the impact of other agents in the economy (including other government departments) having their end of fiscal year at the same time.[12] Our paper is the first to separate the impact of internal from external factors. We also find support for the importance of internal factors in driving end-of-year spending. Furthermore, our paper presents the novel finding that two external channels can influence year-end spending: the impact of the fiscal years of other government departments and of firms that operate in the same economy.

Finally, our paper is also related to work examining fiscal spillovers focusing on the impact of the spending decisions of one jurisdiction on the decisions of another. Various types of strategic interactions between the fiscal and spending policies of neighbouring governments have been studied, including yardstick competition (Besley and Case, 1995), tax competition (Devereux et al., 2008; Parchet, 2019) and spending spillovers on other jurisdictions (Case et al., 1993; Baicker, 2005). In our paper we find an additional spillover: year-end spending of one government department can impact the year-end spending of another. We find this in the context of UK embassies being impacted by the spending of their host country.

There are three main implications of this short paper. First, the home fiscal year is the most important for the pattern of spending over the year. This finding confirms that the focus of the literature on the role of the budgetary fiscal year in explaining year-end spending spikes. Second, the size of year-end spending is larger in countries that have overlapping fiscal years with home. This indicates that congestion effects exacerbate year-end spending. Third, home government spending is higher later in the fiscal year of local firms.

2. Methodology

2.1. Data

We use a monthly spending dataset covering the spending of the UK Foreign and Commonwealth Office between the 2008–2009 and 2018–2019 fiscal years. There are two budgets for each overseas office and year.[13] The first is the *resource* budget, which is used for regular expenses such as stationery, staff training, diplomatic events, salaries and rent. The second is the *capital* budget, which is for office renovations, office furniture, new computers and other capital purchases.

For each overseas office, we have one observation for each budget, each month and each year (i.e. overseas office-budget-month-year). Overall we rely on an unbalanced panel of 399 overseas offices, located over 180 countries, resulting in 4932 overseas office-budget-years.[14] The majority of offices are located in countries operating under a calendar year fiscal year. This can be seen in the top panel of Fig. 1. We do however have many office-budget-years with different fiscal year-ends, with 16% of countries (and 65 overseas offices) sharing the same fiscal year-end with the UK in March.

Overseas offices in our sample tend to spend at very different scales.[15] On one end is the Kabul Embassy, which spent more than 100 million pounds in each fiscal year between 2015–2016 and 2018–2019. On the other extreme, there are many small offices, such as the embassy in Minsk where annual expenditures are around one million pounds per year. While our data is at an overseas office level, we also aggregate spending levels at a country level and present it in the middle panel of Fig. 1.[16] Finally, the bottom panel of Fig. 1 presents home year-end capital expenditure for each country divided by the monthly average for overseas offices in that country. For example, a value of two for this ratio means the office is spending twice as much in March as in the average month. It shows that overseas offices spend more at the end of the UK fiscal year in every country.

Several embassies in our data sold some assets and obtained revenues from the asset sales. Under the accounting conventions in place, these were recorded as negative expenditures. As a result, some months have negative total expenditures for some departments

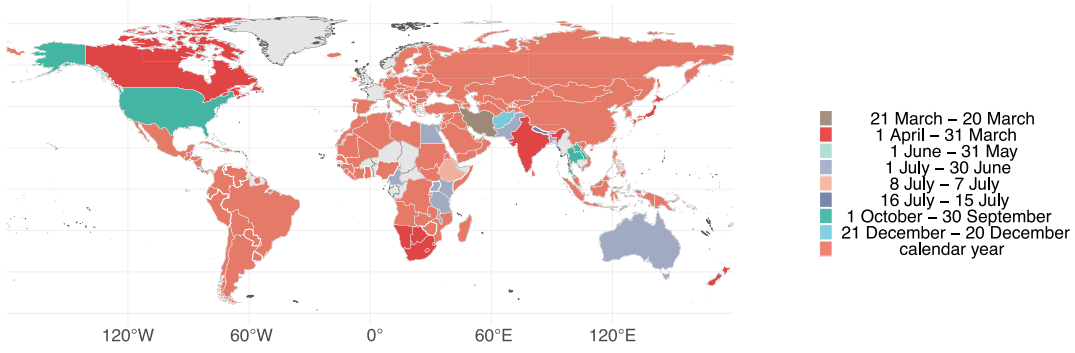
[12] In the appendix of this paper, we extend previous models of Liebman and Mahoney (2017) and Baumann (2019) to explore their implications for how crowding out of suppliers can affect year-end spending spikes. We find that crowding out should reduce the size of spending spikes seen in practice as it is a mechanism which encourages departments to more evenly spread out spending throughout the year.

[13] United Kingdom departments have a limited ability to "rollover" funds between fiscal years. Prior to the 2010–2011 fiscal year, this ability to rollover was allowed under the "end of year flexibility" scheme which allowed UK departments to save unlimited funds between years. From the 2011–2012 fiscal year and onwards however the new "Budget Exchange System" was far more restrictive. Specifically, departments could only rollover funds up to a limit of between 0.75% and 4% (depending on the department). In addition, funds could only be rolled over for one additional year. Evidence related in Crawford et al. (2009) and Baumann (2019) suggests that the UK year-end spending remained large despite the ability to save between years.

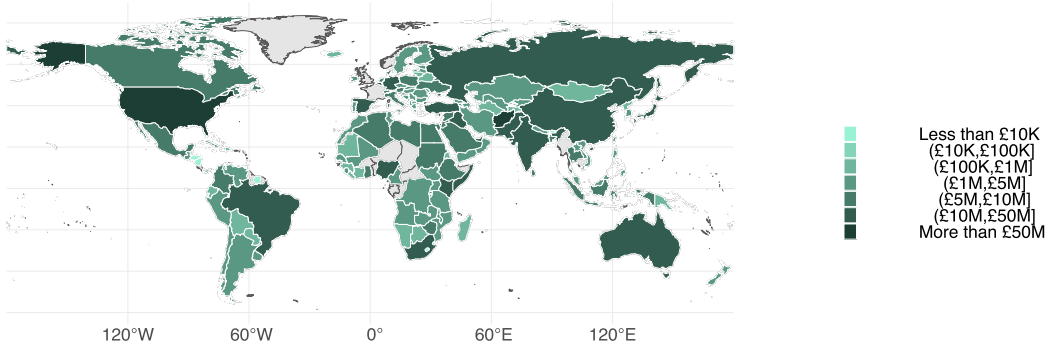
[14] This number is lower than the number of offices multiplied by ten years and two budgets per department, reflecting that some overseas offices did not exist for all ten years. We deflate the spending data with a monthly consumer price index obtained from the UK's Office for National Statistics. We use this rather than host country inflation rates as budgets for overseas offices are denominated in pounds and are typically only exchanged for local currency at the time spending occurs. While UK departments are allowed to use derivatives to hedge against exchange rate exposure, the foreign and commonwealth typically only does this for some peacekeeping operation expenses denominated in USD and EUR.

[15] Appendix C presents the descriptive statistics of our sample.

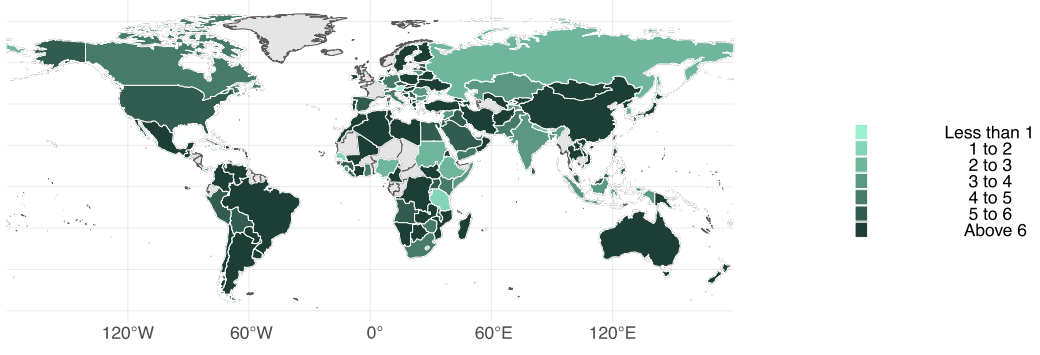
[16] A similar figure is available in Appendix C which splits spending by capital and resource expenditures.



(a) Government fiscal year-end around the world



(b) Average annual expenditure of overseas offices



(c) UK fiscal year-end spending divided by annual monthly average

Fig. 1. Fiscal year spending of UK overseas offices in 2008–2019.
Note: The figure presents the fiscal year-end and spending for all UK overseas offices over the period 2008–2019. The first graph demonstrates the fiscal year cycles. The second graph depicts the average annual spending across countries. The third graph shows spending in March over the average monthly spending. For the second and third graphs, darker colours imply more spending. Note that while our data is at the level of an individual overseas office, we aggregated them to a country level for the purposes of these plots.

and budgets. These are relatively few, however, with less than 3.5% of office-budget-year-month observations having negative total spending. As a result of the possibility of negative spending figures and different scales of spending, we use two different transformations of this variable. First, we calculate the mean and standard deviation for each office-budget-year, and use these to

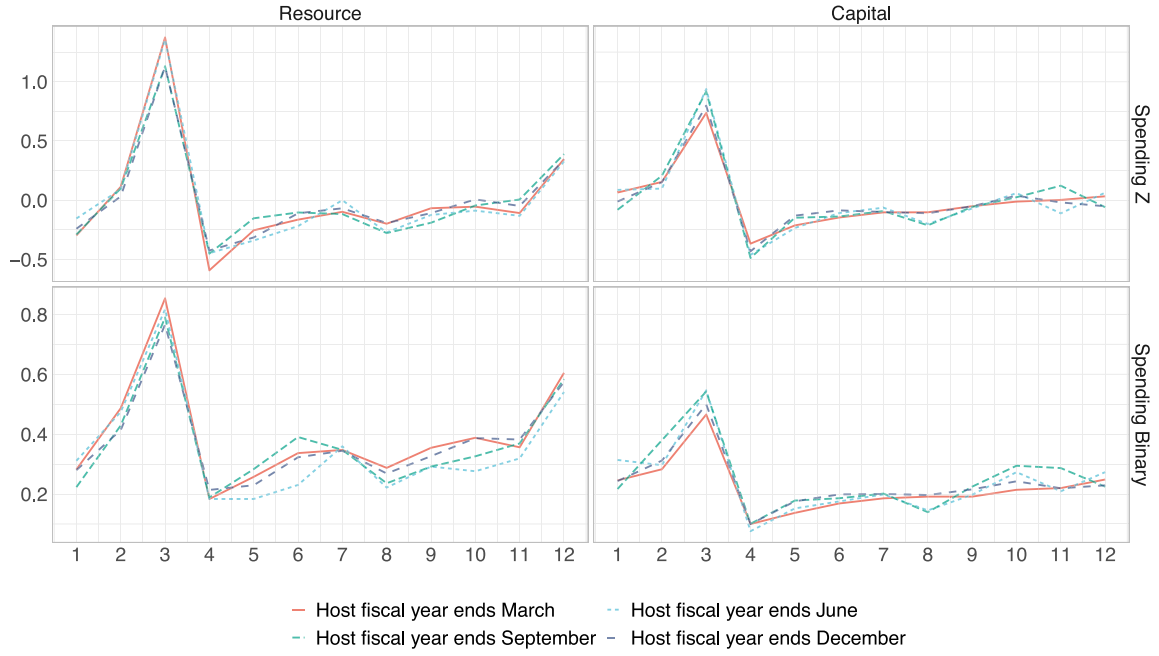


Fig. 2. Spending over the fiscal year.
Note: The figure depicts the fiscal year spending pattern of all overseas offices depending on the fiscal year-end month (either March, June, September or December) and budget (either resource or capital). On the horizontal axis is the month of the year (where 1 is for January, 2 is for February, etc.). On the vertical axis is the month's average Spending Z (on the top two panels) and average Spending Binary (for the bottom two panels).

create a z-score for each month. We call this standardised variable *"Spending Z"*. Second, for each office-budget-month, we create a dummy variable taking the value of one if more is spent that month than the monthly average for that office-budget-year. We call this variable[17] *"Spending Binary"*.[18]

We present each of these two measures in Fig. 2, where we have separated overseas offices into four groups based on when the local fiscal year-ends.[19] The profile of spending is dominated by a large spending spike occurring at the end of the UK fiscal year in March. We then observe lower spending in April and May. Spending picks up again at the end of the calendar year in December. In addition, the resource expenditure rises more in March for overseas offices operating in countries where the fiscal year-ends in March. This is suggestive evidence of a multiplier effect where an economy exhibiting heightened government spending leads to higher spending on the part of overseas offices. We will examine this more rigorously in the section that follows.

Before progressing however it should be noted that the use of standardisation of our dependent variable means that results in this paper are expressed in units of standard deviations. As the standard deviation of resource expenditure is lower than that of capital expenditure that means that the size of year-end spending in the left and right panels in Fig. 2 cannot be easily compared. Capital expenditure increases more at year-end than resource expenditure however the lower standard deviation of resource expenditure hides this in Fig. 2.[20] We provide additional data and explanation to help relate our regression results to aggregate spending figures in Appendix F.

[17] Specifically for each office-budget-year (where the year refers to a UK fiscal year running from April to March) we have 12 spending figures $[x_{i,b,y,m}]_{m=1:12}$. With these figures we calculate a mean $\mu_{i,b,y}$, a standard deviation $\sigma_{i,b,y}$ and then calculate Spending $Z_{i,b,y,m} = \left[\frac{x_{i,b,y,m}-\mu_{i,b,y}}{\sigma_{i,b,y}}\right]_{m=1:12}$. We also calculate Spending $\text{Binary}_{i,b,y,m} = \left[\text{Dummy}\left(x_{i,b,y,m} > \mu_{i,b,y}\right)\right]_{m=1:12}$.

[18] Spending Binary throws away a large degree of variation which makes it more robust to outliers but it also means that the magnitude of spending spikes may be distorted. We hence primarily use Spending Binary as a robustness check on the Spending Z. As we will show however the results from the two dependent variable transformations are remarkably similar.

[19] Note that most countries have a fiscal year that ends at the end of a quarter. For instance, Australia has a fiscal year-ending at the end of June, while the United States fiscal year-ends at the end of September. There are five exceptions in our dataset, however, including Afghanistan (fiscal year-end December 20); Ethiopia (fiscal year-end July 7); Iran (fiscal year-end March 20), Nepal (fiscal year-end July 15) and Samoa (fiscal year-end May 31). For this chart we drop Samoa and round the other cases to the closest month-end which is always at the end of a quarter.

[20] This is also an issue for Spending Binary. This happens as a higher standard deviation means more early months have capital expenditure above the annual mean and hence there is a lower spending spike at year-end.

2.2. Empirical strategy

We examine the extent to which the home fiscal year, the host government fiscal year and local firm fiscal years can affect overseas offices expenditures with the following benchmark specification:

$$\begin{aligned}\text{Spending}_{i,b,m,y} = \beta_0 + \beta_1 \text{LFY End}_{i,m} \times \text{Home FY End}_{i,m} + \beta_2 \text{Home FY End}_{i,m} + \\ + \beta_3 \text{LFY End}_{i,m} + \beta_4 \text{Firms LFY End}_{i,m} + m + \psi_{iy} + \epsilon_{i,b,m,y}\end{aligned} \tag{1}$$

where $Spending_{i,b,m,y}$ is the spending for overseas office i, budget b, in month m and year y. We use both the Spending Z and Spending Binary as dependent variables. $HomeFYEnd_{i,m}$ is a dummy variable taking value one in March (at the end of the UK fiscal year). We use two variables to control for the local fiscal year-end. First, $LFYEnd_{i,m}$ is a dummy variable for the end of the local fiscal year. Second, $LFYEnd_{i,m} \times HomeFYEnd_{i,m}$ is an interaction between the UK fiscal year-end and the local fiscal year-end.

