

# Are government ministers more likely to be re-elected? Evidence from Papua New Guinea

Alyssa Leng

## Abstract

Being a government minister is often seen as providing a resource and reputational advantage for parliamentarians running for re-election. Using a difference-in-differences event study approach, I find that being a minister increases the likelihood that an incumbent parliamentarian wins at the next election by 14.4 percentage points in open (district-level) electorates in Papua New Guinea (PNG). This ministerial incumbency effect dissipates within one election cycle, even if the parliamentarian continues to hold ministerial office. Substantial heterogeneity however exists across types of electoral seats and ministerial portfolios. There appears to be no effect for ministers running for re-election in provincial electoral seats covering multiple districts, likely reflecting the effects of a law governing ministerial office in PNG. The magnitude and direction of the ministerial incumbency effect also differs according to the type of ministry, with economic and central agency portfolios providing substantially greater electoral benefits than more junior ministerial positions.

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# 1 Introduction

Being elected and subsequently returned to parliament is a central goal for virtually all politicians in democratic political systems, with the results of these contests shaping political behaviour, government policymaking and economic development over time (e.g. Matland and Studlar 2004, Nishimura and Ozaki 2007, Bedasso 2024, Alesina and Tabellini 1990 and McGuire and Olson Jr 1996). For parliamentarians seeking to be re-elected, the effects of incumbency are significant but differ across contexts; in mature democracies such as the United States, being an incumbent legislator is a clear advantage (Gelman and King 1990, Lee 2008, Kang et al. 2018, Lott Jr 1987), while incumbency can be a hindrance to one's re-election prospects in developing democracies such as India, Romania and Brazil (Uppal 2009, Klašna 2015, Klašna and Titiunik 2017).

But not all incumbents are created equal. Some parliamentarians – namely, government ministers – are more senior than others, receive greater publicity and potentially hold more rent-seeking opportunities than their non-minister counterparts, all of which affect the likelihood of being re-elected. These factors mean ministerial portfolios are often considered as valuable rewards at the macro political level and therefore a boon for a politician's re-election prospects. However, ministers may face additional public scrutiny as a result of their greater responsibility and prominence, which may result in voters penalising misdemeanours more heavily at the ballot box. And while utilising rent-seeking opportunities as a minister for personal or electoral gain may be frowned upon in some political systems, access to additional resources may be of significant benefit in clientelist environments by helping to secure voter support. Taken together, the direction and magnitude of any ministerial incumbency effect is therefore unclear.

In this paper, I test whether being a minister makes an incumbent parliamentarian more likely to be re-elected in the case of Papua New Guinea (PNG), a developing, clientelist democracy (Wood 2018) where turnover of members of parliament (MPs), ministers and governments is high. I further examine whether the degree of electoral advantage associated with being a minister depends on the type of seat a parliamentarian holds, and additionally consider the influence of national laws governing if particular types of parliamentarians can hold ministerial positions. The PNG context in particular makes this analysis possible because of two reasons. First, PNG has two different type of electorates within its unicameral national parliament - 'open' seats that cover electoral districts, and 'provincial' seats that cover provinces, each of which contain multiple electoral districts. And second, because PNG law requires parliamentarians in provincial seats to vacate the associated office of 'governor' if appointed as a minister. I further consider whether holding different types

of ministerial portfolios is salient for re-election efforts, and evaluate whether the timing of when parliamentarians are made ministers within the parliamentary term and electoral cycle matters.

To do so, I combine extensive information on ministerial appointments in PNG (Ivarature 2022) with data from the PNG Elections Database (Wood 2019) to create a panel dataset of MPs and the ministries they held. This combined dataset covers over forty years between PNG's independence in 1975 and the 2017 election. Using a difference-in-difference (DID) event study model, I estimate the change in the likelihood of an incumbent parliamentarian being re-elected after being appointed as a minister at any point during a parliamentary term, and for any duration of time. I make the identifying assumption that in the absence of treatment, potential re-election prospects for backbenchers and ministers would evolve similarly both before and after would-be ministers are appointed. I then compare the probability of re-election between ministers following their appointment and incumbent backbenchers who have yet to or never hold ministerial office.

This paper has three key findings. First, I find that being a minister increases the likelihood that an MP in an open electorate is re-elected by 14.4 percentage points in the election immediately after they become a minister. This is the case regardless of whether an MP holds ministerial office at the end of a parliamentary term (i.e. just prior to the next election) or earlier. In terms of magnitude, this effect can be considered to be large, considering just 45 percent of incumbent parliamentarians re-entered parliament on average between 1977 and 2017 in PNG. The ministerial incumbency effect is however short-lived; while ministers receive an electoral advantage in the election immediately after being appointed, the effect dissipates by the next election even if the MP continues to hold ministerial office. One potential explanation for this is that the increased scrutiny over time associated with being a minister may outweigh any resource or reputational benefits that come from holding ministerial office. Alternatively, expectations of resource transfers from ministers to supporters may change or grow over time; equivalently, the marginal electoral benefit of channelling a given amount of resources to supporters may decline over time.

Second, I find that being a minister does not confer a statistically significant electoral advantage on to incumbent parliamentarians running in provincial electoral seats. This likely reflects the impact of a policy that bans parliamentarians from simultaneously holding a ministerial office and the role of a provincial governor - an automatic entitlement of being elected into a provincial seat. Importantly, this suggests that measures that seek to constrain executive power in government can be effective, even in clientelist political environments.

Third, the type of ministerial office an MP holds is an important determinant of whether being a minister is advantageous or detrimental to a parliamentarian's re-election prospects.

I find that no differences in re-election prospects can be observed between backbenchers and junior ministers in the election immediately after they become a minister when central agency and economic ministries are excluded from the analysis. Additionally, these junior ministers are between 25-40 percentage points *less* likely to be re-elected at the next election if they continue to hold a ministerial position. Together, this suggests that the type of ministry - and implicitly the importance or seniority of the ministerial position - materially affects politicians' re-election prospects.

This paper makes three key contributions. First, few papers in the literature explore ministerial incumbency effects, and existing studies rely largely on logistic regressions to examine electoral benefits to incumbent parliamentarians of being a minister (Filer et al. 2021a, Marino and Martocchia Diodati 2017). Most work on ministers instead focus on entrances and exits from cabinet and effects on government stability in light of this (Bright et al. 2015, Camerlo and Pérez-Liñán 2015, Fischer et al. 2012 and Alderman 1995). The key contribution of this paper to this literature is by contrast to demonstrate not only that ministerial incumbency effects exist, but additionally can differ even within a political system depending on the type of electoral seat and kind of ministerial portfolio held by parliamentarians. Additionally, this paper utilises highly detailed electoral and ministerial data as well as modern event study techniques to produce causal and dynamic estimates of electoral advantage across multiple elections, thereby improving the quality of quantitative evidence in this area. Second, this paper demonstrates an additional channel - specifically, *ministerial* incumbency effects - through which broader incumbency effects might in part stem from, in addition to personal and partisan incumbency advantages (Fowler and Hall 2014) such as candidate quality (Carson et al. 2007, Cox and Katz 2002), gerrymandering that favours incumbents (Erikson 1972) that have previously been proposed in the existing literature. Third, this paper complements the largely qualitative (May 2022) and descriptive (Ivarature 2022, Wood 2017) analysis that dominates most of the literature on PNG politics, and adds to the growing number of quantitative studies in the field (Wood et al. 2022, Laveil and Wood 2022).