We would expect that the local fiscal year would impact overseas office expenditure due to crowding out as the host government spends at high levels. While we do not have data on the amount of government spending happening in each country in each month, the literature has found heightened year-end spending in many countries around the world[21] at various levels of development.[22]

To the extent different groups of overseas offices exhibit different spending patterns we exploit the different spending patterns to identify the coefficients of $LFYEnd_{i,m}$ and $LFYEnd_{i,m} \times HomeFYEnd_{i,m}$. The behaviour and preferences of firms can also influence when governmental spending occurs (e.g. Oyer 1998). To examine this impact, we obtain the constituents of the major large-cap stock indices for 44 countries from the Bloomberg terminal.[23] For each company, we obtain their fiscal year-end month. Then for each country and each month, we calculate the average (across firms) number of months until the end of the firm fiscal year. We normalise this to the $[0, 1]$ range[24] where a value near *one* means many firms are near the end of their fiscal years and a value near *zero* means most firms are near the start of their fiscal year. This is the $FirmsLFYEnd_{i,m}$ variable in the regression.[25]

We use the m vector of fixed effects for each calendar month. The role of this fixed effect is to separate the effect of the home fiscal year from the other effects we seek to study.[26] Given the end of the home fiscal year is of particular interest we do explicitly control for March and hence the corresponding fixed effect drops out. Our baseline month for Home FY $\text{End}_{i,m}$ is January. ψ_{oy} is a vector of fixed effects for each overseas office × year, which allows focusing on variation within a particular office and year rather than using variation between departments.[27] Finally, $\epsilon_{i,b,m,y}$ is the statistical error term. We cluster standard errors at a country level.[28]

3. Results

We present the main results of this paper in Table 1. The top panel displays findings for the resource expenditure[29] while the results for capital expenditures are reported in the bottom panel. In each panel the first three columns use Spending Z as the dependent variable while the last three columns rely on the binary spending variable. Columns 1 and 4 include only governmental (i.e. local and home) fiscal year-ends. Columns 2 and 5 include only the home fiscal year and the firm year-end variable. In these regressions there is a drop in sample size reflecting that this firm fiscal year variable cannot be calculated for all countries. Columns 3 and 6 include all of these variables.

Three main findings emerge from this table. First, the overseas offices spend more in the last month of the home fiscal year for both the capital and the resource expenditure budgets. Focusing on our full model in the resource budget panel, the result for

[21] To our knowledge there are no papers that have found examples of countries where the government does *not* spend more at fiscal year-end.

[22] Our identification comes from comparing between the spending patterns of different overseas offices. Note that as countries rarely change fiscal years (in the period of our data only Timor Leste and Fiji changed fiscal years) the local fiscal year-end is generally time invariant so we cannot use intertemporal variation to identify it. The key requirement for our results to be meaningful for examining the impact of local fiscal years is that spending patterns are broadly similar enough for overseas offices in other countries (with other fiscal year-ends) to provide a suitable counterfactual. We believe this is the case as all overseas offices have the same budgetary framework, management and oversight institutions and perform similar diplomatic tasks. Finally, we note that while this paper uses a type of cross country regression, our cross country dataset has similar advantages to that of Eichenauer (2020). Similarly to Eichenauer, all of our data is from one organisation (in our case the UK government), and we do not have the measurement error complications that are often encountered in such settings.

[23] Details on these indices can be found in Appendix B.

[24] Denoting the average number of months until the end of the fiscal year to be x which will be in the $[0, 11]$ range the transformation is $\frac{(11-x)}{11}$.

[25] Note that given how this variable is constructed, it is only available for countries with a number of publicly traded companies. As a result, we carry out several regressions that exclude this variable. This variable works out to be roughly uniformly distributed with a minimum of 0, a maximum of 1.0 and the 20%, 40%, 60%, and 80% quartiles being 0.236, 0.43, 0.61, 0.79 respectively. When the governmental fiscal year-ends in December most firm fiscal years also end around December. However, when the governmental fiscal year does not in December there is no clear relationship with firm fiscal year. For histograms of the distribution of firm and governmental fiscal years see Fig. D.1 in the appendix.

[26] If this is not done, there would be an important omitted variable. We would have obtained the result that the end of the local fiscal year coefficient is statistically significant because many overseas offices operate in countries with a calendar fiscal year and December tends to be a high spending month in the UK foreign office generally.

[27] These fixed effects are most important for the Spending Binary dependent variable. For the Spending Z score, we have already effectively done a within transformation by subtracting the mean annual spending while calculating the z score so the fixed effects in an OLS regression do not have a large impact.

[28] Note that conclusions of this paper are robust to bootstrapping of standard errors. This is presented in Table G.5, Appendix G.2.

[29] The resource spending includes both the Annually Managed Expenditure (AME) and the Departmental Expenditure Limit (DEL). The first budget, chosen annually, is intended for demand-driven costs, while the latter is allocated during spending reviews held approximately once every three years and is designated for planned expenditures. In our dataset, the UK FCO obtains approximately 91% of their funding through DEL funds and about 1.5% through AME funds. We further discuss the differences between these budgets and replicate our analysis for each separately in the appendix Table H.5.

Table 1
End of fiscal year spending effects.

	Spending Z (1)	Spending Z (2)	Spending Z (3)	Spending Binary (4)	Spending Binary (5)	Spending Binary (6)
Panel A: Resource Budget						
Home FY End	1.390***	1.395***	1.359***	0.499***	0.497***	0.488***
	(0.061)	(0.074)	(0.082)	(0.023)	(0.029)	(0.032)
LFY End × Home FY End	0.300***		0.335***	0.085**		0.099*
	(0.102)		(0.125)	(0.040)		(0.051)
LFY End	−0.047		−0.090**	−0.022		−0.040*
	(0.034)		(0.044)	(0.016)		(0.022)
Firms LFY End		0.138	0.107		0.060**	0.057**
		(0.090)	(0.075)		(0.025)	(0.022)
Num Countries	180	68	68	180	68	68
Observations	39,996	23,796	23,796	39,996	23,796	23,796
R^2	0.224	0.211	0.212	0.231	0.221	0.221
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Capital Budget						
Home FY End	0.812***	0.844***	0.867***	0.280***	0.288***	0.298***
	(0.053)	(0.068)	(0.066)	(0.017)	(0.023)	(0.022)
LFY End × Home FY End	0.003		−0.085	−0.007		−0.034
	(0.146)		(0.199)	(0.038)		(0.053)
LFY End	−0.046		−0.088**	−0.024		−0.038*
	(0.031)		(0.041)	(0.015)		(0.022)
Firms LFY End		0.127***	0.187***		0.043	0.068
		(0.047)	(0.061)		(0.036)	(0.044)
Num Countries	166	68	68	166	68	68
Observations	21,840	12,468	12,468	21,840	12,468	12,468
R^2	0.158	0.165	0.166	0.305	0.309	0.309
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months as well as local firms year-ends. The dependent variable in columns 1–3 is *Spending Z*; in the last three columns, it is *Spending Binary*. Panel A relies on the resource budget spending whilst panel B uses spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

the home fiscal year-end indicates that spending is 1.359 standard deviations higher in the last month. This coefficient for the capital budget is 0.867 standard deviations. This result is robust in every specification for resource and capital expenditure. The significance and magnitude of this coefficient confirms the focus of the previous literature on the budgetary fiscal year as the key driver of year-end spending.

The second key finding is that the *LFY End* × *Home FY End* coefficient is significantly positive in the resource expenditure case. In the benchmark specification, it shows that the size of the year-end spending spike is 0.335 standard deviations higher in countries with a fiscal year-end in March than in countries with a different fiscal year-end. Back of envelope calculations to convert this result from standard deviations units towards currency units suggests that March spending is higher by about 0.26 times average month spending in countries that have the same fiscal year-end as the home country.[30] This finding indicates that crowding out effects exacerbate the size of year-end spending spikes. In addition, the *LFY End* coefficient is negative for capital expenditure. This is consistent with embassies moving capital expenditure to other times in the fiscal year where there is less crowding out from host country governmental spending.[31]

Finally, in both cases but most strongly in the capital expenditure case there is greater spending later in the fiscal year of local firms.[32] This finding is broadly in agreement with the findings of Oyer (1998) who found evidence of salespeople moving sales with respect to their firm's fiscal year. One explanation for why this effect is stronger for capital expenditure is that capital expenditure items (e.g. computers, furniture, vehicles) are larger items and hence are more likely to be influenced by supplier sales efforts than resource expenditure items such as salaries, rents and office supplies.

While there could be several mechanisms driving our findings (as discussed in the introduction), the dataset does not allow us to decompose which are more likely to be driving the effect. We can note however that overseas offices appear to have relatively inelastic spending patterns in that overall spending is higher at year-end despite congestion of governmental suppliers. In addition,

[30] These calculations are related in Appendix F.

[31] In the resource expenditure case the corresponding coefficients are not significantly different from zero. This may reflect a greater difficulty in moving the purchase of these goods/services within the fiscal year.

[32] Note that there is a similar effect is significant at the 10% level for some specifications of the resource budget regressions.

firm fiscal years appear to play a significant role. This makes it likely that issues related to the actions and incentives of firms and salespeople may be important.

We further confirm the robustness of our findings with a number of checks in Appendix G. First, one possible concern a reader might have is that findings are driven by outliers such as certain countries or years. To address this concern, we use a jackknife procedure reestimating our regressions after dropping each country and year, in turn, to ensure our results are not driven by any singular countries or years. We present our findings in Figs. G.1–G.4. These figures also include results of a placebo test to ensure that specification estimated coefficients are distributed around zero if we deliberately randomise the local host government fiscal year and firm fiscal years in the data. Second, combining non-overlapping local fiscal year-end into a single binary variable might hide an important heterogeneity or equally important might demonstrate that our findings only present for certain months. We separate each local fiscal year-end (i.e. March, June, September and December) and present our results in Table G.1. Third, Table G.2 shows that our findings are robust if we use $\log(FirmsLFYEnd_{i,m}+1)$ in place of the firm fiscal year variable. Fourth, previous literature (e.g. Klymak and Baumann 2022) has identified that spending is the highest in the last month of the fiscal year but tends to be elevated near that time. We therefore change our end of fiscal year variables (*LFY End* × *Home FY End*, *LFY End* and *Home FY End*) to represent the last two months of the fiscal year. Our results remain robust in Table G.3. Fifth, it is possible that the start (rather than the end) of the host government fiscal year could be busy due to the arrangement of annual contracts. However, we do not support for this hypothesis in Table G.4. Finally, we replicate the benchmark findings presented in Table 1 with bootstrapped standard errors which we show in Table G.5.

In Appendix H, we explore several extensions. First, in Table H.1 we test whether the level of economic development, distance between the UK and local economy, and the EU and Commonwealth membership matter for the pattern we identified in this section. Whilst the home fiscal year remains statistically significant in all specifications, there is no evidence that local fiscal year-end can be explained by these factors. Second, we separate the end of local fiscal year effect according to the income level of the host country in Table H.2. It can be easier to source certain goods and services in more advanced countries. Third, we interact uncertainty and unemployment with year-end spending in Table H.3.

4. Conclusion

Aside from the budgetary fiscal year, a government department's expenditure pattern could in principle be affected by the fiscal year behaviour and spending of other government departments and firms in the economy. We study the impact of this crowding out using the spending behaviours of the overseas offices of the UK's foreign and commonwealth offices.

Crowding out could potentially affect spending in two contrasting ways. On one hand, compared to embassies in countries that do not share the fiscal year-end with the UK, embassies in countries that share the UK fiscal year-end may encounter higher prices and reduced supplier availability. Consequently, we would expect government departments to shift spending to other times of the year. For instance, we might expect that a UK overseas office in Australia (where the local fiscal year-ends in June) would have greater spending spikes in March than overseas offices in Canada (where Canadian government departments are spending at heightened levels in March). Indeed, we present simple extensions of these models to incorporate congestion effects in Appendix A and these model extensions confirm the intuition that suggests that congestion should decrease year-end spending as agents shift spending to other times of the year. On the other hand, embassies could be relatively insensitive to price in making intertemporal spending decisions and we would expect to observe increased year-end spending.

We present three key findings that are new to the literature. First, the impact of the home budgetary fiscal year is strong in comparison to the impact of the other government and firm fiscal years. This is a strong result that can be seen in all countries. Second, government spending is higher later in the fiscal year of local firms. Third, the size of year-end spending is larger for overseas offices operating in countries which share the home's end of the fiscal year in March. This suggests that the latter channel discussed in the previous paragraph is dominant over the former with crowding out from heightened spending of many government agencies exacerbating the size of year-end spending.

Finally, our results have two main policy implications that could deter year-end spending. First, our findings suggest that measures to prevent year-end spending in one department could indirectly decrease year-end spending in another. Second, year-end spending could potentially be reduced if the fiscal years of different departments were unaligned. One way this unalignment could be achieved is by assigning departments different fiscal years so that only a small fraction has their year-end in any given month.

Acknowledgment

We thank Evi Pappa and the anonymous referees for their constructive and helpful comments that greatly improved this paper.

Appendix A. Crowding out model

This appendix extends previous models of Liebman and Mahoney (2017) and Baumann (2019) to explore their implications for how crowding out of suppliers can affect year-end spending spikes. To our knowledge, there is no other model to explain year-end spending in the literature.[33] A model for year-end spending spikes requires two features. The first is an incentive for government

[33] Whilst Eichenauer (2020) has provided a behavioural explanation that government departments are unable to effectively plan ahead, the author solely took an empirical approach.

departments to underspend in the early months of the year and hence build up a large amount of unspent funds. The second is an incentive for them to spend this money at the fiscal year's end rather than saving it.

The first model in the literature is that of Liebman and Mahoney (2017) who proposed a precautionary savings mechanism. In this model, government departments have a concave utility function that is subject to a stochastic production shock in each month. In addition, government departments cannot save unspent funds between fiscal years. In this setting, it is rational for a government department to build up a precautionary savings fund in the early months of the fiscal year so they can spend more when they receive beneficial production shocks. At the end of the year, it is rational for them to spend any unspent funds rather than let them expire.

The second model in the literature is that of Baumann (2019) who proposed a procrastination mechanism. In this model, government departments get an immediate disutility from spending funds due to the effort required. They additionally get positive utility from spending funds as this improves how their performance is assessed. This positive utility is discounted until the end of the fiscal year when performance and financial reporting is done. In this setting, it is rational for a department to delay the effort in spending funds until later in the fiscal year.

For the purposes of our paper, we seek to determine how the congestion effects (such as price increases and supplier unavailability caused by the heightened spending of other departments) in the final month of the fiscal year affect the size of spending spikes. The two aforementioned models include a representative government department but they do not consider the impact that one department may have on another. As a result, we make some modifications to each model to determine the implications of precautionary savings and procrastination for our research question.

A.1. Precautionary savings

We develop the simplest and most parsimonious model extensions that allow us to explore congestion effects. As a starting point, we separate department spending into having a quantity and a price component rather than the total spending figure which entered the utility functions in previous papers. All governments buy a single representative good where the price is set by general equilibrium. The utility is an increasing function of the quantity bought. There is a unit measure of departments and hence prices are exogenous of the decisions of a single government department. Specifically in the case of precautionary savings the departments face a consumption smoothing problem:

$$V_m(b_m) = \max_{x_m \leq \frac{b_m}{p_m}} \epsilon_m x_m^{1-\gamma} + \beta E\left[V_{m'}(\text{next budget}_{m'}(b_m, x_m))\right] \tag{2}$$

$$\text{subject to: next budget}_{m'}(b_m, x_m) = b_m - x_m p_m \quad \text{for} \quad m < 12$$

$$\text{next budget}_{m'}(b_m, x_m) = B_0 \quad \text{for} \quad m = 12$$

where $\epsilon_m \sim \text{LogNormal}(0, \sigma)$ and draws are i.i.d. every month. p_m is the price level in month m and x_m is the number of goods bought. m' is the next month in the fiscal year.[34]

We additionally need to specify how prices respond to aggregate demand. Therefore we assume that supplying firms are in perfect competition and that there is increasing marginal cost. We choose the following form for the market marginal cost function:[35]

$$\text{MC}(Q) = Q^{\theta} + 1 \tag{3}$$

where $\theta > 0$ is a parameter reflecting how sharply cost reacts to increases in demanded quantity. Given the competitive environment, the market price will be equal to the marginal cost. Therefore Eq. (3) gives prices as a function of the quantity of demand in each month.

Given Eqs. (2) and (3), we numerically solve the model by first assuming a price vector and then solving for the value functions of the representative department. We rely on this price vector and associated value functions to then simulate the spending of government departments and determine what prices should be given the spending profiles of government departments. We use this as an updated price vector and repeat these steps until we converge to a fixed point price vector.

We then compare the spending profiles generated with an endogenous price vector with the spending profile we get by imposing even prices in each month of the fiscal year. In this way, we infer the implications of each mechanism for congestion effects between departments.

A.2. Procrastination

The procrastination model has identical assumptions as the precautionary savings except it relies on a different departmental utility function. Specifically, departments face a consumption smoothing problem of:

$$V_m(b_m) = \max_{x_m \leq \frac{b_m}{p_m}} x_m^{\nabla} D(m, 12) - \Omega x_m + D(m, m') E\left[V_{m'}(\text{next budget}_{m'}(b_m, x_m))\right] \tag{4}$$

[34] Note that while the UK does allow rollover of funds between fiscal years with some restrictions, the precautionary savings mechanism cannot explain end of year spending with an assumption rollover. As a result, we calibrate the model assuming no rollover.

[35] We use this market marginal cost function for parsimony and simplicity. We could alternatively assume each firm has a cost function of $c(q) = \frac{(Nq)^{\theta+1}}{N(\theta+1)} + q$ where q is one firm's demand and there are N firms. This implies the market marginal cost function in Eq. (3).

$$\text{subject to: next budget}_{m'}(b_m, x_m) = b_m - x_m p_m \quad \text{for} \quad m < 12$$
$$\text{next budget}_{m'}(b_m, x_m) = B_0 \quad \text{for} \quad m = 12$$

where ∇ and Ω are parameters that represent the concavity of periodic utility and the disutility of effort respectively. $D(a, b)$ is a discounting between time a and time b. While the procrastination model implies increasing spending throughout the year if exponential discounting is imposed (so $D(a, b) = \beta^{b-a}$), a better fit with observed spending data is possible if quasi-hyperbolic discounting (Laibson, 1997) is used such that $D(a, b) = k\beta^{b-a}$ where k is a constant whenever $b > a$. For parsimony, we do not include a shock process in this case in calibration (although it is generally possible to achieve a reasonable model fit by calibrating ∇, Ω and θ while imposing a shock process).

A.3. Parameterisation

To parameterise the model we calibrate it to hit two moments. The first is that the final month's spending ratio – the ratio of last month's spending to the average month's spending – should be 2.0. The second is that prices in the last month are 2% higher than average prices within the year. These calibration targets are designed to achieve a reasonable fit of the models to reality however it is notable that there is a wide range of price ratios and price increases that have been found in the literature. Liebman and Mahoney (2017) found a spending ratio of 2.18 in US federal government spending while Baumann (2019) found a spending ratio of 3.06 for capital expenditure in Northern Ireland. Klymak and Baumann (2022) detected a price increase of between 1% and 7%.

For the precautionary savings model, we calibrate γ, σ, θ. We impose 5% annual discounting so that $\beta = 0.996$. We get $\gamma = 0.54$, $\sigma = 1.6$ and $\theta = 0.996$.

For the procrastination model, we calibrate two versions. The first uses exponential discounting and can replicate increasing spending throughout the year although it cannot replicate the shape increase in the last month of the year. The second uses the behavioural assumption of hyperbolic discounting (Laibson, 1997) and can better match the pattern seen in the data. For the exponential discounting version we calibrate ∇, Ω, θ. For parsimony, we impose $\sigma = 0$. We impose 5% annual discounting so that $\beta = 0.996$. We obtain $\nabla = 0.980$, $\Omega = 0.923$, $\theta = 0.986$. For the exponential discounting version we calibrate ∇, Ω, θ. For parsimony, we impose $\sigma = 0$. We impose 5% annual discounting with that $\beta = 0.998$ and $k = 0.975$. We obtain $\nabla = 0.961$, $\Omega = 0.984$, $\theta = 0.984$.

We simulate spending using the calibrated models to demonstrate the implications of these models for the impact of crowding out on the size of spending spikes. The results of these simulations are summarised in Fig. A.1. These simulations were done twice. In the first case we simulate the models with prices in each month being endogenous and determined by Eq. (3). In the second, "exogenous prices", case we impose the same prices in every month of the fiscal year.[36] We can compare the results of these two sets of simulations to determine the implications of each model for the impact of crowding out on the size of year-end spending spikes.

Fig. A.1(b) shows that quantity demanded is lower in the last month of the fiscal year when prices are endogenous. This is a clearcut result and in line with departments buying less of the representative good as its price increases. Fig. A.1(c) demonstrates that total spending at year-end is also lower when prices are endogenous.[37] These findings are observed in all three models and indicate that the effect of a demand reduction (in response to higher prices) outweighs the effect of the price increase so that total expenditure is reduced.

Our findings demonstrate that spending at the end of the fiscal year is higher in the case where prices do not increase due to higher demand. These findings imply that congestion effects at year-end should lower the size of year-end spending spikes as forward looking agents move spending to less congested times of the year. Our empirical results do not support this implication which may suggest government departments are less price sensitive than has been implied in these models. One way to achieve this in these models is to assume that the utility of government departments is a function of spending rather than the quantity of the representative good.

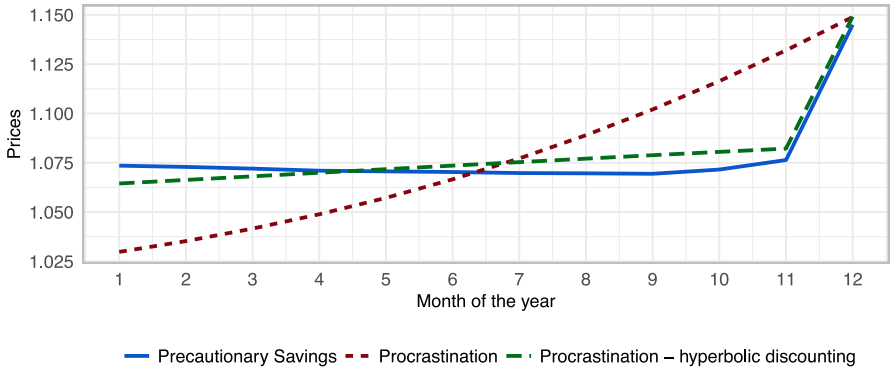
A.4. Regressions on simulated data

To examine how well the empirical results of our paper correspond to the implications of these calibrated models, we repeated the first specification from Table 1 using data simulated from each of the three calibrated models. We used the following steps to generate simulation data in a way that is comparable to our real world data:

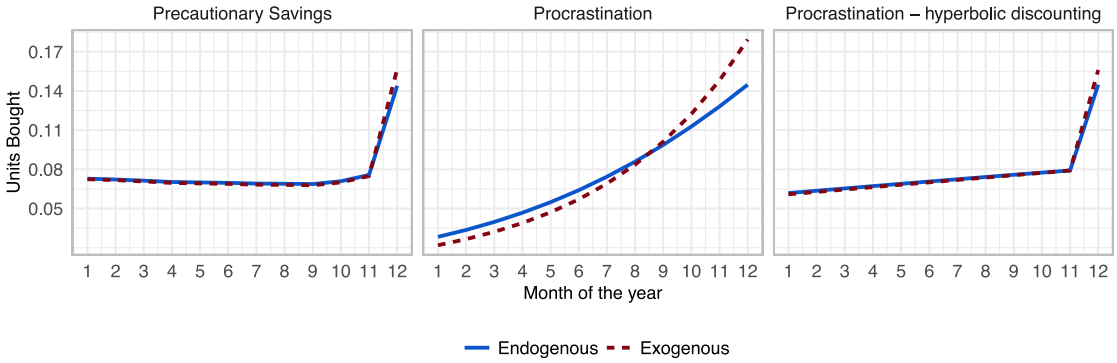
1. We start by calculating the equilibrium prices in each month of the fiscal year. To achieve this we use the fixed point method described previously.
2. We assume that every country has the same equilibrium price vector buy shifted so that the price is highest at the end of the local fiscal year.

[36] To ensure that each set of simulations have prices of similar scale the endogenous price simulations were first done and then the average prices (over the entire fiscal year) were then used in the exogenous price case.

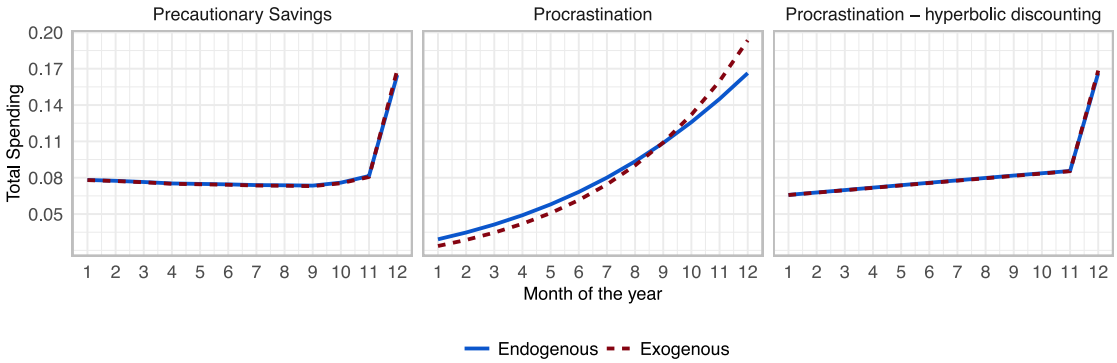
[37] In the case of the precautionary savings model and procrastination it might be difficult to see that hyperbolic discounting models as the two spending profiles largely overlap each other. In the three cases of precautionary savings, procrastination and procrastination (hyperbolic discounting) we find expenditure in the exogenous cases is respectively 2.4%, 16.2% and 1.2% higher relative to the endogenous case.



(a) Prices over the fiscal year for calibrated procrastination models



(b) The quantity of goods bought per month over the fiscal year for calibrated procrastination models



(c) Spending over the fiscal year for calibrated procrastination models

Fig. A.1. Simulation results for calibrated models of year-end spending.
Note: In all of these plots the horizontal axis is the month of the year with month 12 being the final month. Subfigure (a) shows the average market prices for each month and each of the three calibrated models. Subfigure (b) shows the average quantity of the representative good that is demanded each month. This is done in two cases, the first when prices respond to demand (the "endogenous" case) and on average prices increase throughout the year as shown in subfigure (a). In the second case, prices do not respond to demand (the "exogenous" case) and prices are constant throughout the year. By contrasting these two cases we can see each model's implications for how crowding out impacts year-end spending behaviour. Finally in subfigure (c) we see the average total expenditure (price times quantity demanded) in each month of the fiscal year.

Table A.1
Regressions on simulated data.

	Precautionary savings	Procrastination	Procrastination hyperbolic
	Spending Z (1)	Spending Z (2)	Spending Z (3)
Panel A: Resource Budget			
Home FY End	0.605	3.106	3.899
	(0.02697075)		
LFY End × Home FY End	−0.000862	0.279	0.0325
	(0.0725)		
LFY End	−0.0314	−0.416	−0.032
	(0.0313)		
Observations	40,296	40,296	40,296
R^2	0.030	0.978	0.999
Month FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Note: The coefficients in this table were estimated based on data simulated in the method discussed in Appendix A.4. As the procrastination model was calibrated without a shock process every year of simulated data has the same spending values as other years. As a result bootstrapped coefficient standard errors are nearly zero in these cases (the only source of variation is the shifting equilibrium price vector) and we have chosen not to report them.

3. We then note that for the regression in column one of Table 1 we have 567, 254, 233, 2304 office-years where the local fiscal year ends in March, June, September, December respectively.[38] In the model the fiscal year ends in month 12. Making the connection that month 12 in the model lines up with March as the home country year-end in our real data, we can simulate 567 years worth of data for the case when the local fiscal year ends in March using the unchanged price vector.
4. We simulate 254 years of data for when the local fiscal year ends in June/ September/ December by rotating the price vector so that the price peaks 3/6/9 months after the end of the home fiscal year in months 3/6/9.
5. For all simulated years of data we calculate Spending Binary in the same way as described in Section 2.1.
6. We then create month dummies as well as the dummy variables: Home FY End; LFY End; LFY End × Home FY End. As the data is simulated with a representative office, we use year fixed effects rather than office-year fixed effects.
7. We perform a regression and record the coefficients.

We repeat the above procedure 50 times and record 50 different sets of coefficients. We then calculate the mean and standard deviation of coefficients and present them in Table A.1. We additionally record the sample size and the average R^2 (calculated between these 50 regressions). Note that one limitation is that for simplicity we calibrated the procrastination model in the case where there are no production shocks. The absence of any randomness means that every simulated year spending is exactly the same as it is in the corresponding month of any other simulated year. This means that all coefficients are the same and our bootstrapped standard errors are zero. As a result, we do not report standard errors for the procrastination models.

The R^2 is close to one in the procrastination cases which is a result of the lack of any randomness in this model.[39] On the other hand, the R^2 for the precautionary savings model is far below the R^2 found in Table 1 which is a result of this model needing a high variance shock process for the increase in spending in the final month to match the magnitude seen in the data.[40]

Appendix B. Data sources

Our primary data source for this analysis was the spending of the United Kingdom's foreign office's embassies, high commissions, consulates, missions and other offices. To determine governmental fiscal year dates we performed a number of searches for each country. Finally, we also obtained major large cap stock market indices for each country. Then for each constituent we found out their fiscal year-end month from the Bloomberg terminal (using *EQY_FISCAL_YR_END* field name). These stock market indices are included in Table B.1.

Appendix C. Spending map for capital and resource expenditure

See Fig. C.1.
See Table C.1.

[38] These figures are considering the resource expenditure case. Note that as the models treat resource and capital expenditure symmetrically we do not separately consider the two for the purposes of running regressions on simulated data.

[39] The original paper on the procrastination model (Baumann, 2019) calibrated the ∇, Ω parameters as well as the variance of a shock process so that the variance of the spending data matched the variance of simulated spending. This was not done in this paper to avoid needing to do a four dimensional optimisation (as we additionally needed to calibrate θ).

[40] This point is discussed further in Baumann (2019, pg 724).

Table B.1
Stock market indices.