The remainder of the paper proceeds as follows. Section 2 provides an overview of PNG's political and electoral context. Section 3 outlines the variables and data used in this study, and section 4 sets out the paper's identification strategy. Section 5 shows how ministerial incumbency effects according to electorate type, section 6 outlines how effects further differ based on ministry type and section 7 then considers the effects of being a minister at different points of a parliamentary term. Finally, section 8 concludes.

## 2 Papua New Guinea’s political and electoral context

PNG is a relatively poor developing country with a GDP per capita of USD 3020 as of 2022 (World Bank 2023). It is the largest country in the Pacific region, with a culturally and linguistically diverse population of approximately 8.8 million people as of 2020 (ANU-UPNG Partnership 2021) and over 850 languages (May 2022). Geographically, PNG is divided into four regions; each region is further divided into several provinces (Figure 1), each of which consist of numerous districts (Figure 2), local level governments and wards.

There are two types of electorates in PNG: open and provincial. Open electorates cover each district; winning office in such a seat makes one an MP. Provincial electorates cover an entire province, which encompasses multiple districts. Winning in a provincial seat makes one a governor of that province, which entails additional responsibilities at the provincial level, including chairing the Provincial Assembly (the elected government at the provincial level) and sitting on local government planning and budget committees (*Organic Law on Provincial Governments and Local-level Governments 1998*).<sup>1</sup> Importantly, provincial governors are required to vacate the office of the governor if appointed as a minister under section 19(1)(b)(i) of the *Organic Law on Provincial Governments and Local-level Governments (1998)*.

In 2017, the last election for which data is available, there were 22 provincial seats and 89 open seats, constituting a total of 111 seats in the unicameral national parliament (Wood and Laveil 2019). National elections for all seats are held every 5 years under the Westminster system (Kabuni et al. 2022).<sup>2</sup>

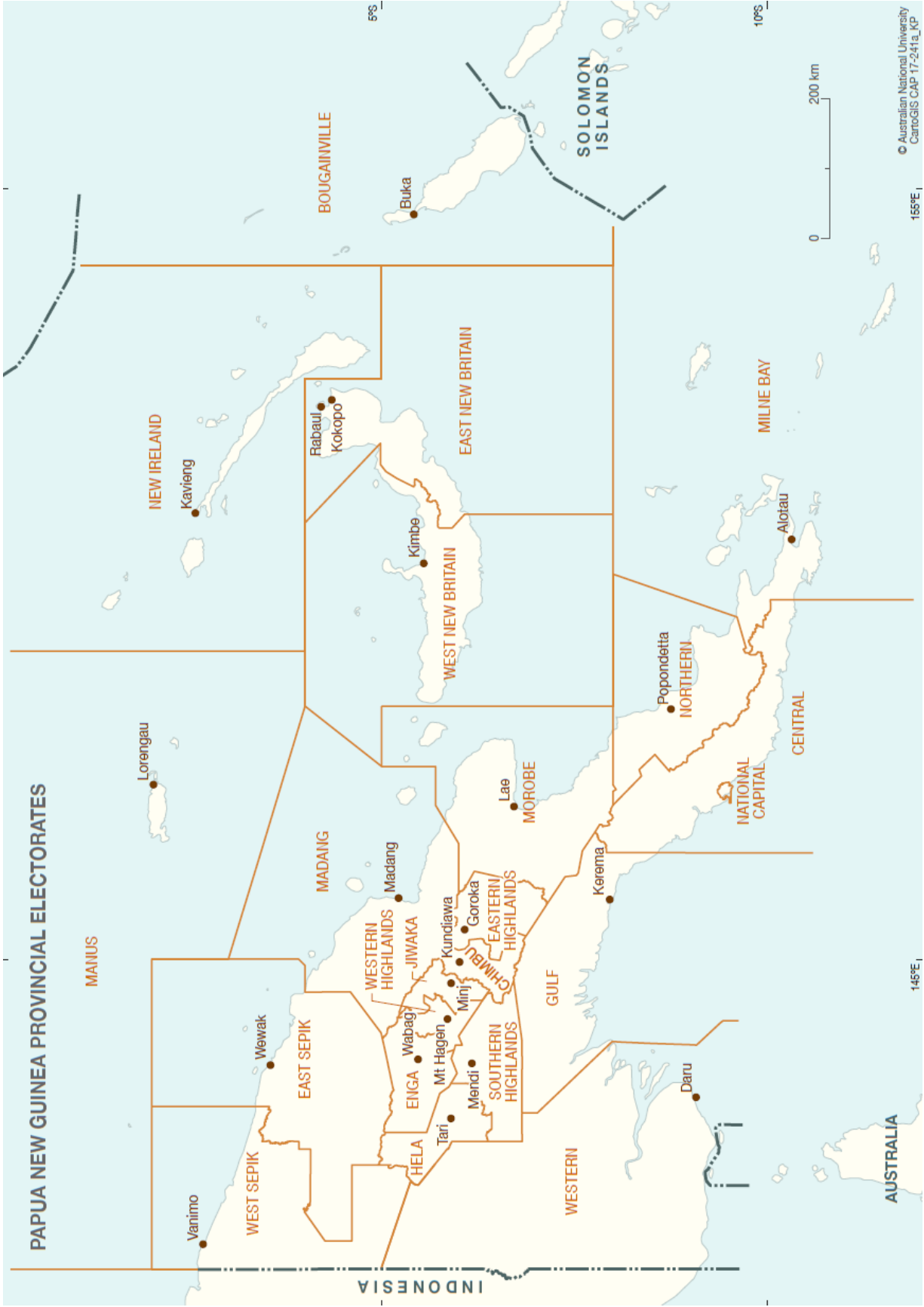
Political dynamics in PNG are characterised by clientelism and an intense focus on local rather than national-level issues. Voter support for individual candidates (including incumbent MPs and governors) is typically predicated on promises of material benefits to supporters – as opposed to the broader electorate – during both the campaign period and parliamentary term if a candidate wins office (Wood 2018). This makes running for election an expensive exercise. Despite this, competition amongst candidates is high and rising. 878 candidates ran in the 1977 election; by 2017, this figure had risen to 3,335 (Kabuni et al. 2022). Incumbent members of parliament (MPs) also face the additional challenge of extremely high turnover rates, with over 40 percent of incumbent MPs losing their seats on average at each election to date in PNG (Howes et al. 2022).

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<sup>1</sup>Provincial-level government planning and budget committees were replaced with district-level District Development Authorities (DDAs) through the *District Development Authority Act* in 2014, which are chaired by open MPs rather than provincial governors.