Bloomberg Index Ticker	Country
MERVAL	Argentina
AS51	Australia
ATX	Austria
BEL20	Belgium
IBOV	Brazil
SPTSX	Canada
IGPA	Chile
SHSZ300	China
PX	Czechia
OMXC25	Denmark
EGX30	Egypt
TALSE	Estonia
HEL25	Finland
CAC	France
DAX	Germany
HSI	Hong Kong
BUX	Hungary
ICEXI	Iceland
NIFTY	India
JCI	Indonesia
ISEQ	Ireland
TA-35	Israel
NKY	Japan
JOSMGNFF	Jordan
MEXBOL	Mexico
AMX	Netherlands
NZSE50FG	New Zealand
NSEASI	Nigeria
OBX	Norway
KSE100	Pakistan
PCOMP	Philippines
WIG20	Poland
PSI20	Portugal
SASEIDX	Saudi Arabia
STI	Singapore
TOP40	South Africa
IBEX	Spain
OMX	Sweden
TWSE	Taiwan
SET	Thailand
XU100	Türkiye
DFMGI	United Arab Emirates
SPX	United States
VNINDEX	Vietnam

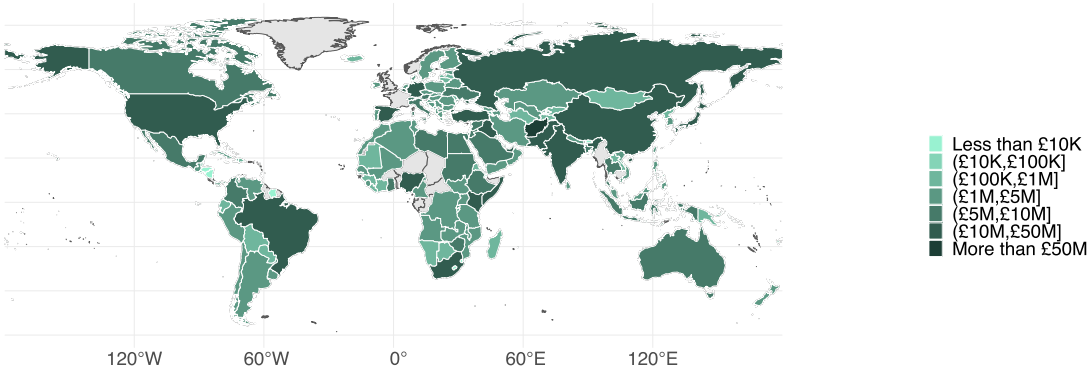
Note: The table shows the list of stock market indices we use to create the local firm fiscal years. We choose a relatively broad stock market index for each country. In countries where there are multiple prominent indices (e.g. the USA has SPX, RUA and others) a larger cap index was chosen (e.g. SPX rather than RUA for the USA).

Appendix D. How fiscal years are chosen

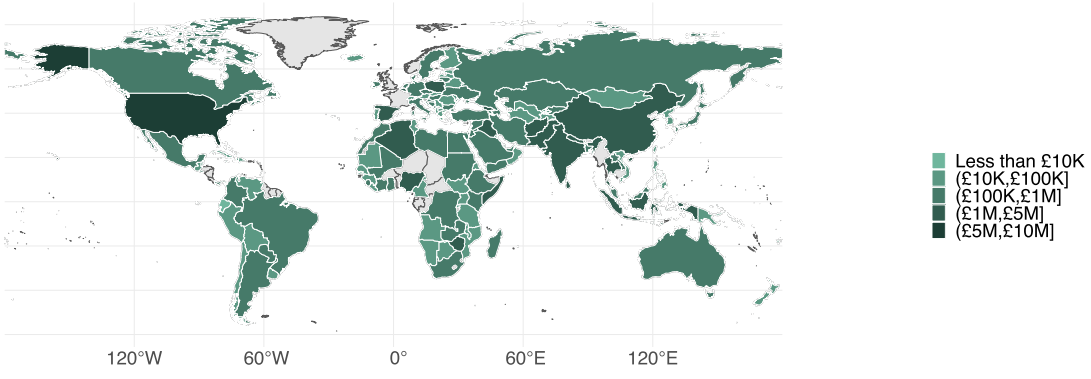
Governmental and company fiscal years do not necessarily overlap as organisations often have the freedom to choose their fiscal year period. Government fiscal years are set for historical, climate, religious and political reasons that do not necessarily overlap with the reasons that firms may choose their own fiscal years. For instance, the fiscal year in Iran and Afghanistan starts on March 21 for religious reasons. According to the International Monetary Fund (2016) in Mongolia public projects can only be undertaken in four months of the year when the soil temperature is above freezing. The timing of the fiscal year is arranged so that there is sufficient funding available at that time.

Firm fiscal years are set for reasons that can be quite different. For example, agricultural firms tend to have the highest sales after the harvest season and may prefer to have the fiscal year-end just after this time. Firms may also choose fiscal years that align with their peers to allow analysts to more effectively cover their relative performance (Price Waterhouse Coopers, 2023). Seasonal firms may also choose for their fiscal year-end to be in a quieter time of the year (as typically a large amount of accounting needs to be done at year-end).

Similarly, many retail businesses tend to earn the most revenue in the last quarter of the year and may therefore prefer to choose the fiscal year that reflects their revenue patterns the best. In addition, governments and firms can have different financial reporting requirements and fiscal goals which can further drive the discrepancy.



(a) Average annual expenditure of the resource budget



(b) Average annual expenditure of the capital budget

Fig. C.1. Overseas offices expenditure by budget types.
Note: The figure illustrates the average annual spending for overseas offices at a country level. The top panel shows the average annual resource expenditure while the bottom panel shows the average annual capital expenditure. These averages are calculated for the 2008–2018 period. Note that while our data is at the level of an individual overseas office, they have been aggregated to a country level for the purposes of these plots.

This divergence can be seen in Fig. D.1 particularly for countries where the fiscal year is not the calendar year with Japan, Australia and Trinidad and Tobago being notable exceptions.

Appendix E. Resource and capital expenditure rules

The UK's Consolidated budgetary guidance documents describe what types of expenditure can be undertaken by overseas offices under resource or capital designated budgets. The resource budget aims to capture current spending. Specifically, it is used for regular expenses such as salaries, current procurement, grants and subsidies, tangible (e.g. land) and intangible fixed assets (e.g. software), as well as current assets (e.g. inventory). The resource spending can have both an immediate effect on the embassy's fiscal position (e.g. salaries) and the embassy's future position (e.g. impairments and provisions) (Treasury, 2023).

The main elements of the capital budget include expenditure on fixed assets, inventories and certain financial transactions (for instance long-term debt). In terms of determining if an expenditure item should be included as resource or capital expenditure the guidance states *"departments should consistently follow agreed accounting policies when deciding what costs of a project should be capitalised. In most cases, this should be uncontroversial but there are a few categories of expenditure, such as some consultancy costs, that could be either capital or resource, and departments should approach this carefully (Treasury, 2023, section 6.3)"*.

There are specific circumstances in which the resource and capital budgets can interact. As one example the procurement of inventories is generally always done as part of the capital budget. When these inventories are used then the resource budget effectively buys these items from the capital budget (and the capital budget is allowed to retain this "income") (Treasury, 2023,

Table C.1
Descriptive statistics.

Variable	Group	All months except March and local year-end	Local year-end	Home year-end	N
(1)	(2)	(3)	(4)	(5)	(6)
Budget	Capital	24,025.01	37,297.19	100,657.70	24,134
Budget	Resource	206,608.30	331,434.90	445,978.60	40,863
Commonwealth	Yes	118,868.10	197,222.60	303,307.70	16,342
Commonwealth	No	145,526.60	230,366.40	322,516.50	48,655
Distance from the UK	High	138,961.60	253,227.70	332,346.50	30,253
Distance from the UK	Low	145,530.20	202,711.40	318,796.70	32,299
GDP	High	134,176.90	202,175.90	285,327.80	29,690
GDP	Low	154,747.50	256,155.00	363,447.20	29,829
Inflation	High	138,637.10	196,252.80	333,805.20	21,905
Inflation	Low	150,332.00	229,386.70	309,642.80	21,908
UK fiscal year	2008	97,828.70	158,400.40	255,141.30	6025
UK fiscal year	2009	110,140.20	145,515.60	275,831.90	5994
UK fiscal year	2010	117,864.50	167,016.50	240,797.50	5917
UK fiscal year	2011	122,258.70	159,080.40	265,875.30	6035
UK fiscal year	2012	132,271.50	196,244.90	293,187.00	5824
UK fiscal year	2013	128,198.30	201,171.60	298,152.50	6216
UK fiscal year	2014	126,663.60	177,068.70	306,214.60	6136
UK fiscal year	2015	155,112.20	210,975.90	338,496.70	5613
UK fiscal year	2016	147,433.40	427,040.70	352,542.40	5673
UK fiscal year	2017	189,306.70	281,557.00	373,044.10	5794
UK fiscal year	2018	206,085.40	339,353.90	508,901.50	5770

Note: This table describes the average spending (in GBP) for one overseas office in one month by budget, level of GDP per capita, distance from the UK, inflation and each fiscal year. For instance it can be seen that the average overseas office spend £24013.10 from their capital budgets in months that are not the local or home end of fiscal year. The budget is separated by type. GDP per capita, distance and inflation are divided into two groups depending on whether each variable is below or above the median value in our dataset. Column (3) presents expenditure for all months excluding March (i.e. the UK fiscal year-end) and the end of the local fiscal year, whilst column (4) shows spending in the last month of the local fiscal year. Column (5) describes expenditure for the UK fiscal year-end and the last column (6) reports the number of observations.

section 7.2). As another example when a fixed asset is sold then the book value of the asset will flow into the capital budget while the difference between the sale price and the book value goes into the resource budget.

Embassies could also earn income from selling goods and providing services. In some circumstances, the department can retain this income typically as part of the resource budget (Treasury, 2023, section 4.26).

Appendix F. Interpretation of regression coefficients using spending Z

All our regressions use either Spending Z or Spending Binary in place of actual spending figures. This was done primarily so that each overseas office's spending figures are comparable even when their absolute spending amounts can differ by a large degree.

It does complicate the interpretation of coefficients, however. If we define the "spending ratio" as the ratio between last month and average month spending then a naive interpretation of Table 1 would suggest that the spending ratio is larger for resource expenditure than for capital expenditure while the aggregate spending pattern of Fig. F.1 shows that this is not the case.

The reason behind this is that a larger spending ratio does not necessarily translate to a greater magnitude Spending Z as it also increases the standard deviation of spending which offsets the magnitude increase. Resource spending tends to have a small standard deviation of spending while capital spending has a larger standard deviation. This is because a large portion of resource expenditure has to be spent at specified times that a budget manager cannot alter. Rent and salaries for instance cannot be paid at times other than when the rental/employment contracts specify. On the other hand capital expenditure is easier to move around the year. If computers are not replaced this month they can usually be replaced next month without the overseas office enduring a large inconvenience (assuming the computers to be replaced are still working).

To illustrate the relationship between the spending ratio and Spending Z in the last month of the year, assume that budget managers have some an annual budget of 1. Each month they spend this we can assume that budget managers must spend $\frac{\alpha}{12}$ where $\alpha < 1$. This is non-discretionary spending. This leaves the amount $1-\alpha$ which is discretionary spending. They spend this in the same pattern as the smoothed capital expenditure line from Fig. F.1 but with the amounts normalised so total spending over the year is $1-\alpha$. We will not try to determine the optimality of budget managers spending in this way but we can use these simple assumptions on spending to relate the proportion of discretionary spending to the standard deviation of the resultant total spending figures.

We present results for different values of α in Table F.1, where the second column shows the final month spending divided by the monthly mean spending. Comparing this to Fig. F.1, it can be seen that if $\alpha = 0.6$ the March spending ratio is approximately equal to what we can see for resource spending. It is also notable that Spending Z does not change. In doing the standardisation any spending that is constant for all months does not contribute to the standard deviation and is subtracted away as part of the monthly mean.

For the purposes of our analysis this is a useful feature as it allows us to focus on spending that changes through the year which is the goal of this paper. It does however mean that it is not possible to relate coefficients predicting Spending Z back to

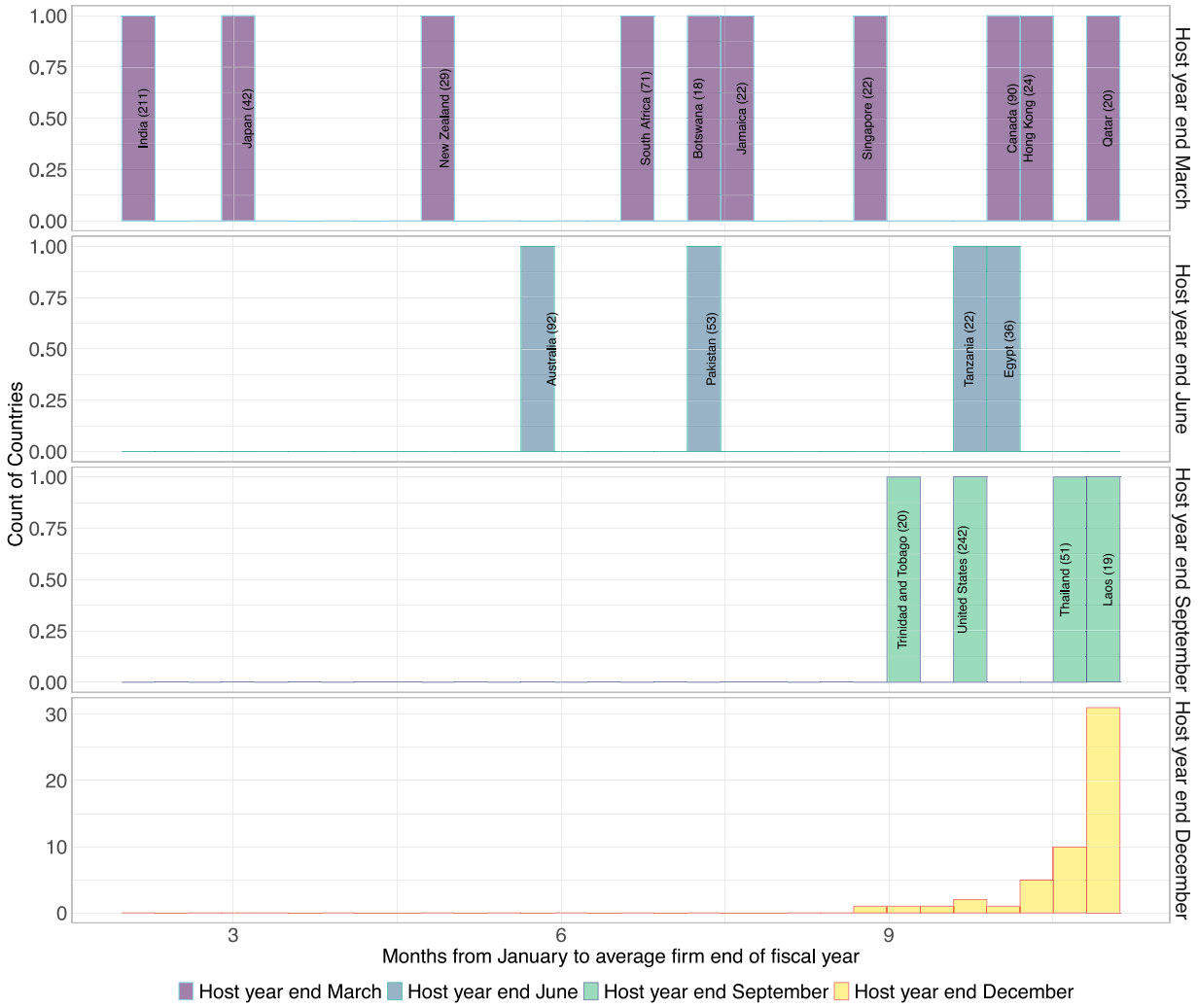


Fig. D.1. Histogram showing the relationship between governmental and firm fiscal years.
Note: The figure above splits our sample into four buckets depending on when the local governmental fiscal year is closest to March, June, September, December. For each we then plotted a histogram of the average length of time between January and the end of the fiscal year for a firm in that country. Note that this table only includes countries where we have a stock market index (those countries in Table B.1). We can see that relatively few countries in this subsample have fiscal years that do not end in march, the names of these countries are affixed as labels to the histogram. In addition next to the names of these countries, we indicate the number of office-budget-years in our dataset. It can be seen that in countries where the fiscal year ends in December, most but not all firms have fiscal years ending near December. In other countries, the firm fiscal year has no clear relation to the country's national fiscal year.