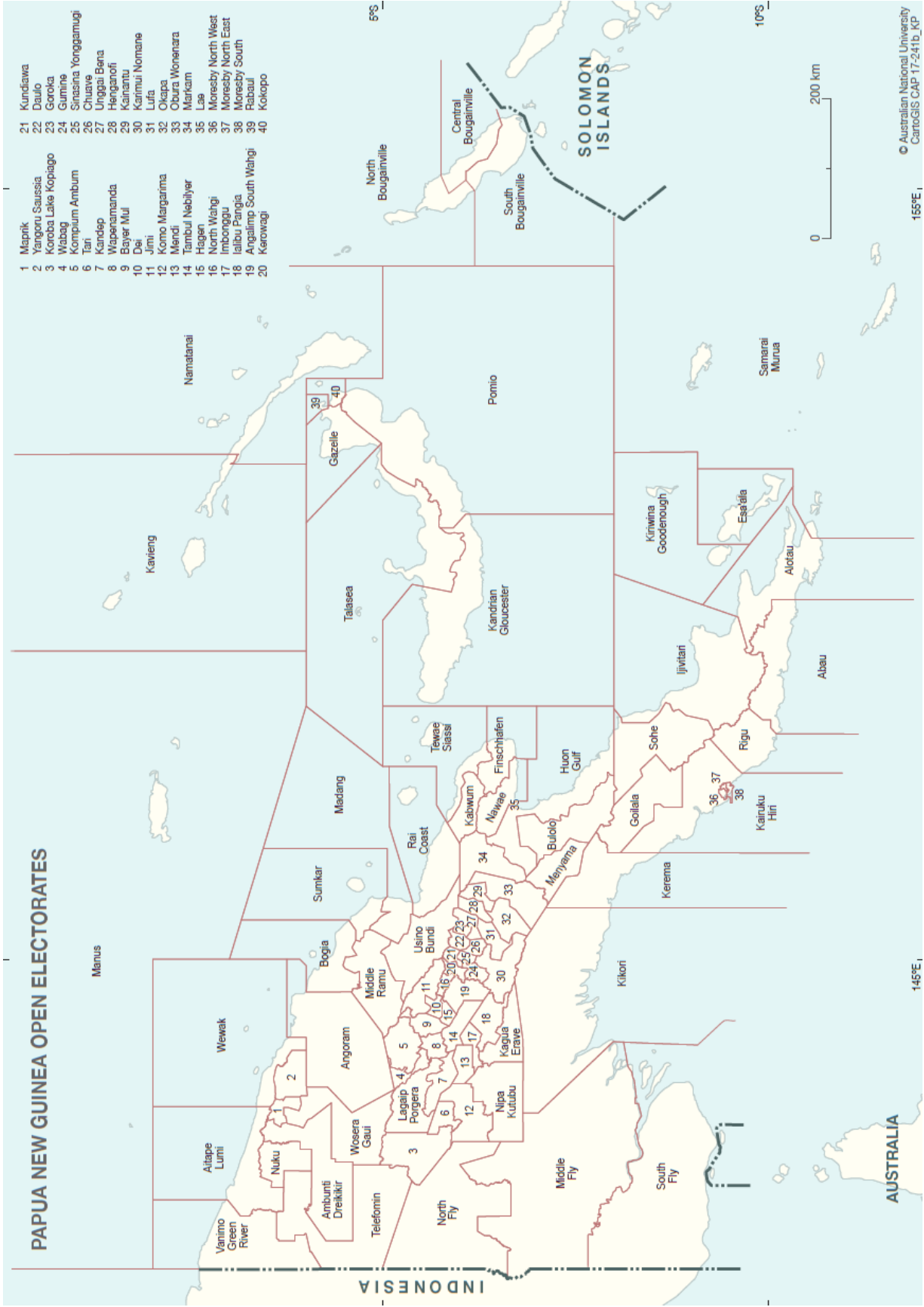
<sup>2</sup>PNG moved from a first past the post electoral system to limited preferential voting following its 2002 national general election; this change has not materially changed election results (Wood et al. 2022).

Figure 1. PNG provincial boundaries



Source: PNG Elections Database (Wood 2019)

Figure 2. PNG open electorate boundaries (2017)



Source: PNG Elections Database (Wood 2019)



Fragmentation and instability are key features of PNG’s politics at the national level. There are a plethora of political parties in PNG as well as numerous independent members; neither of these groups necessarily have clear policy positions (Laveil 2022). For example, 23 parties were represented in PNG parliament immediately following the 2022 elections (Laveil 2022), with 11 of those having just a single member (Howes et al. 2022). Forming government therefore requires bringing together a coalition from many disparate interests, and maintaining power depends on preventing or surviving votes of no confidence during a parliamentary term (Ivarature 2022). As a result, only two prime ministers have ever completed their five year terms in full (Kabuni 2022).

PNG’s political context makes ministerial positions an especially important tool for individual MPs to be re-elected. Specifically, ministers may be able to funnel rents from their departments towards their supporters throughout their time in office, which may assist with re-election prospects. Becoming a minister could also provide prestige that can be leveraged by MPs in their attempts to be re-elected.

In PNG, ministerial positions are largely thought to be allocated based on the influence of various parties within government, with larger parties within the governing coalition receiving disproportionately more ministerial positions (Laveil 2023, Winn 2022). The allowable number of ministers in government is set by PNG’s constitution and the *Organic Law on the Number of Ministers* (Ivarature 2022). Despite this, the number of ministers that can be appointed into cabinet has grown over time – from 28 between 1977 and 2010, to 32 from 2010 to 2023, and most recently 38 as of October 2023 (Ivarature 2022, The National 2023). This in part reflects the perceived utility of ministerial office as a political reward that can incentivise support for the government and prime minister at the national level. Additionally, the number of ministers in a given parliamentary term is large as cabinet reshuffles are frequent (Laveil 2022). On average, 58 MPs (approximately half of all sitting MPs) became ministers within a given parliamentary term between 1977 and 2017.

### 3 Data and variables

#### 3.1 Outcome variable - whether parliamentarians are re-elected

The outcome variable in this paper is binary, and concerns whether an incumbent MP is re-elected at the election following their term in parliament.<sup>3</sup> Data on election outcomes is sourced from the PNG Elections Database (Wood 2019), which present the outcomes of all

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<sup>3</sup>Other outcome variables could be considered relevant, such as first preference vote share. I focus on re-election as this is the primary goal of participating in an election. Additionally, MPs are frequently re-elected with a lower vote share than in previous elections in PNG, making it difficult to link electoral success with vote share.

general elections between 1972 and 2017 in almost all PNG electorates. To be counted as an observation, an MP must run for re-election at time  $t$  (where  $t$  is measured in 5-year blocks representing election cycles) after being previously elected at time  $t - 1$ .

### 3.2 Treatment variable - whether MPs are appointed as a minister

Treatment is defined as being appointed as a minister during a parliamentary term for any duration of time, prior to seeking re-election at the next election. More specifically, an MP is included in the treatment group if they were elected as an MP at time  $t - 1$ , ran for re-election at time  $t$ , and were a minister between time  $t - 1$  and  $t$ .

MPs that run for re-election at time  $t$  after winning an election at time  $t - 1$  but do not become a minister between  $t - 1$  and  $t$  are assigned to the control group. The control group includes the ‘not-yet’ treated, e.g. an MP who runs for re-election at time  $t$  as a backbencher after winning an election at time  $t - 1$ , but later becomes a minister between time  $t$  and  $t + 1$ .

I hand-code the treatment and control groups using information on ministerial tenures from Ivarature (2022), which sets out details on all 1999 ministerial appointments made between 1972-2017 in PNG. This includes their names, duration as minister and portfolio.

Several considerations are worth noting around treatment assignment. First, as discussed in the previous section, ministerial appointments are initially made after elections and then during a parliamentary term based on factors largely exogenous to individual MPs, such as party size and importance within a governing coalition (Laveil 2023, Winn 2022). The total number of ministers allowed at any one time is set by the law.

Second, treatment status can change, or more colloquially ‘turn on and off’, in that an MP who was a minister between time  $t - 1$  and  $t$  may not necessarily be a minister between time  $t$  and  $t + 1$ . I accommodate this by using the de Chaisemartin and D’Haultfoeuille (2022a) estimator that can account for such changes in treatment status over time, and further use an imputation-like estimator from Wooldridge (2021) that does not account for these changes in treatment status as a robustness check.

Third, holding some ministerial offices could arguably have a larger impact on one’s re-election prospects than others (Laveil 2023, Filer et al. 2021a). For instance, being the Prime Minister (PM) is likely far more useful reputationally and in terms of one’s ability to command and channel rents towards supporters, constituents or political allies. Being a minister in a ‘central agency’ may confer more benefits due to greater influence in government policymaking and implementation.<sup>4</sup> In PNG specifically, holding an ‘economic’ ministerial

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<sup>4</sup>Filer et al. (2021a) detail six ‘central agency’ portfolios as per the Central Agencies Coordinating Committee established between 1999 and 2002 - Treasury, Finance, National Planning, Justice, Public

portfolio is also thought to potentially be of greater use to MPs, due to the rent-seeking opportunities associated with these departments (Filer et al 2021a).<sup>5</sup> While Filer et al. (2021a) have attempted to quantify these differences in power between ministries, it is difficult to assert that such weights are objective and consistent over both time and changing political conditions. It is also not possible to utilise this weighting system in a binary treatment framework. Nevertheless, I test the possibility that different types of ministries may have heterogeneous effects on re-election prospects for MPs in section 6.

Fourth, the duration and timing of an MP’s tenure as a minister within an electoral term may have differential effects. A longer tenure as a minister could be seen as having a higher ‘dosage’ of treatment, in that ministers may be able to channel more resources and trade off their reputation for longer to their supporters. Alternatively, being a minister closer to the end of a parliamentary term could appeal to a recency bias in supporters’ memories. While it is not possible to test the former possibility in a binary treatment variable framework, I investigate whether holding ministerial office at different points within a parliamentary term matters for re-election prospects in section 7.

### 3.3 Data issues and summary statistics

I focus on the PNG’s experience following independence in 1975 and therefore exclude electoral outcomes from the 1972 election and ministries held prior to the 1977 election. While the 2022 election has taken place, I exclude outcomes from the 2022 election due to a lack of data availability and redistricting issues. I also drop 15 observations of seats in which elections were considered to have failed by the electoral commission as a result of fraud or similar issues, and 39 observations of seats where data was incomplete. This results in a sample of 1248 observations in total, with 390 observations in the treatment group and 858 observations in the control group (Table 1).<sup>6</sup>

Table 1. Treatment and control observations

	Treatment (minister)	Control (non-minister)	Total
MP loses	186	238	424
MP wins	204	620	824
Total	390	858	1248

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Service and Provincial Affairs. Foreign Affairs is added to this category per Filer et al. (2021a) due to its seniority within government, despite not specifically being a ‘central agency’.

<sup>5</sup>The relevant economic portfolios per Filer et al. (2021a) are: Lands, Mining, Petroleum, Agriculture, Forests, Fisheries, Trade and Industry, and Public Enterprise or Privatisation.

<sup>6</sup>The number of observations in treatment group described here includes ‘always-treated’ observations, which are ultimately dropped during the estimation process.

## 4 Identification strategy

### 4.1 Difference-in-difference event study specification and preferred estimator

To estimate the causal impact of having been a minister on re-election success, I employ a difference-in-difference event study approach and estimate the following equation.

$$Y_{it} = \beta_0 + \sum_{e=-K}^{-2} \delta_e T_{it}^e + \sum_{e=0}^L \tau_e T_{it}^e + \phi_i + \nu_i + \mu_i \quad (1)$$

The dependent variable  $Y$  is whether MP  $i$  is re-elected at time  $t$ , where  $t$  is indexed according to the first election in which the MP runs as an incumbent. The unit of analysis is at the MP level.<sup>7</sup>  $T$  is a dummy that indicates whether MP  $i$  was treated at time  $t$  (i.e. was a minister between time  $t$  and  $t - 1$ ).  $\phi$  and  $\nu$  are election and MP fixed effects respectively, and  $\mu$  is the error term. Values of  $e$  between  $-K$  and  $-2$  indicate the number of elections before an MP becomes a minister;  $e = -1$  is the base election against which effects are compared, i.e. the last election that an MP wins prior to becoming a minister, and  $e = 0$  is the first election where an MP is treated. Values of  $e$  that are greater than zero but less than  $L$  represent the number of elections after treatment began.  $\beta_0$  is the intercept;  $\delta_e$  and  $\tau_e$  are the dynamic treatment effects on MPs' chances of re-election at elections after being treated that are to be estimated.

Using a DID approach accommodates for time-invariant differences between the treatment and control groups (MPs who do and don't become ministers respectively). The use of modern event study techniques further avoids the 'negative weights' problem associated with using two-way fixed effect methods when treatment time is staggered (Roth et al. 2023), as is the case in this paper, by avoiding 'forbidden comparisons' in the form of already-treated units being included within the control group (Goodman-Bacon 2021) that may inject bias into the estimated effects (Roth et al. 2023).

To estimate the model outlined above, I use the approach from de Chaisemartin and D'Haultfoeuille (2022a, hereafter referred to as 'DCDH') to derive my main results. The DCDH estimator compares the outcome evolution of MPs who 'switch in' to treatment (i.e. move from being untreated to treated by becoming a minister) to MPs who do not change their treatment status (de Chaisemartin and D'Haultfoeuille 2022b). Doing so yields the average treatment effect on the treated (ATT) across all 'switchers' or 'movers', which in

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<sup>7</sup>While analysis can be conducted at the electorate-level based on data availability, it is individual MPs rather than electorates that are treated and the channel for treatment to affect outcomes are through the MP's individual actions and reputation; working at the MP level therefore allows for a more intuitive interpretation.

this case is the average effect of being a minister for those who become ministers.

I elect to use the DCDH estimator as it allows me to relax the assumption that treated units always remain treated after treatment begins, which is required by most other relevant estimators. This is important given that it is possible for treatment to turn ‘on’ or ‘off’ as discussed in section 3.2. Critically, this particular estimator also accommodates for the use of an unbalanced panel. As analysis in this paper is conducted at the MP level, the panel data employed does not take a traditional format, in that individual MPs enter and exit the dataset at different points in time according to their election wins and losses. This results in a particularly unbalanced panel, making it important to utilise all available observations as the DCDH approach allows for.

## 4.2 Identifying assumptions

For estimated treatment effects to be regarded as causal, the identifying assumptions of the DID event study approach when using the DCDH estimator are twofold. These are the ‘parallel trends’ assumption, and the assumption of ‘no anticipation’ before treatment occurs.