Table F.1
Raw and Z Scored Spending.

alpha	$\frac{\text{March Spending}}{\text{Monthly Mean}}$	Monthly Mean	Standard Deviation	March Spending Z
0	2.92	0.083	0.055	2.927
0.1	2.728	0.083	0.049	2.927
0.2	2.536	0.083	0.044	2.927
0.3	2.344	0.083	0.038	2.927
0.4	2.152	0.083	0.033	2.927
0.5	1.96	0.083	0.027	2.927
0.6	1.768	0.083	0.022	2.927
0.7	1.576	0.083	0.016	2.927
0.8	1.384	0.083	0.011	2.927
0.9	1.192	0.083	0.005	2.927

Note: This data was generated using the method described in Appendix F. Notably, Spending Z for the last month of the year does not change as the proportion of flat spending, spending that does not change month to month, increases.

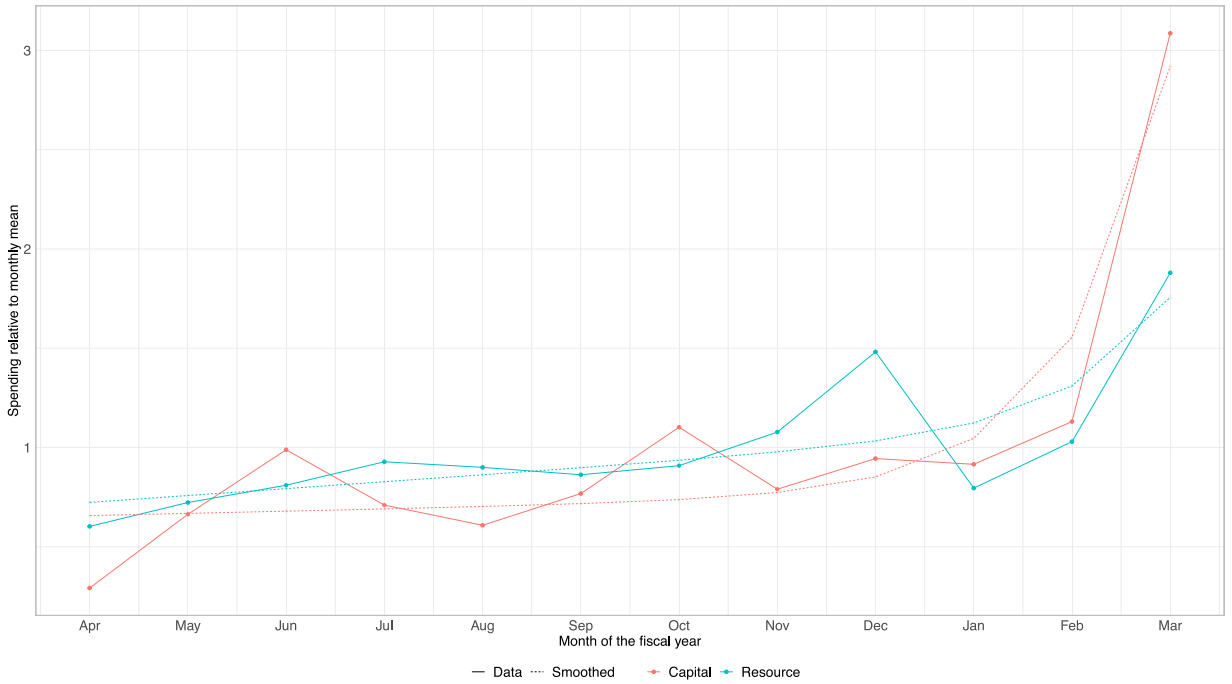


Fig. F.1. Monthly total spending compared to monthly mean.
Note: To create this chart we first calculate total spending taking place in each month (over all embassies and years in our dataset and without any rescaling being performed). We then average these 12 numbers for both resource and capital spending separately. We then divide the 12 monthly spending figures by the corresponding annual average to get the values on the vertical axis. The highest value is for capital expenditure in March which is 3.09. This indicates that together over the sample period, overseas offices spend 3.09 times more on capital goods than they do in the average month. The two smoothed lines were calculated by fitting the regression Spending moment $= \beta_0 + \beta_1(\text{month}) + \beta_2 \exp(\text{month})$ where month is 1 in April and 12 in March.

the implied total spending ratios without further information. As a result, we have taken a selection of overseas-office budget years and presented them below in Table F.2. To illustrate how to interpret this we can note that from the first regression of Table 1 the coefficient for Home FY End is 1.388 for Resource spending. In the case of Ottawa, mean spending was £253 062 while this coefficient suggests that March spending is higher at £253 062 + 1.388(£293 485) = £660 419.18. Comparing this March spending figure to mean spending suggests a spending ratio of 2.61.

The coefficient for LFY End × Home FY End for resource spending is 0.299 while the LFY End coefficient is −0.044. Once these are taken into account (note that the Canadian fiscal year ends in March like the UK fiscal year) predicted March spending is £253 062 + (1.388+0.299-0.044)(£293 485) = £735 258 which suggests a spending ratio of 2.91.

We repeat this calculation for every overseas office, each year and each budget. To simplify the presentation of results we add the regression implied mean and March spending from each overseas office so we have one value for each year and each budget. We present our findings in Table F.3.[41] This table suggests that in general the local fiscal year ending in March adds on average 0.26 to the year-end spending ratio.

Appendix G. Robustness

G.1. Placebo and Jacknife tests

We do a number of bootstrap, jackknife and placebo tests to ensure the robustness of our findings. These are presented in Figs. G.2–G.4. For all of the tests we use the same specification as in the first column of Table 1 with the exception of the tests on the $FirmsLFYEnd$ variable which use the specification of the third column of Table 1.

In each case, we present the distribution of selected coefficients produced by a certain change to the dataset. For the bootstrap panels, this change is a sampling with the replacement of observations from the dataset. In all cases, we observe the centre of the distribution around the coefficient values presented in Table 1, with the spread of the distribution reflecting the standard errors.

[41] One point to note is that there is higher spending ratio in 2009 relative to other years. This is a result of higher variability in monthly spending figures in this year. The use of the z transform removes the higher variability at the regression stage but the impact returns once we use these standard deviations to calculate spending ratios.

Table F.2
Mean and standard deviations used in z-scoring for selected overseas offices in 2016.

City	Country	Fiscal Year	Resource (mean)	Resource (std)	Capital (mean)	Capital (std)
Canberra	Australia	1 July–30 June	410,775	341,245	2785	9243
Ottawa	Canada	1 April–31 March	253,062	293,485	2841	6759
Santiago	Chile	Calendar year	141,772	126,456	1269	2521
Banjul	The Gambia	Calendar year	76,951	21,018	2214	7668
New Delhi	India	1 April–31 March	1567,219	734,689	11,565	23,658
Vientiane	Laos	1 October–30 September	129,471	54,209	3974	62,220
Dar Es Salaam	Tanzania	1 July–30 June	711,686	1,338,183	4034	8909
Montevideo	Uruguay	Calendar year	129,862	57,009	2163	7492
Washington	United States	1 October–30 September	1,842,810	612,522	29,083	60,092

Note: The above are the means and standard deviations (std) used in z-scoring for a sample of the overseas offices in the dataset. These are for the year of 2016. The offices here were chosen to be geographically diverse, diverse in terms of income of the host country and also represent different fiscal year-ends.

Table F.3
Implied change in year-end spending ratio.

Fiscal Year	Resource			Capital		
	Spending ratio	Spending ratio (March local year-end)	Difference	Spending ratio	Spending ratio (March local year-end)	Difference
2008	2.06	2.25	0.19	2.76	2.66	−0.1
2009	4.8	5.5	0.7	3.13	3.02	−0.12
2010	2.95	3.31	0.36	2.98	2.87	−0.11
2011	2.05	2.25	0.19	3.23	3.11	−0.12
2012	1.64	1.75	0.12	2.13	2.07	−0.06
2013	2.81	3.14	0.33	3.95	3.78	−0.16
2014	1.88	2.04	0.16	3.01	2.9	−0.11
2015	2.26	2.49	0.23	3.26	3.13	−0.12
2016	2.6	2.89	0.29	3.41	3.27	−0.13
2017	1.79	1.93	0.14	3.12	3	−0.12
2018	1.83	1.98	0.15	2.36	2.28	−0.08
			0.26			−0.11

Note: A spending ratio is taking only overseas offices located in countries with a March year-end. For each such office we calculate a spending ratio by dividing regression implied spending (using the Home FY End coefficient of the first regression model of Table 1) in March against the annual average monthly spending figures. In the "March local year-end" columns we additionally add the effect of the LFY End × Home FY End and LFY End coefficients. We add across overseas offices for each budget and year and this addition is done for both the numerator and denominator of the spending ratio before the division is calculated. The difference is calculated as a simple difference between columns 2, 3 and 5, 6 above and reflects the extent to which the local fiscal year ending in March changes the spending ratio for UK government departments. One point to note is that there is a higher spending ratio in 2009 relative to other years. This is a result of higher variability in monthly spending figures in this year. The use of the z transform removes the higher variability at the regression stage but the impact returns once we use these standard deviations to calculate spending ratios.

The panels immediately below the bootstrap results are for jackknifing. We present two jackknife findings. In the first case, we drop each country in turn from our dataset while estimating the coefficient based on the remaining countries. In the second jackknife, we drop each year in turn and estimate based on the remaining years. The results below show that the coefficients we estimate do not change much in any of the jackknife samples. This indicates that our results do not come from a single outlier country or year.

Finally in the bottom panels (for all except Fig. G.1)[42] we present a placebo test result which we undertake in two ways. First, we replace the end of the local host country fiscal years with a random month. Second, we also randomise the Firms LFY $\text{End}_{i,m}$ variable. This is done by adding a random number in the $[0, 1]$ range to this variable which in effect rotates the local firm fiscal year a number of months in the year. The results of these placebos report coefficients around zero which indicates that our specification does not deliver significant coefficients on randomised data.

G.2. Alternative regressors of interest and clustering

In the paper's main body, we demonstrated that our results are generally robust to two different dependent variables. We additionally show that our findings are robust to alternative variables defining the ends of fiscal years and clustering of standard errors.

[42] No placebo was done in this case as the UK fiscal year effect affects all observations in our dataset. The possible placebo techniques would be to randomise the UK fiscal year variable in a way that is not internally consistent, pretend that a different month was the end of the fiscal year, or shuffle the monthly spending figures. Whilst the results from these all deliver coefficients centred around 0, this is not surprising given how heavyhanded these randomisations were. As a result, we decided not to report them.

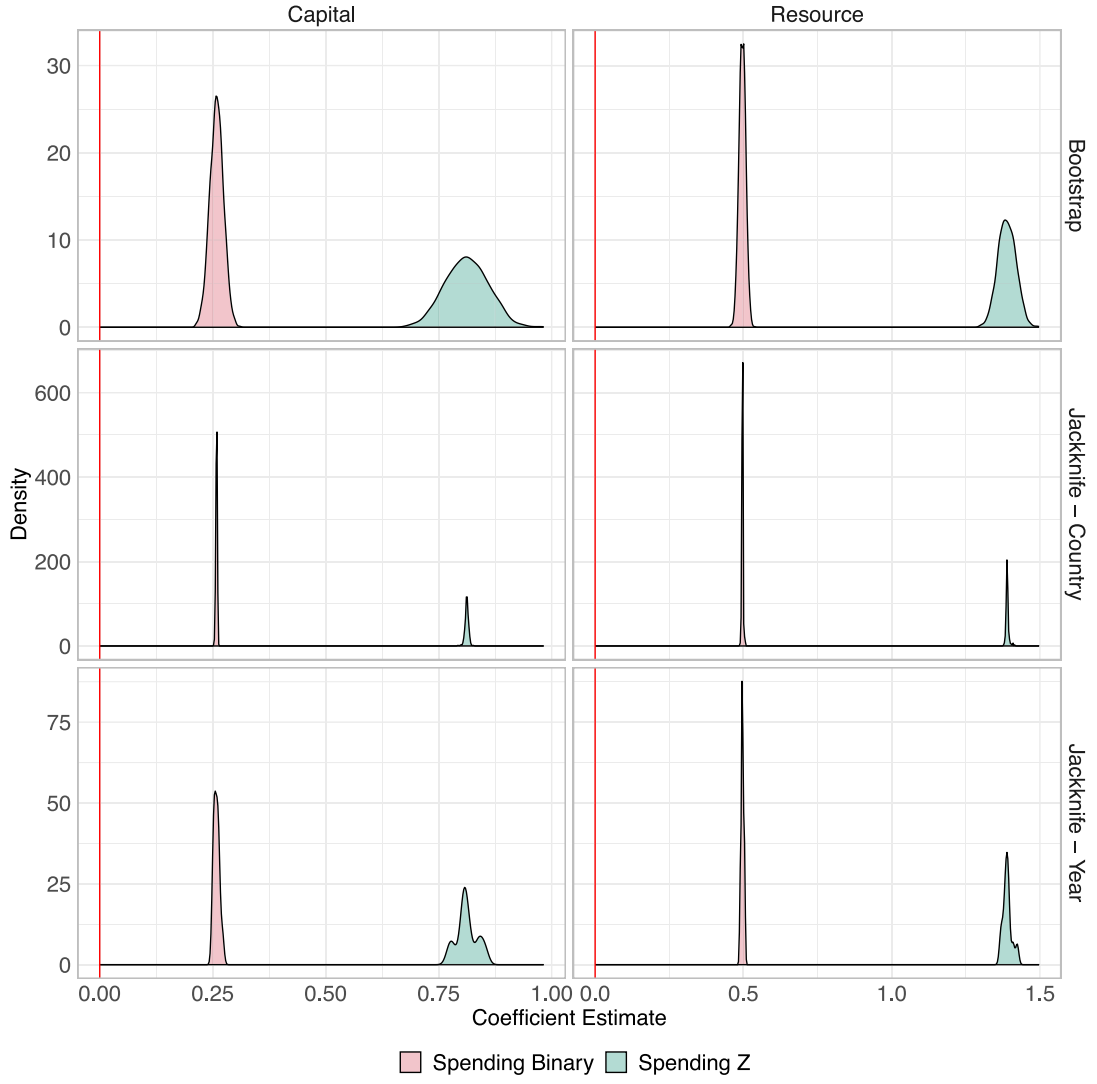


Fig. G.1. Robustness of the home fiscal year-end.
Note: The figure illustrates the findings of several robustness tests of the home fiscal year-end *Home FY End* for capital (on the left) and resource (on the right) budgets. The top panel presents bootstrap results, while the next two panels report the jackknife tests outcome for countries and years.

Our first robustness check relies on specification where we separate each local fiscal year-end. Specifically, we have a different variable for each end of the local fiscal year depending on whether it happens in March, June, September or December. In the case of December the *LFY End March* dummy variable is one for observations taking place in March and where the overseas office is located in a country where the fiscal year ends in March.[43] The other dummy variables are analogously encoded. We exhibit our results in Table G.1. The overlapping fiscal year-end (i.e. *LFY End March*) result for the resource budget remains robust. Within the same budget, we find negative effects for June and September. The findings for December year-end coefficients suggest no effect on the resource budget and negative spending for the capital budget.

For our second robustness check, we take the logarithm of the variable representing the local firm fiscal year ends which we call *Log Firms LFY End*.[44] We present our findings in Table G.2. In line with our benchmark results, there is higher spending at the local firms' year-end for the capital budget and no statistically significant effect for the resource budget. Home and overlapping local year-end coefficients remained statistically significant.

[43] So *LFY End March* will be 1 in March for an overseas office in Canada but not for an overseas office in Australia. In this way, we can identify the coefficient for *LFY End March* separately from the coefficient for *Home FY End*.

[44] We take logarithm while adding one (i.e $\log(FirmsLFYEnd_{i,m}+1)$.

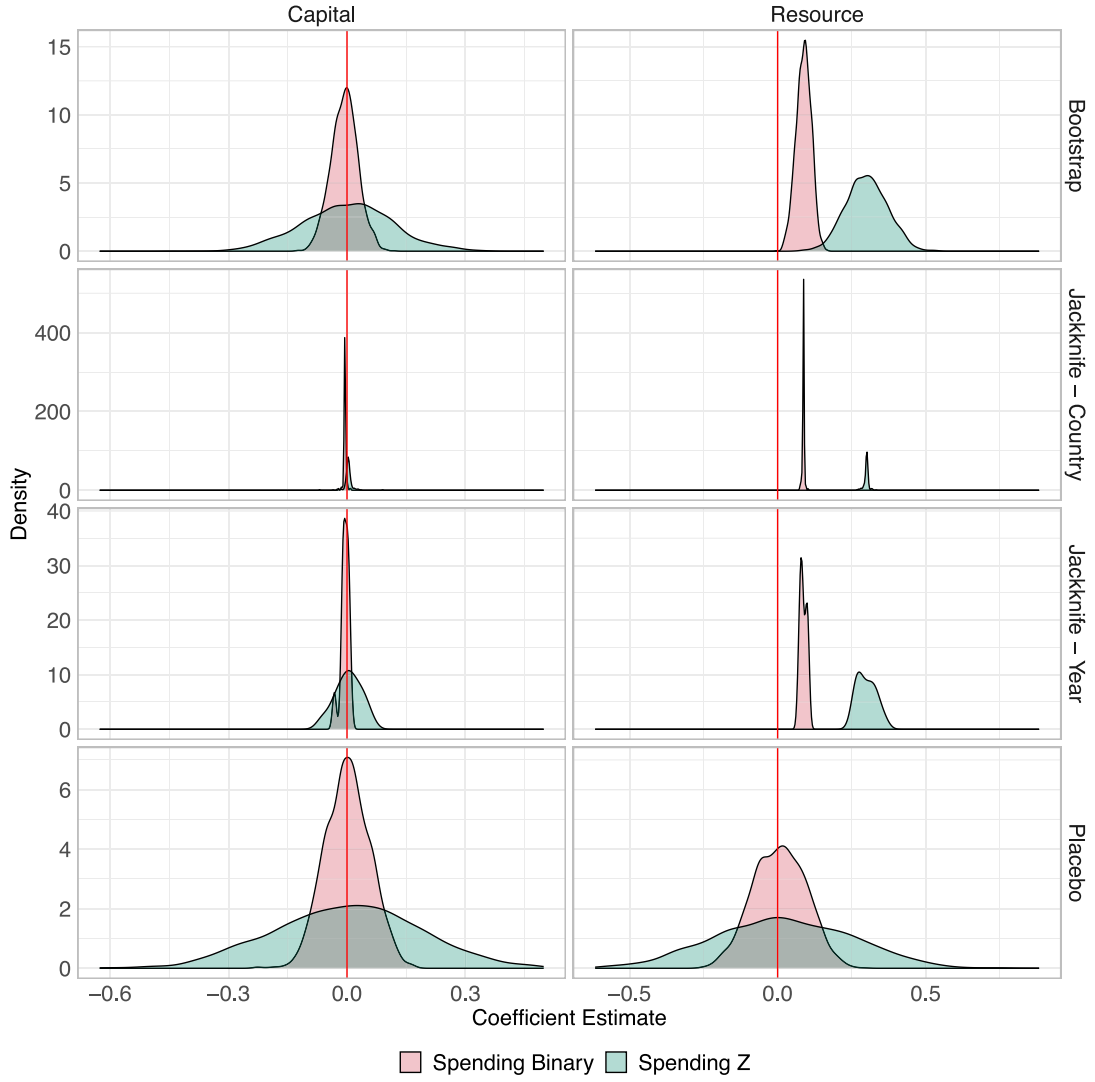


Fig. G.2. Robustness of the overlapping fiscal year-end.
Note: The figure illustrates the findings of several robustness tests of the overlapping local fiscal year-end *LFY End×Home FY End* for capital (on the left) and resource (on the right) budgets. The top panel presents bootstrap results, while the next two panels report the jackknife tests outcome for countries and years. The bottom panel presents the results of placebo tests.

For our third robustness check, we use the last two months of the local fiscal year rather than the last month of the local government fiscal year. This is presented in Table G.3 which shows coefficients that are in line with the benchmark specification.

For our fourth robustness check, we control for the start of the local fiscal year along with our regular variables. There are plausible reasons why the start of the local fiscal year might have an impact on the spending of overseas offices. This could occur because annual contracting often takes place in the first month of the fiscal year (e.g. Klymak and Baumann 2022) which may lead to crowding out at this time. Our results are presented in Table G.4. The findings remain robust throughout all specifications and we do not find any evidence for the start of fiscal year effect.

Our final robustness check is presented in Table G.5. We recreate Table 1 but use bootstrapped standard errors instead of standard errors clustered at the country level. All findings remain robust throughout all specifications and confirm the year-end effects presented before.

Appendix H. Extensions

One potential consideration is that the influence of a host country's fiscal year on home overseas office spending patterns could depend on its economic conditions. To investigate this, we repeat the specifications controlling for home, overlapping and local

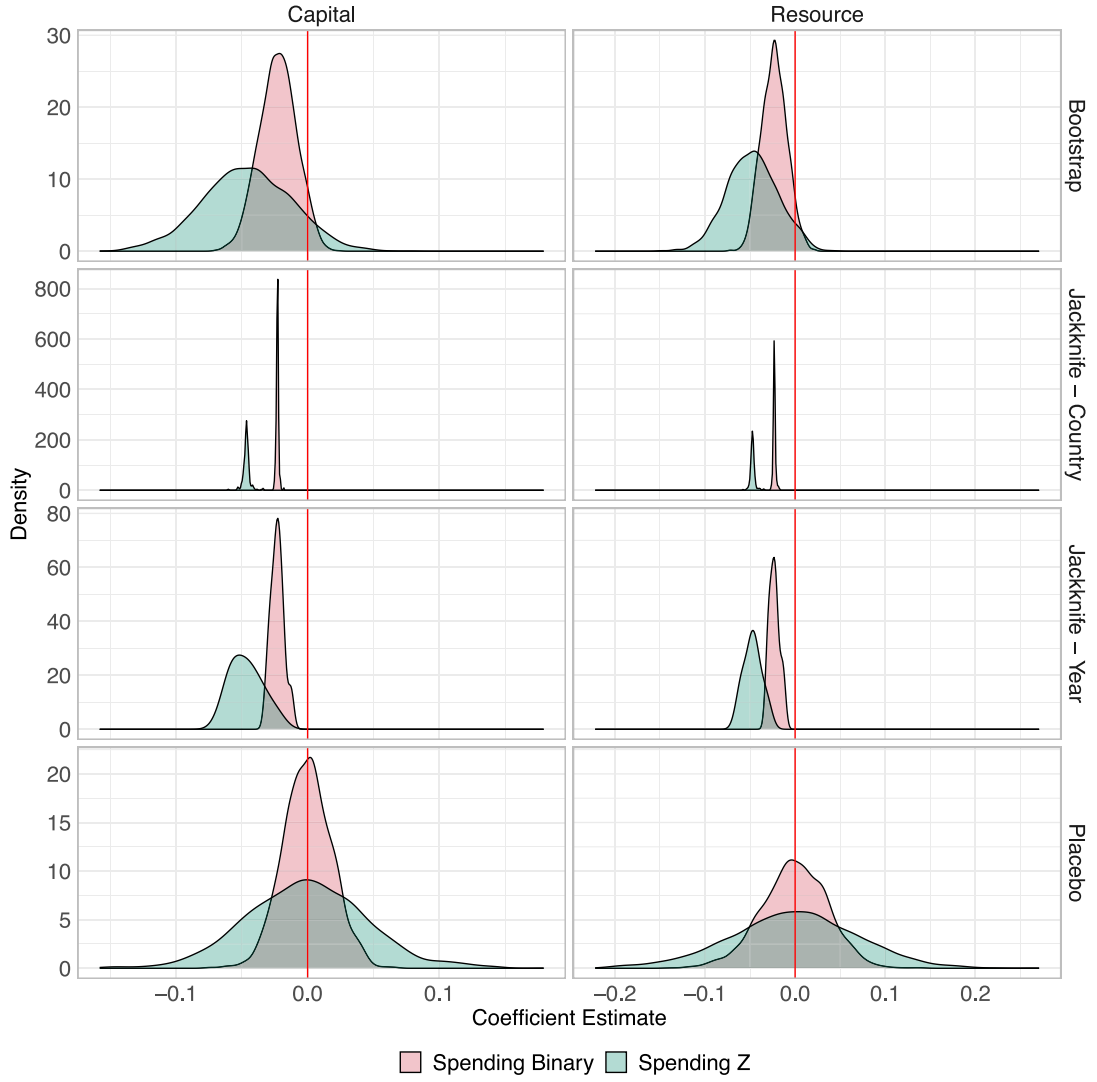


Fig. G.3. Robustness of the local fiscal year-end.
Note: The figure illustrates the findings of several robustness tests of the non-overlapping local fiscal year-end *LFY End* for capital (on the left) and resource (on the right) budgets. The top panel presents bootstrap results, while the next two panels report the jackknife tests outcome for countries and years. The bottom panel presents the results of placebo tests.

fiscal year-end along with regular fixed effects (i.e. specification in column 1 of Table 1). We then interact the local fiscal year with several selected variables obtained from the dataset of Conte et al. (2022). Our specification is as follows:

$$\begin{aligned}\text{Spending}_{i,b,m,y} = \beta_0 + \beta_1 \text{LFY End}_{i,m} \times \text{Home FY End}_{i,m} \times V_{i,m} + \beta_2 \text{Home FY End}_{i,m} + \\ + \beta_3 \text{LFY End}_{i,m} \times V_{i,m} + m + \psi_{iy} + \epsilon_{i,b,m,y}\end{aligned} \tag{5}$$

where all variables have the same meaning as described below Eq. (1). The one addition is $V_{i,m}$ which stands in for one of our three selected interaction variables.[45]

[45] Note that $V_{i,m}$ is not included as a standalone regressor as a result of the fixed effects structure which causes it to drop out. In the EU membership case the interaction with LFY End × Home FY End also drops out as no EU countries have a March year-end.

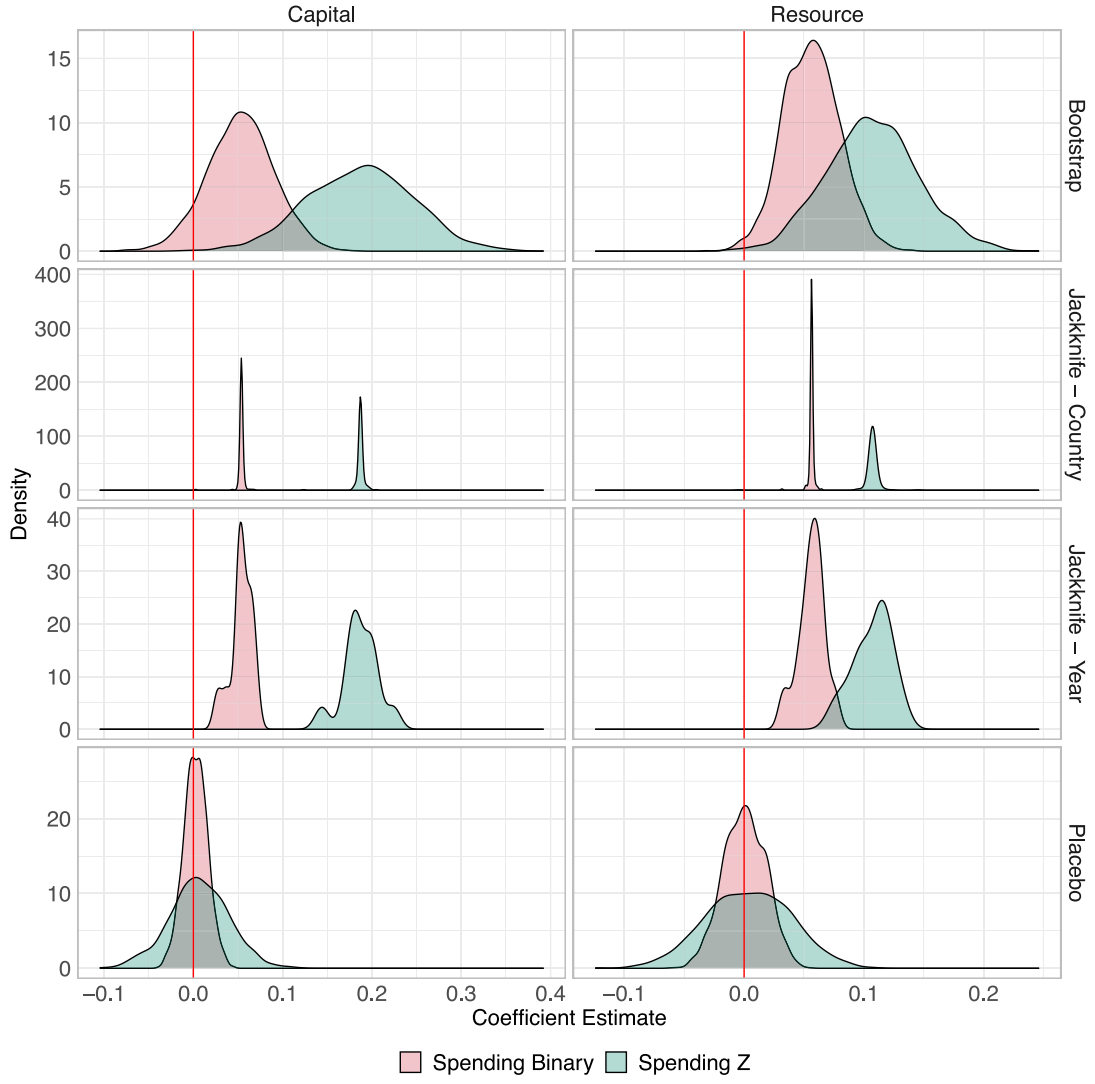


Fig. G.4. Robustness of firms local fiscal year-end.
Note: The figure illustrates the findings of several robustness tests of the local firms fiscal year-end *Firms LFY End* for capital (on the left) and resource (on the right) budgets. The top panel presents bootstrap results, while the next two panels report the jackknife tests outcome for countries and years. The bottom panel presents the results of placebo tests.