First, ‘parallel trends’ must hold between the treatment and control groups in both pre- and post-treatment periods (de Chaisemartin and D’Haultfoeuille 2022a). This requires the potential outcome or chance of re-election to evolve similarly for both groups save for treatment, and can be interpreted as both backbenchers and ministers facing the same level of difficulty in being re-elected in the absence of treatment, which could be dealt with to varying degrees of success by the different groups. Importantly, this allows for consistent differences to exist over time between the treatment and control groups without biasing estimates, which in turn allows for the possibility that MPs who become ministers may have some unobservable characteristics (e.g. leadership qualities or charisma) that differ systematically from backbenchers.

Two important features of PNG’s unique institutional setting lend support to the parallel trends assumption holding unconditionally in this case. First, the clientelist nature of PNG politics means that seeking re-election requires copious local campaigning on the part of all MPs. While being a minister may make it easier to campaign effectively – ministers may have more prestige and resources to galvanise support from constituents – every MP is subject to this inherently local and demanding process. Second, the existence of constituent development funds (the District Services Improvement Program (DSIP) and Provincial Services Improvement Program (PSIP) for open and provincial MPs respectively) and the opportunity to use them to aid in re-election for backbenchers and ministers alike (Laveil and Wood 2022) means that both the treatment and control groups are on a relatively level playing

field in terms of the resources available to them save for treatment.<sup>8</sup> Given this, I do not include covariates in my preferred specification of the model.

To further support these arguments around the parallel trends assumption, I add covariates to my preferred model as a robustness check to show that a causal interpretation is still feasible and that results do not change significantly, even if only a conditional version of the parallel trends assumption holds. This is discussed further in section 5.1.1. Additionally, to provide further support for my argument that the parallel trends assumption holds, I show in the results section that the ‘pre-trends’ (i.e. treatment effects prior to treatment beginning) are statistically insignificant in all specifications of the model used in this paper.

The second identification assumption requires treatment to produce no anticipatory effects before treatment actually begins (de Chaisemartin and D’Haultfoeuille 2022a). Anticipation effects are unlikely in PNG’s electoral context. MPs cannot know with certainty before running for re-election that they will be made a minister in the future, as ministerial appointments are made after elections based on factors largely exogenous to individual MPs, such as party size and importance within a governing coalition (Laveil 2023). Even if an MP did know they would be made a minister in the future, this would not provide access to resources associated with ministerial office or a government department prior to actually holding the position. In terms of reputation, it would also be difficult to credibly assert that one would become a minister in future when campaigning for election prior to actually holding ministerial office. Together, this limits the likelihood that a future ministerial position would assist an MP or candidate winning an election prior to becoming a minister.

I further support the robustness of my identification assumptions and estimates by running versions of the model where I exclude MPs who run in urban seats in order to check whether the estimated effects are driven by ‘atypical’ observations. Additionally, for robustness, I augment my preferred estimations using the DCDH estimator by using the estimation procedures from Wooldridge (2021) to check if the results are sensitive to the use of different estimation techniques.

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<sup>8</sup>While significant malapportionment across PNG’s electorates has meant MPs in larger electorates receive significantly less funding per capita, this has not materially affected re-election rates (Laveil and Wood 2022). Additionally, a number of opposition MPs have claimed that DSIP and PSIP funds have been deliberately withheld due to their opposition to the government’s decisions (Kabuni 2018). The opposition in PNG is however typically small in size (ANU-UPNG Partnership 2023), suggesting that this issue is likely to affect only a small subset of observations.

## 5 Does being a minister matter for re-election in all types of electorates?

### 5.1 Open electorates

First, I estimate equation (1) across open electorates, and over two pre-treatment and two post-treatment periods. This effectively considers two elections prior to an MP being made a minister, with the last election before treatment occurs being used as a baseline against which treatment effects are compared, as well as the election immediately after an MP is a minister and the election following that. A lack of data availability prevents the analysis of dynamics over time beyond this. I begin by considering only open electorates, which constitute over 80 percent of seats in the PNG parliament, following the convention established in the literature on PNG politics (Filer et al. 2021a, Laveil and Wood 2022).

The main results are shown in Table 2 (column 1), with the relevant event study plot shown in Figure 3. Importantly, the pre-trend (lead 2) is statistically insignificant, which provides support that the parallel trends assumption holds.<sup>9</sup> I place particular emphasis on the effect at lag 0 – i.e. the treatment effect at the first election after an MP becomes a minister – rather than the overall ATT, as the former can intuitively be considered to be the most important treatment effect.

Within open electorates, being a minister increases the chance of an MP being re-elected by 14.4 percentage points in the election after they are made a minister (Table 2, column 1). This effect is statistically significant at the 1 percent level and can be considered large in magnitude, given that just 45 percent of sitting MPs were returned to power on average between 1977 and 2017 (Howes et al. 2022). The treatment effect dissipates by the time the next election occurs, though the standard errors are large and the estimate therefore imprecise for this period. Despite this, the overall ATT over the two elections following being made a minister is positive, large in magnitude (13.2 percentage points) and significant at the 5 percent level.

The transitory effect of being a minister on an MP’s re-election prospects bears surprising resemblance to the ‘sophomore surge’ (Erikson 1971, Fowler and Hall 2014) observed in broader incumbency effects, where elected officials often win more votes in their first election as an incumbent compared to the election prior to becoming an incumbent. Three potential reasons could explain this transitory ministerial incumbency effect. First, supporters’ expec-

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<sup>9</sup>All specifications feature only one pre-trend period, excluding the baseline period against which treatment effects are compared; this paper therefore focuses on the statistical insignificance of that individual pre-trend. Unfortunately this makes it infeasible to assess joint insignificance (Roth 2022) and violations in the parallel trends assumption (Rambachan and Roth 2023), as these procedures require more than the single pre-trend period available to operate.

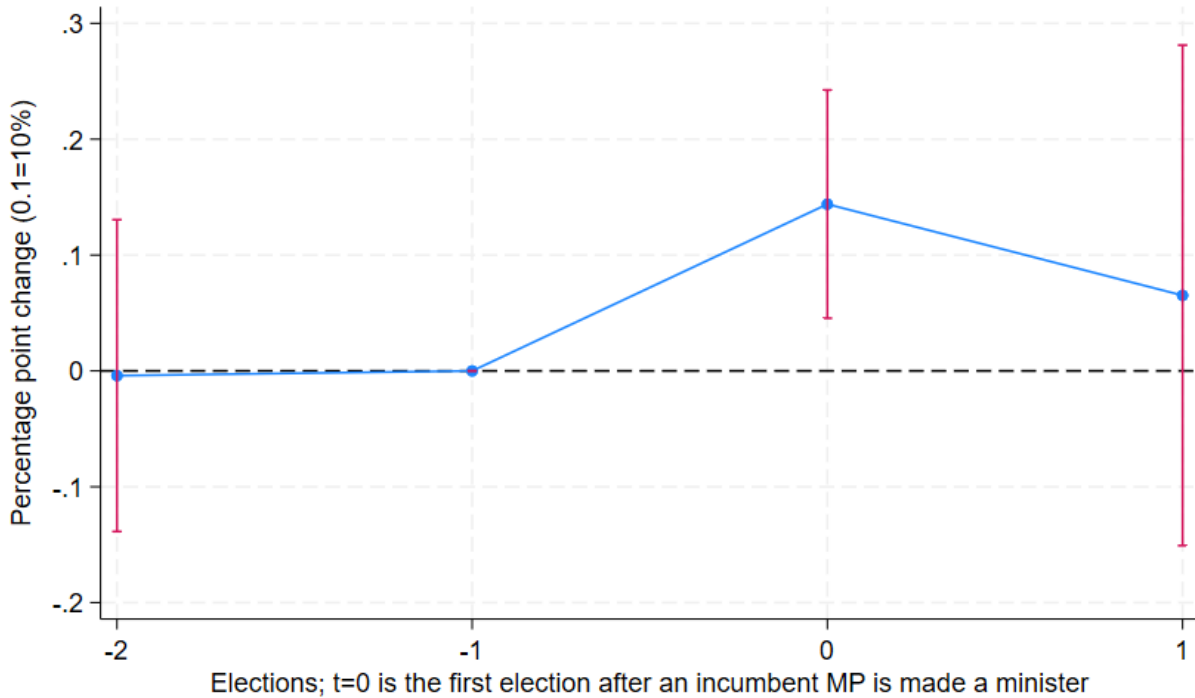
Table 2. Impact of being a minister on re-election  
Different types of electorates