The first selected variable is logarithm GDP per capita (PPP).[46] The motivation for this is that wealthier countries may have larger year-end spending spikes.[47] These large year-end spending spikes may lead to more crowding out and hence more of an impact on the UK overseas offices located in these wealthier countries. The second selected variable is an EU membership dummy. Throughout the study period, the UK was a member of the European Union and hence had free trade with EU countries. In these circumstances, the overseas office might be expected to source more goods and services from the UK and hence have less exposure to the local fiscal year. The third selected variable is the logarithm of distance (measured in kilometres) between the UK and the overseas country. This is also a proxy for the ease of trade between the UK and the overseas country. Finally, we interact with Commonwealth membership where the majority of countries are former territories of the British Empire. This variable acts as a proxy for common historical ties and similar institutional set up.

[46] The coefficients in the table below use a z transform of this variable. Note that as a linear transformation, this will not affect significance but does moderate the size of coefficients.

[47] The extent to which year-end spending spikes occur in poorer countries has not been well studied. Most previous studies in the economics literature on this topic have only examined OECD countries with the exception of our previous paper examining the (transition economy) Ukraine (Klymak and Baumann, 2022).

Table G.1
Separated end of fiscal year spending effects.

	Spending Z		Spending Binary	
	Resource	*Capital*	*Resource*	*Capital*
	(1)	(2)	(3)	(4)
Home FY End	1.148***	0.822***	0.497***	0.258***
	(0.053)	(0.043)	(0.023)	(0.016)
LFY End March	0.228***	−0.069	0.064**	−0.028
	(0.081)	(0.122)	(0.031)	(0.034)
LFY End June	−0.073	−0.024	−0.054*	−0.019
	(0.062)	(0.046)	(0.031)	(0.021)
LFY End September	−0.100***	0.013	−0.032*	0.008
	(0.032)	(0.057)	(0.019)	(0.020)
LFY End December	−0.006	−0.079**	−0.010	−0.035**
	(0.050)	(0.040)	(0.026)	(0.017)
Observations	39,984	21,840	40,128	23,652
R^2	0.174	0.084	0.232	0.310
Month FE	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes

Note: *p<0.1; **p<0.05; ***p<0.01. This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months. The dependent variable in (1) and (2) columns is *Spending Z*; in columns (3) and (4), it is *Spending Binary*. The first two specifications rely on the resource budget spending whilst the latter two use spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

Table G.2
Fiscal year-end effects for capital and resource expenditures with alternative local firms fiscal year-end.

	Spending Z (1)	Spending Z (2)	Spending Z (3)	Spending Binary (4)	Spending Binary (5)	Spending Binary (6)
Panel A: Resource Budget						
Home FY End	1.390***	1.389***	1.354***	0.499***	0.495***	0.486***
	(0.061)	(0.076)	(0.083)	(0.023)	(0.029)	(0.032)
LFY End × Home FY End	0.300***		0.335***	0.085**		0.099*
	(0.102)		(0.123)	(0.040)		(0.050)
LFY End	−0.047		−0.087*	−0.022		−0.039*
	(0.034)		(0.045)	(0.016)		(0.022)
Log Firms LFY End		0.205*	0.159		0.089***	0.083***
		(0.123)	(0.102)		(0.033)	(0.029)
Num Countries	180	68	68	180	68	68
Observations	39,996	23,796	23,796	39,996	23,796	23,796
R^2	0.224	0.211	0.212	0.231	0.221	0.221
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Capital Budget						
Home FY End	0.812***	0.838***	0.859***	0.280***	0.286***	0.295***
	(0.053)	(0.069)	(0.066)	(0.017)	(0.024)	(0.022)
LFY End × Home FY End	0.003		−0.085	−0.007		−0.034
	(0.146)		(0.198)	(0.038)		(0.052)
LFY End	−0.046		−0.084**	−0.024		−0.036*
	(0.031)		(0.040)	(0.015)		(0.021)
Log Firms LFY End		0.197***	0.273***		0.068	0.100
		(0.068)	(0.084)		(0.054)	(0.063)
Num Countries	166	68	68	166	68	68
Observations	21,840	12,468	12,468	21,840	12,468	12,468
R^2	0.158	0.165	0.166	0.305	0.309	0.309
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months as well as local firms year-ends. The dependent variable in columns 1–3 is *Spending Z*; in the last three columns, it is *Spending Binary*. Panel A relies on the resource budget spending whilst panel B uses spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

Our finding are presented in Table H.1. The results for logarithm GDP per capita in columns (1) and (4) indicate that in the resource expenditure case there is a greater impact of the host government fiscal year. This finding is intuitive and is consistent with wealthier countries having larger governmental sectors have a greater impact on overseas offices. The findings in columns (2) and

Table G.3
End of fiscal year spending with two months start and end dummies.

	Spending Z (1)	Spending Z (2)	Spending Z (3)	Spending Binary (4)	Spending Binary (5)	Spending Binary (6)
Panel A: Resource Budget						
Home FY End	1.400***	1.395***	1.371***	0.499***	0.497***	0.490***
	(0.058)	(0.074)	(0.078)	(0.022)	(0.029)	(0.031)
Home 2nd Last Month FY End	0.270***	0.303***	0.274***	0.143***	0.159***	0.150***
	(0.032)	(0.040)	(0.045)	(0.016)	(0.021)	(0.023)
LFY End 2 Months	−0.035		−0.068**	−0.010		−0.020
	(0.028)		(0.031)	(0.013)		(0.016)
LFY End × Home FY End 2 Months	0.226***		0.265***	0.073**		0.081**
	(0.070)		(0.079)	(0.030)		(0.037)
Log Firms LFY End		0.138	0.086		0.060**	0.043**
		(0.090)	(0.052)		(0.025)	(0.019)
Num Countries	180	68	68	180	68	68
Observations	39,996	23,796	23,796	39,996	23,796	23,796
R^2	0.224	0.211	0.212	0.231	0.221	0.221
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Capital Budget						
Home FY End	0.804***	0.844***	0.843***	0.279***	0.288***	0.291***
	(0.053)	(0.068)	(0.069)	(0.018)	(0.023)	(0.024)
Home 2nd Last Month FY End	0.146***	0.150***	0.154***	0.073***	0.075***	0.082***
	(0.035)	(0.045)	(0.049)	(0.014)	(0.017)	(0.019)
LFY End 2 Months	−0.045**		−0.082***	−0.026***		−0.042***
	(0.022)		(0.030)	(0.009)		(0.014)
LFY End × Home FY End 2 Months	0.051		0.033	−0.0001		−0.012
	(0.076)		(0.074)	(0.036)		(0.035)
Log Firms LFY End		0.127***	0.191***		0.043	0.088**
		(0.047)	(0.045)		(0.036)	(0.038)
Num Countries	166	68	68	166	68	68
Observations	21,840	12,468	12,468	21,840	12,468	12,468
R^2	0.158	0.165	0.166	0.305	0.309	0.309
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months as well as local firms year-ends. The dependent variable in columns 1–3 is *Spending Z*; in the last three columns, it is *Spending Binary*. Panel A relies on the resource budget spending whilst panel B uses spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

(5) control for the EU membership show no statistically significant effect. This indicates that friction free access to the UK market does not have a large impact on our benchmark results. Finally, the results in columns (3) and (6) demonstrate that in the capital case larger distances mean a greater impact of the local fiscal year when that local fiscal year ends in March. This could reflect greater difficulty in avoiding crowded-out local suppliers by trading with the UK.[48]

We also split the end of local fiscal year effect according to the income level of the host country in Table H.2. The income level of the host country is potentially important. It might be expected that UK overseas offices would be able to source a greater proportion of their office supplies locally in which case the local fiscal year may have a greater impact in richer countries. On the other hand end of year spending may be a greater or a smaller phenomenon in poorer countries — to our knowledge no previous studies have documented end of year spending in developing countries.[49] Table H.2 shows that the UK overseas offices tend to spend less on resource expenditure in low income countries. One explanation that would be consistent with this coefficient would be if

[48] We note however that there are a small number of countries (notably including Japan and New Zealand) that are far away from the UK and with a fiscal year ending in March. This coefficient could be substantially influenced by a small number of such countries.

[49] To our knowledge the lowest income country in which year-end spending has been studied is our previous paper (Klymak and Baumann, 2022) using Ukrainian data. Ukraine is accounted for as a lower middle income country.

Table G.4
Fiscal year-end effects for capital and resource expenditures with start of local fiscal year.

	Spending Z (1)	Spending Z (2)	Spending Z (3)	Spending Binary (4)	Spending Binary (5)	Spending Binary (6)
Panel A: Resource Budget						
Home FY End	1.371***	1.395***	1.343***	0.493***	0.497***	0.479***
	(0.067)	(0.074)	(0.091)	(0.024)	(0.029)	(0.034)
LFY Start	−0.028		−0.026	−0.008		−0.014
	(0.025)		(0.037)	(0.010)		(0.012)
LFY End × Home FY End	0.301***		0.339***	0.085**		0.101*
	(0.102)		(0.126)	(0.040)		(0.051)
LFY End	−0.047		−0.088**	−0.022		−0.040*
	(0.034)		(0.044)	(0.016)		(0.022)
Firms LFY End		0.138	0.096		0.060**	0.051**
		(0.090)	(0.082)		(0.025)	(0.024)
Num Countries	180	68	68	180	68	68
Observations	39,996	23,796	23,796	39,996	23,796	23,796
R^2	0.224	0.211	0.212	0.231	0.221	0.221
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Capital Budget						
Home FY End	0.810***	0.850***	0.882***	0.282***	0.288***	0.308***
	(0.054)	(0.066)	(0.065)	(0.020)	(0.023)	(0.023)
LFY Start	−0.003	0.010	0.024	0.003		0.017
	(0.029)	(0.036)	(0.040)	(0.014)		(0.015)
LFY End × Home FY End	0.004		−0.089	−0.008		−0.037
	(0.146)		(0.201)	(0.038)		(0.053)
LFY End	−0.046		−0.090**	−0.024		−0.039*
	(0.031)		(0.042)	(0.015)		(0.022)
Firms LFY End		0.130**	0.198***		0.043	0.075
		(0.050)	(0.068)		(0.036)	(0.046)
Num Countries	166	68	68	166	68	68
Observations	21,840	12,468	12,468	21,840	12,468	12,468
R^2	0.158	0.165	0.166	0.305	0.309	0.309
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months as well as local firms year-ends. The dependent variable in columns 1–3 is *Spending Z*; in the last three columns, it is *Spending Binary*. Panel A relies on the resource budget spending whilst panel B uses spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

year-end spending is particularly acute in low income countries and that UK overseas offices source resource expenditure items but not capital expenditure items locally. In the absence of any studies of year-end spending in low income countries however it is not possible to have a large degree of confidence in any such explanation. This remains for future research.

Finally in Table H.3 we interact uncertainty (as measured by the World Uncertainty Index) and unemployment (using the average unemployment rate in the preceding twelve months, sourced from Bloomberg terminal) with year-end spending. Unemployment was potentially informative if it implied the private sector could better expand to meet heightened demand at the end of the fiscal year without crowding out. Unemployment plays a key role in the precautionary savings explanation for year-end spending. If this explanation is correct more local uncertainty would mean more precautionary savings on the part of the local government and greater year-end spending. We might then expect more of a local fiscal year effect. We cannot find evidence for any such effects however in Table H.3.

Notably, the coefficients for the home, local and home× local fiscal years are broadly consistent between Tables H.1–H.3 and the benchmark in Table 1.

Finally as discussed in the main body of the paper, our dataset has some negative expenditure figures. These are relatively rare with fewer than 3.5% of our spending values being negative. They are also relatively small with the sum of all positive expenditure items in our dataset being £10,779,913,723 while the absolute value of the sum of all negative expenditure items is 18.2 times smaller at £591,074,495. We perform a robustness check to ensure that these negative spending values are not driving our result, however. In Table H.4 we reestimate the results of Table 1 after having dropped any office-budget-year where at least one monthly spending figure has been recorded as negative. We get similar results as in the main paper.

Table H.5 splits resource expenditure into its two components of Departmental Expenditure Limit (DEL) and Annually Managed Expenditure (AME). UK departments have their resource budgets allocated in one of these two systems (Treasury, 2013). DEL funds are allocated in spending reviews that take place about once every three years. These are intended for expenses that can be planned in advance such as staff salaries. AME funds are chosen annually and are intended for demand driven costs (such as welfare and pensions).

Table G.5
End of fiscal year spending effects with bootstrapped standard errors.

	Spending Z (1)	Spending Z (2)	Spending Z (3)	Spending Binary (4)	Spending Binary (5)	Spending Binary (6)
Panel A: Resource Budget						
Home FY End	1.390***	1.395***	1.359***	0.499***	0.497***	0.488***
	(0.031)	(0.039)	(0.041)	(0.012)	(0.015)	(0.016)
LFY End × Home FY End	0.300***		0.335***	0.085***		0.099***
	(0.070)		(0.091)	(0.026)		(0.034)
LFY End	−0.047		−0.090**	−0.022		−0.040**
	(0.029)		(0.038)	(0.014)		(0.019)
Firms LFY End		0.138***	0.107***		0.060***	0.057**
		(0.035)	(0.039)		(0.022)	(0.024)
Num Countries	180	68	68	180	68	68
Observations	39,996	23,796	23,796	39,996	23,796	23,796
R^2	0.224	0.211	0.212	0.231	0.221	0.221
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Capital Budget						
Home FY End	0.812***	0.844***	0.867***	0.280***	0.288***	0.298***
	(0.050)	(0.059)	(0.065)	(0.016)	(0.021)	(0.022)
LFY End × Home FY End	0.003		−0.085	−0.007		−0.034
	(0.113)		(0.152)	(0.033)		(0.045)
LFY End	−0.046		−0.088**	−0.024*		−0.038**
	(0.032)		(0.038)	(0.013)		(0.018)
Firms LFY End		0.127**	0.187***		0.043	0.068*
		(0.054)	(0.058)		(0.036)	(0.038)
Num Countries	166	68	68	166	68	68
Observations	21,840	12,468	12,468	21,840	12,468	12,468
R^2	0.158	0.165	0.166	0.305	0.309	0.309
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months as well as local firms year-ends. The dependent variable in columns 1–3 is *Spending Z*; in the last three columns, it is *Spending Binary*. Panel A relies on the resource budget spending whilst panel B uses spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for bootstrapping. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

Table H.1
Extensions using *Spending Z*.