	(1)	(2)	(3)
	Open seats only	Provincial seats only	All seats
Lead 2	-0.004 (0.069)	0.250 (0.210)	-0.071 (0.068)
Lead 1 (baseline)	0	0	0
Lag 0	0.144*** (0.050)	-0.222 (0.154)	0.067 (0.047)
Lag 1	0.065 (0.110)	-0.100 (0.446)	-0.028 (0.093)
Overall ATT	0.132** (0.059)	-0.214 (0.164)	0.042 (0.068)
Pre-trends p-value	0.953	0.233	0.296

Standard errors are clustered at the MP level.

\*\*, \*\* and \* denote statistical significance at the 1, 5 and 10 percent levels respectively.

Figure 3. Percentage point change in re-election chances: open seats only





tations may change (i.e. increase) over time. On one hand, being a minister in more than one term could allow an MP to channel more resources to supporters over a longer period of time within a clientelist political environment. However, it is also possible that expectations from supporters may change over time, given that electoral cycles span several years. If the level of expectations from supporters increases as an MP is a minister for longer, the electoral benefit of channelling a given amount of resources may decline over time. Any initial reputational effects from being a minister may also be subject to these kinds of diminishing returns.

Second, being a minister for longer periods of time may invite greater scrutiny on the performance of politicians. While a longer track record as a minister could be beneficial in campaigning for re-election, such publicity may also be a double-edged sword. Being in the public eye for longer could provide voters with greater information about an MP's performance, values or other attributes, which could lead to changes in voting behaviour - including by exercising their power to remove the MP from office. The temporary nature of the ministerial incumbency effect in PNG may therefore show that accountability mechanisms like elections are indeed functioning.

Finally, a third potential reason for the transient electoral advantage of being a minister is that holding such office could draw an MP's attention towards national policy and politics at the expense of spending time engaging with their electoral district and delivering action on local issues. In a clientelist political environment, this could materially affect one's chances of being re-elected.

Together, it appears that initial benefits associated with being a minister – potential access to resources, reputation, publicity and national influence – can dissipate as supporters' expectations either increase, or remain unchanged but unmet. These effects may be augmented as the MP spends more time on national rather than local issues given the clientelist nature of PNG politics, and as scrutiny increases with the MP's prominence.

### **5.1.1 Robustness checks for open electorates**

I run several tests to check the robustness of the above empirical results on open electorates. Specifically, I run the model while excluding 'atypical' observations of urban seats; include covariates in the model; and estimate the model using an alternative DID estimator from Wooldridge (2021) to ensure my results are robust to the estimation method used.

First, I run my preferred model for samples in which 'atypical' observations are excluded. To do so, I first drop the four urban seats in PNG from the analysis. One possible concern around my identification strategy could be that MPs seeking re-election in urban seats face a different challenge to those in the rest of PNG's rural seats. Urban seats are much more

densely populated, which could make it easier to campaign using both reputational and financial resources associated with being a minister. Urban electorates may also be more ethnically and linguistically diverse than other electorates in PNG due to internal migration (Filer et al. 2021b), which may make it more difficult for MPs to appeal to clan or other loyalties for electoral support.

Table 3 (column 4) shows that the strong statistically significant effect of being a minister on an MP’s re-election prospects remains distinguishable from zero even after urban electorates are excluded from the model. In fact, the magnitude of the effect increases marginally in the election immediately after treatment occurs when urban seats are excluded (from 14.4 to 14.7 percentage points). This could indicate that ministerial status or resources are very slightly more useful in rural electorates than urban ones; this would accord with the lower level of development and incomes in rural areas in PNG.

Table 3. Impact of being a minister on re-election  
Various alternate samples, specifications and estimators

	(4) Open rural seats only	(5) With covariates, open rural seats only	(6) Wooldridge estimator
Lead 2	-0.035 (0.072)	-0.022 (0.076)	
Lead 1 (baseline)	0	0	
Lag 0	0.147*** (0.050)	0.127** (0.056)	
Lag 1	0.054 (0.114)	0.039 (0.110)	
Overall ATT	0.131** (0.061)	0.110** (0.063)	0.183** (0.099)
Pre-trends p-value	0.633	0.773	

Standard errors are clustered at the MP level.

\*\*\*, \*\* and \* denote statistical significance at the 1, 5 and 10 percent levels respectively.

Additionally, I include time-invariant covariates to strengthen the credibility of the parallel trends assumption. One potential threat to the parallel trends assumption holding may be that electorates in which MPs run may systematically differ across the treatment and control groups; perhaps MPs that become ministers face easier prospects of re-election in their seats than in others. To assert a conditional version of the parallel trends assumption as a robustness check, I include time-invariant covariates using data from Filer et al. (2021b) on population density, ethno-linguistic fragmentation and political competition in each district

in which MPs run.<sup>10</sup> As data for these covariates is only available for rural open electorates, I drop observations for urban electorates and do not include provincial seats, and compare this specification (column 5 in Table 3) to the results of column 2, which features the same specification with the exception of covariates being included. The results when covariates are included are consistent with previous specifications, with slightly lower point estimates but similar levels of statistical significance found for the initial and overall treatment effects.

Finally, I estimate my preferred model using the sample of open seats using the estimator from Wooldridge (2021) to show that my results are robust to using a different DID estimation technique. The Wooldridge estimator is an imputation-like estimator that removes forbidden comparisons by interacting cohort treatment dummies and treatment timing (Wooldridge 2021), offering a useful complement to the treatment and control cohort approach used by the DCDH estimator (de Chaisemartin and D’Haultfoeuille 2022a). The results produced by the Wooldridge estimator (the overall ATT from column 6 in Table 3) are largely similar to those from the DCDH estimator (column 1, Table 2). This is reassuring, especially since the Wooldridge estimator cannot account for changes in treatment status over time as is possible using the DCDH approach. One caveat is however that pre-trends cannot be produced as the control group includes the not-yet treated, and estimates using the Wooldridge estimator are not compatible with the event study plot and estimated coefficients from the DCDH estimator.<sup>11</sup>

## 5.2 Provincial electorates

Within provincial seats only (Table 2, column 2), becoming a minister appears to have a negative and large in magnitude (-22.2 percentage points) but statistically insignificant effect on electoral success in the election immediately after becoming a minister (Figure 4). The effect remains statistically insignificant and negative in the next period and indeed over the whole treatment period.

One possible concern is statistical power, given that provincial seats make up less than 20 percent of all seats in PNG parliament and observations are therefore limited to 236 rather than 1248 MP election results. However, the results for column 3 in Table 2 suggest that when all electoral seats in PNG are considered together, becoming a minister does not appear to have a statistically significant effect on the likelihood of re-election in any of the post-treatment periods. This provides further support for any ministerial incumbency effect

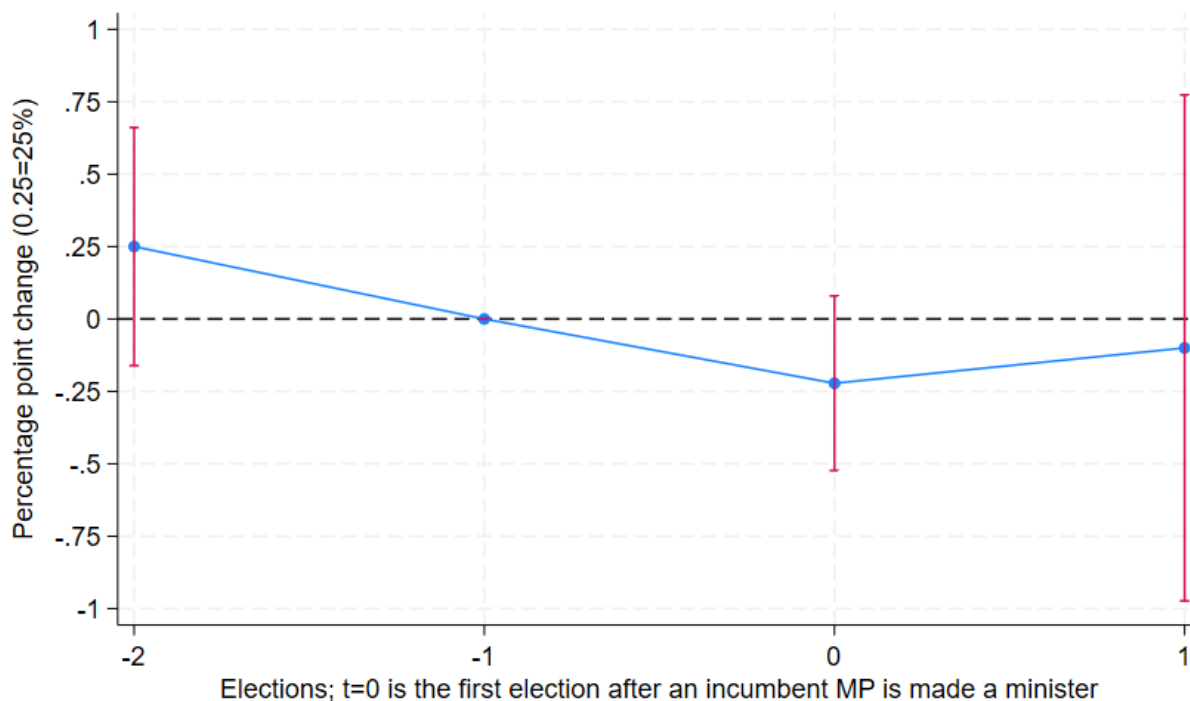
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<sup>10</sup>While time-invariant district-level effects are already largely accounted for in the fixed effects term of the DID specification, these covariates are nevertheless selected based on their relevance to MPs’ re-election prospects as evaluated in Filer et al. (2021a).

<sup>11</sup>This is due to the use of the ‘jwddid’ command for the Wooldridge estimator.

in provincial seats being at minimum weaker than in open seats, or else either nonexistent or negative.

Figure 4. Percentage point change in re-election chances: provincial seats only



A key explanation for these heterogeneous treatment effects across different types of electoral seats is that parliamentarians in provincial seats are by default made the governor of their province, and are required to vacate the office of the governor if they are appointed as a minister under section 19(1)(b)(i) of the *Organic Law on Provincial Governments and Local-level Governments (1998)*. This policy clearly affects the net benefit of becoming a minister for MPs in provincial seats. In particular, governors chair the Provincial Assembly (the provincial level elected government) and until 2014 sat on influential local government planning and budget committees (*Organic Law on Provincial Governments and Local-level Governments 1998*). It is not clear whether the cost of losing these benefits and the 'governor' title is outweighed by any resource or reputational benefits accrued by being a minister; this ambiguity in the net effect of becoming a minister is reflected in the statistically insignificant treatment effect estimated in columns 2 and 3.

An important implication of these results is that the effects of being a minister on parliamentarians' chances of re-election do not appear to be uniform and can be altered by policy. This suggests that measures to constrain the power of the executive government can be effective, even in clientelist political environments, provided that such policies change costs and benefits enough to meaningfully alter the incentives of politicians.

## 6 Which ministries matter most for re-election?

Not all ministries are created equal. As initially discussed in section 3.2, it is plausible that being the PM confers substantially more resource and reputational benefits over and above holding another ministerial office, which could be thought of as a larger treatment ‘dose’ that cannot be accounted for in a binary treatment framework. This may also be the case if an MP is a minister in a ‘central agency’, where they may be able to wield greater influence over government policymaking or the implementation of important projects, or if the MP holds a ministerial position in an economic portfolio, where rent-seeking opportunities that may aid re-election prospects may be relatively more abundant (Filer et al. 2021a). The treatment effect of being a minister, broadly defined, could potentially then be driven largely by a small subset of the sample.

To assess whether this is the case, I rerun several versions of the open electorates specification from section 5.1 after dropping all observations associated with the following types or groups of ministers from the sample per Table 4:

Table 4. Types of ministers and number of MPs

Type of ministers	Number of MPs dropped from sample
Prime Ministers (PMs)	9
PMs and Deputy Prime Ministers (DPMs)	47
Central agency ministers + PMs and DPMs	105
Economic ministers + PMs and DPMs	181

The portfolios within the ‘central agency’ and ‘economic’ categories are taken from Filer et al. (2021a). There are six ‘central agency’ portfolios within the Central Agencies Coordinating Committee established between 1999 and 2002: namely Treasury, Finance, National Planning, Justice, Public Service and Provincial Affairs. Additionally, I follow Filer et al. (2021a) by including Foreign Affairs in the ‘central agency’ category due to the portfolio’s importance within government. The relevant economic portfolios are: Lands, Mining, Petroleum, Agriculture, Forests, Fisheries, Trade and Industry, and Public Enterprise or Privatisation (Filer et al. 2021a).

The output in Table 5 shows that the treatment effect of being a minister on re-election chances remains statistically significant even when PMs and DPMs are excluded from the sample. Compared to the specification where PMs were included (column 1), the magnitude of the effect declines slightly when PMs are excluded (column 7) and more so when DPMs are excluded in addition to PMs (column 8) - suggesting that there is a substantial advantage associated with moving ‘up the ranks’ from a ministerial portfolio (8.9 percentage point increase in likelihood of re-election after one term in parliament) to the DPM and PM

positions. More broadly, this shows that there are meaningful effects on MPs' re-election prospects from holding ministerial positions, beyond the obviously large benefits of being the PM or DPM.