	Resource (1)	Resource (2)	Resource (3)	Resource (4)	Capital (5)	Capital (6)	Capital (7)	Capital (8)
Home FY End	1.370***	1.397***	1.390***	1.394***	0.836***	0.810***	0.812***	0.811***
	(0.064)	(0.062)	(0.061)	(0.062)	(0.055)	(0.053)	(0.053)	(0.053)
LFY End × Home FY End	0.440*	0.292***	0.325*	0.298***	−0.507	−0.038	0.298	−0.160
	(0.223)	(0.093)	(0.172)	(0.110)	(0.323)	(0.149)	(0.233)	(0.170)
LFY End	−0.264***	−0.044	−0.042	−0.045	0.025	−0.044	−0.053	−0.047
	(0.073)	(0.032)	(0.041)	(0.036)	(0.084)	(0.033)	(0.035)	(0.032)
LFY End × Home FY End × Log GDP Per Capita	−0.057				0.158			
	(0.080)				(0.117)			
LFY End × Log GDP Per Capita	0.075***				−0.027			
	(0.029)				(0.026)			
LFY End × EU		0.0001				−0.018		
		(0.106)				(0.047)		
LFY End × Home FY End × Commonwealth			−0.022				−0.484*	
			(0.179)				(0.257)	
LFY End × Commonwealth			−0.023				0.026	
			(0.065)				(0.054)	
LFY End × Home FY End × Log Distance				0.006				0.240
				(0.071)				(0.182)
LFY End × Log Distance				−0.011				−0.013
				(0.034)				(0.021)
Num Countries	161	171	180	169	148	158	166	157
Observations	36,210	38,823	39,996	38,571	19,722	21,111	21,840	21,075
R^2	0.218	0.224	0.224	0.224	0.160	0.157	0.159	0.158
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months as well as local firms year-ends. We interact each local fiscal year-end variable with the logarithm of GDP per capita, the logarithm of the distance between the UK and the overseas office country and the overseas office is based in the EU as well as whether the overseas office is the commonwealth country. The dependent variable in all columns is *Spending Z*. Columns (1)–(4) rely on the resource budget spending while columns (5)–(8) use spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

Table H.2
Fiscal year-end effects for capital and resource expenditures by income.

	Resource expenditure (1)	Capital expenditure (2)
Home FY End	1.393***	0.818***
	(0.062)	(0.053)
Low income × LFY End	−0.235***	0.037
	(0.058)	(0.087)
Lower middle income × LFY End	−0.107**	−0.119*
	(0.053)	(0.067)
Upper middle income × LFY End	0.017	−0.062
	(0.056)	(0.052)
High income × LFY End	−0.006	−0.041
	(0.060)	(0.042)
LFY End × Home FY End	0.267***	0.034
	(0.102)	(0.149)
Num Countries	168	155
Observations	38,280	20,940
R^2	0.223	0.158
Month FE	Yes	Yes
Overs. Office × Year FE	Yes	Yes

Note: *p<0.1; **p<0.05; ***p<0.01. This table reports the estimates of home and local fiscal year-end months. The dependent variable in (1) and (2) columns is *Spending Z*. The first specification relies on the resource budget spending whilst the second relies on spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

Table H.3
Uncertainty, unemployment and the end of the fiscal year.

	Resource expenditure (1)	Resource expenditure (2)	Capital expenditure (3)	Capital expenditure (4)
Home FY End	1.375***	1.352***	0.826***	0.832***
	(0.066)	(0.087)	(0.057)	(0.082)
LFY End	−0.024	−0.003	−0.094**	0.031
	(0.045)	(0.088)	(0.039)	(0.068)
LFY End × Home FY End	0.313***	0.503**	0.042	0.191
	(0.102)	(0.195)	(0.170)	(0.226)
WUI Uncertainty	0.055		−0.035	
	(0.052)		(0.056)	
Unemployment		0.012		0.0003
		(0.011)		(0.013)
LFY End × WUI Uncertainty	−0.199		0.224*	
	(0.139)		(0.130)	
LFY End × Unemployment		−0.012		−0.008
		(0.011)		(0.008)
Num Countries	129	64	125	64
Observations	33,696	19,578	18,576	9805
R^2	0.218	0.217	0.162	0.185
Month FE	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes

Note: This table interacts with the local end of fiscal year effect with uncertainty (as measured by the World Uncertainty Index) and unemployment (average unemployment in preceding 12 months as reported in Bloomberg Terminal). The dependent variable in each column is *Spending Z* for Resource and Capital Expenditure. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category for the monthly fixed effects is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors are clustered at a country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

Table H.4
End of fiscal year spending effects excluding negative values.

	Spending Z (1)	Spending Z (2)	Spending Z (3)	Spending Binary (4)	Spending Binary (5)	Spending Binary (6)
Panel A: Resource Budget						
Home FY End	1.500***	1.490***	1.471***	0.530***	0.530***	0.522***
	(0.066)	(0.085)	(0.094)	(0.025)	(0.033)	(0.037)
LFY End × Home FY End	0.226**		0.212	0.091**		0.085
	(0.109)		(0.149)	(0.040)		(0.056)
LFY End	−0.043		−0.104**	−0.019		−0.043*
	(0.035)		(0.047)	(0.017)		(0.023)
Firms LFY End		0.121	0.123		0.069**	0.071**
		(0.092)	(0.089)		(0.030)	(0.028)
Num Countries	180	68	68	180	68	68
Observations	31,899	19,368	19,368	31,899	19,368	19,368
R^2	0.273	0.255	0.255	0.244	0.231	0.231
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Capital Budget						
Home FY End	0.869***	0.896***	0.924***	0.287***	0.300***	0.309***
	(0.063)	(0.074)	(0.079)	(0.022)	(0.024)	(0.028)
LFY End × Home FY End	0.023		−0.163	0.017		−0.038
	(0.153)		(0.161)	(0.048)		(0.053)
LFY End	−0.021		−0.043	−0.024		−0.037*
	(0.040)		(0.045)	(0.018)		(0.020)
Firms LFY End		0.145**	0.202**		0.072	0.098**
		(0.065)	(0.080)		(0.050)	(0.049)
Num Countries	166	68	68	166	68	68
Observations	12,111	6642	6642	12,111	6642	6642
R^2	0.197	0.205	0.206	0.306	0.312	0.313
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months as well as local firms year-ends. The dependent variable in columns 1–3 is *Spending Z*; in the last three columns, it is *Spending Binary*. Panel A relies on the resource budget spending whilst panel B uses spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category is spending during January. The sample excludes office-budget-year where at least one monthly spending figure has been negative. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

Table H.5
End of fiscal year effect for resource spending by type.

	Spending Z (1)	Spending Z (2)	Spending Z (3)	Spending Binary (4)	Spending Binary (5)	Spending Binary (6)
Panel A: Resource AME Budget						
Home FY End	0.132**	0.091	0.055	0.075***	0.053**	0.045*
	(0.062)	(0.076)	(0.079)	(0.020)	(0.024)	(0.026)
LFY End × Home FY End	0.231*		0.249*	0.042		0.053
	(0.121)		(0.134)	(0.043)		(0.045)
LFY End	0.024		0.034	0.004		0.004
	(0.044)		(0.063)	(0.016)		(0.022)
Firms LFY End		−0.031	−0.098		0.013	0.0001
		(0.055)	(0.063)		(0.020)	(0.021)
Num Countries	163	68	68	163	68	68
Observations	20,964	11,520	11,520	20,964	11,520	11,520
R^2	0.074	0.072	0.072	0.457	0.456	0.456
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Resource DEL Budget						
Home FY End	1.468***	1.471***	1.441***	0.518***	0.521***	0.514***
	(0.067)	(0.078)	(0.087)	(0.025)	(0.030)	(0.033)
LFY End × Home FY End	0.276**		0.297**	0.074*		0.082
	(0.107)		(0.132)	(0.042)		(0.054)
LFY End	−0.036		−0.098*	−0.018		−0.041*
	(0.032)		(0.049)	(0.017)		(0.025)
Firms LFY End		0.157*	0.137*		0.063**	0.064**
		(0.083)	(0.073)		(0.029)	(0.027)
Num Countries	180	68	68	180	68	68
Observations	39,996	23,796	23,796	39,996	23,796	23,796
R^2	0.239	0.227	0.228	0.225	0.217	0.217
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months as well as local firms year-ends. The dependent variable in columns 1–3 is *Spending Z*; in the last three columns, it is *Spending Binary*. Panel A relies on the resource AME budget spending whilst panel B uses spending from the resource DEL budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted reference category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors allow for clustering at the country level. We denote significance using *p<0.1; **p<0.05; ***p<0.01.

Table H.6
End of fiscal year spending effects with alternative fixed effects.

	Spending Z (1)	Spending Z (2)	Spending Z (3)	Spending Binary (4)	Spending Binary (5)	Spending Binary (6)
Panel A: Resource Budget						
Home FY End	1.526***	1.255***	1.216***	0.508***	0.458***	0.448***
	(0.362)	(0.235)	(0.223)	(0.135)	(0.077)	(0.079)
LFY End × Home FY End	0.296***		0.336***	0.085***		0.099***
	(0.070)		(0.091)	(0.026)		(0.034)
LFY End	−0.043		−0.089**	−0.021		−0.040**
	(0.028)		(0.037)	(0.014)		(0.018)
Firms LFY End		0.143***	0.111***		0.061***	0.058**
		(0.035)	(0.039)		(0.022)	(0.024)
Num Countries	180	68	68	180	68	68
Observations	39,996	23,796	23,796	40,140	23,832	23,832
R^2	0.239	0.230	0.231	0.244	0.236	0.236
Month × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Capital Budget						
Home FY End	0.735***	0.926***	1.161***	0.252***	0.230**	0.207*
	(0.323)	(0.331)	(0.315)	(0.095)	(0.116)	(0.109)
LFY End × Home FY End	−0.005		−0.090	−0.010		−0.029
	(0.112)		(0.151)	(0.033)		(0.045)
LFY End	−0.043		−0.084**	−0.023*		−0.034*
	(0.032)		(0.038)	(0.013)		(0.018)
Firms LFY End		0.135**	0.194***		0.032	0.055
		(0.054)	(0.057)		(0.036)	(0.038)
Num Countries	166	68	68	166	68	68
Observations	21,840	12,468	12,468	23,652	13,356	13,356
R^2	0.169	0.182	0.183	0.318	0.326	0.326
Month × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Overs. Office × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: *p<0.1; **p<0.05; ***p<0.01. This table reports the estimates of home, overlapping and non-overlapping fiscal year-end months. The dependent variable in (1) and (2) columns is *Spending Z*; in columns (3) and (4), it is *Spending Binary*. The first two specifications rely on the resource budget spending whilst the latter two use spending from the capital budget. FE refer to each calendar month and overseas office-times-year fixed effects. The omitted category is spending during January. We report a standard error in parenthesis below each coefficient. Standard errors are bootstrapped (Note that errors clustered on a country level are available on request — they are generally smaller than these bootstrapped errors). We denote significance using *p<0.1; **p<0.05; ***p<0.01.

The UK government prefers DEL spending to AME funding and all expenditure items are in DEL unless the chief secretary to the treasury has decided the spending item is highly stochastic in nature and should instead be AME (Treasury, 2023, 1.47). The UK Foreign and Commonwealth office receives little AME funding. Collectively the overseas office over the period received 91.4% of their funds via DEL, 1.4% via AME with the remaining 7.2% from Capital.

The results are broadly similar with the largest difference betting that the Firms LFY End coefficients are not significant in the AME case but are more significant in the DEL case. As a result of this similarity and the small scale of AME funding we decided to simplify the analysis in the main paper and add both forms of resource spending.

As a final robustness check we repeat the benchmark specifications of Table 1 but with a separate fixed effect for each month-year combination (the benchmark specification uses one dummy for each month but the same December dummy would be used for all years in the sample). This means that the fixed effect removes one-off shocks for the data in addition to removing annual seasonality. It comes at the cost of the UK FY End variable in the regression however.[50] The result can be seen in Table H.6.

References

Baicker, Katherine, 2005. The spillover effects of state spending. J. Public Econ. 89 (2–3), 529–544.

Bartov, Eli, 1993. The timing of asset sales and earnings manipulation. Account. Rev. 840–855.

Baumann, Stuart, 2019. Putting it off for later: Procrastination and end-of-fiscal-year spending spikes. Scand. J. Econ. 121 (2), 706–735.

Besley, Timothy, Case, Anne, 1995. Does electoral accountability affect economic policy choices? Evidence from gubernatorial term limits. Q. J. Econ. 110 (3), 769–798.

Case, Anne C., Rosen, Harvey S., Hines, Jr., James R., 1993. Budget spillovers and fiscal policy interdependence: Evidence from the states. J. Public Econ. 52 (3), 285–307.

Conte, Maddalena, Cotterlaz, Pierre, Mayer, Thierry, 2022. The CEPII gravity database. CEPII Working Paper N 2022-05.

Crawford, Rowena, Emmerson, Carl, Tetlow, Gemma, 2009. A survey of public spending in the UK. Institute for Fiscal Studies, Briefing Note BN43, 272–290.

Décaire, Paul, Sosyura, Denis, 2022. On a spending spree: The real effects of heuristics in managerial budgets. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4242936.

Devereux, Michael P., Lockwood, Ben, Redoano, Michela, 2008. Do countries compete over corporate tax rates? J. Public Econ. 92 (5–6), 1210–1235.

Eichenauer, Vera, 2020. December fever in public finance, 470. KOF Working Papers, ETH Zurich.

Frankel, Richard, Levy, Hagit, Shalev, Ron, 2017. Factors associated with the year-end decline in working capital. Manage. Sci. 63 (2), 438–458.

Hyndman, Noel, Jones, Rowan, Pendlebury, Maurice, 2007. An exploratory study of annuality in the UK public sector: Plus CA change, plus c'est meme chose? Financ. Account. Manag. 23 (2), 215–237.

International Monetary Fund, 2016. Blog post: The timing of the government's fiscal year. https://blog-pfm.imf.org/en/pfmblog/2016/10/the-timing-of-the-governments-fiscal-year.

Kinney, Michael, Trezevant, Robert H., 1993. Taxes and the timing of corporate capital expenditures. J. Am. Tax. Assoc. 15 (2).

Klymak, Margaryta, Baumann, Stuart, 2022. Paying over the odds at the end of the fiscal year. Evidence from Ukraine. Department of Economics Discussion Paper Series, University of Oxford.

Laibson, David, 1997. "Golden eggs and hyperbolic discounting". Q. J. Econ. 112 (2), 443–477.

Liebman, Jeffrey, Mahoney, Neale, 2017. Do expiring budgets lead to wasteful year-end spending? Evidence from federal procurement. Amer. Econ. Rev. 107 (11), 3510–3549.

Lowy Institute, 2019. Global diplomacy index - 2019 country ranking. https://globaldiplomacyindex.lowyinstitute.org/country_rank.html.

OpenTheBooks.com, 2019. The federal government's use it or lose it spending spree. https://www.openthebooks.com/assets/1/7/UseItOrLoseIt_Final1.PDF.

Oyer, Paul, 1998. Fiscal year ends and nonlinear incentive contracts: The effect on business seasonality. Q. J. Econ. 113 (1), 149–185.

Parchet, Raphaël, 2019. Are local tax rates strategic complements or strategic substitutes? Am. Econ. J.: Econ. Policy 11 (2), 189–224.

Price Waterhouse Coopers, 2023. Changing fiscal year end considerations. https://www.pwc.com/us/en/services/consulting/deals/accounting-advisory/changing-fiscal-year-end-considerations.html.

Roychowdhury, Sugata, 2006. Earnings management through real activities manipulation. J. Account. Econ. 42 (3), 335–370.

Shin, Hyun-Han, Kim, Yong H., 2002. Agency costs and efficiency of business capital investment: Evidence from quarterly capital expenditures. J. Corporate Finance 8 (2), 139–158.

Treasury, H.M., 2013. How to understand public sector spending. https://www.gov.uk/government/publications/how-to-understand-public-sector-spending/how-to-understand-public-sector-spending#departmental-expenditure-limits-del.

Treasury, H.M., 2023. Consolidated budgeting guidance: 2022-23. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1061788/CBG_2022-23.pdf.

U.S. Securities and Exchange Commission, 2011. Amendment No. 4 to form S-1 registration statement under the securities act of 1933 ADS Tactical, Inc. https://www.sec.gov/Archives/edgar/data/1496129/000095012311066062/y03683a4sv1za.htm.

[50] This is because rather than having one coefficient for March we have a separate coefficient for each years march. For brevity we have not reported these.