Table 5. Impact of being a minister on re-election  
Various types of ministers

	(1) Open seats only	(7) Excl PMs	(8) Excl PMs & DPMs	(9) Excl central agencies, PMs & DPMs	(10) Excl economic ministries, PMs & DPMs
Lead 2	-0.004 (0.069)	-0.004 (0.076)	0.002 (0.080)	-0.013 (0.087)	0.017 (0.110)
Lead 1 (baseline)	0	0	0	0	0
Lag 0	0.144*** (0.050)	0.131** (0.052)	0.089** (0.053)	0.049 (0.056)	0.020 (0.063)
Lag 1	0.065 (0.110)	0.062 (0.111)	-0.024 (0.112)	-0.253** (0.103)	-0.299*** (0.104)
Overall ATT	0.132** (0.059)	0.122** (0.058)	0.065 (0.058)	-0.020 (0.059)	-0.067 (0.067)
Pre-trends p-value	0.953	0.957	0.267	0.885	0.878

Standard errors are clustered at the MP level.

\*\*\*, \*\* and \* denote statistical significance at the 1, 5 and 10 percent levels respectively.

The ministerial advantage however disappears when central agency ministers and economic ministers are respectively removed from the sample, indicating that it is these more senior positions that are driving the electoral advantage associated with holding ministerial portfolios. After excluding PMs and DPMs from the sample and then additionally removing central agencies (including the Foreign Affairs portfolio) per column 9 in Table 5, the results suggest that there is no advantage to holding a ministerial position. In fact, it appears to be a 25.3 percentage point *disadvantage* (statistically significant at the 5 percent level) to holding a non-central ministerial position when attempting to be re-elected for a second time. A similar dynamic can be observed when economic ministers are excluded from the sample in addition to PMs and DPMs, as is shown in column 10 in Table 5, where the second-round disadvantage is even greater at 29.9 percentage points (statistically significant at the 1 percent level).

Taken together, this suggests that what type or level of ministerial office an MP holds matters greatly for one's re-election prospects. And it lends weight to the proposition that the mechanisms for ministries improving re-election odds are likely to be around reputation

or profile, associated with more senior ministerial positions; influence within government, as is the case when heading central agencies; or rent-seeking opportunities, which are more abundantly available in economic ministries.

On the flip side of the coin, the electoral *disadvantage* associated with holding more junior ministerial positions is also of note. While it is surprising on face value that being a minister could lower one's chances of re-election relative to being a backbencher, it is possible that holding even a junior portfolio creates expectations of MPs that cannot necessarily be met without the influence or resources associated with more senior ministries.

This has interesting implications for political strategy in PNG and other clientelist political environments, where ministerial positions are increasingly used as a reward for government support, as shown by the number of ministers continually growing over time as discussed in section 2. If a junior ministerial position makes an MP less likely to be re-elected, is it really a credible reward for performing well in a junior role or a useful stepping stone towards taking up more important ministerial positions later? Or does being re-elected as a junior minister instead demonstrate the 'survival of the fittest', marking the MP in question as being capable and therefore worth keeping on side in future? While I am unable to provide further insight into these dynamics quantitatively, further research into this area would be useful.

## **7 Does the timing of holding ministerial office matter for re-election?**

The timing of when an MP is made a minister and how close this is to the next election could affect treatment effects. Holding ministerial office at the end of a parliamentary term – i.e. just prior to attempting re-election – may allow MPs to capitalise on a recency bias in supporters' memories, compared to those who hold a ministerial position earlier in an election cycle. Voters may also be inclined to be more 'lenient' when considering whether a new minister has performed sufficiently well to be re-elected, as they not necessarily have had much time within a parliamentary term to achieve much in the role. However, the ability of a minister to channel resources or capitalise on their reputation may also be more limited if they only became a minister late in a parliamentary term.

To investigate this, I divide my treatment group into two subsamples: ministers who hold office at the end of a parliamentary term, and those who were ministers during a term but did not hold office at that term's conclusion. There are 188 observations in the first group, and 202 observations in the second group. For the former group (ministers at end of a term), I exclude observations of MPs who held ministerial office during a term but did not maintain

their position at the term’s end to avoid contaminating the control group. For the latter subsample (ministers earlier in a term), I exclude MPs who held ministerial positions at the end of the parliamentary term. In effect, the control group then becomes the ‘never-treated’ group, as opposed to the ‘not-yet treated’ group used in all other analysis in this paper.

Running the model again across open electorates using these separate treatment groups suggests that being a minister at any point of a parliamentary term, earlier or later, improves an MP’s chances of re-election by virtually the same amount: specifically by 12.8 percentage points for MPs who are ministers at the end of a term per column 11 in Table 6, and 12.9 percentage points for MPs who are ministers at any other time during a term per column 12, also in Table 6. The effect is statistically significant at the 10 percent level for ministers at the end of a term, compared to significance at the 5 percent level for ministers earlier in a parliamentary term, though the overall ATT is not statistically significant for the latter specification. Taken together, this suggests that being a minister at any point during a parliamentary term is beneficial to an MP’s re-election prospects, and that voters may not necessarily hold a recency bias with regard to ministerial positions, at least within a single parliamentary term.

Table 6. Impact of being a minister on re-election  
Timing of holding ministerial office

	(11)	(12)
	Minister at end of a term	Minister earlier in a term
Lead 2	0.083 (0.129)	-0.130 (0.096)
Lead 1 (baseline)	0	0
Lag 0	0.128* (0.069)	0.129** (0.062)
Lag 1	0.187 (0.154)	-0.230 (0.151)
Overall ATT	0.158** (0.075)	0.055 (0.071)
Pre-trends p-value	0.522	0.174

Standard errors are clustered at the MP level.

\*\*\*, \*\* and \* denote statistical significance at the 1, 5 and 10 percent levels respectively.



## 8 Conclusion

This paper has examined the impact of holding ministerial office on the likelihood of re-election for incumbent MPs in PNG by using a difference-in-difference event study approach. I estimate that for MPs in open seats, being a minister increases the chance of an MP being re-elected by 14.4 percentage points in the election immediately after their appointment, and that this effect dissipates by the time the next election takes place. By contrast, being a minister has no statistically significant effect on MPs' re-election prospects for those running in provincial electorates. The magnitude and direction of ministerial incumbency effects further depend on what kind of portfolio an MP holds. Economic or central agency positions appear to be substantially more advantageous than junior ministries; indeed, holding the latter positions may actually hurt parliamentarians' chances of re-election. Finally, I find that being a minister at the end of a parliamentary term or otherwise provides a relatively similar boost to an MP's chances of re-election.

Taken together, this paper demonstrates that ministerial incumbency effects exist, at least in the short-run. The advantage associated with being a minister can however vary substantially according to how long ministerial office is held for, the type of ministry held, and what electorate a politician is running in – even within a single political system. Being a minister may consequently not be a universal benefit for all politicians seeking to be re-elected, even in clientelist political environments such as PNG. Further research could consider comparing the effects of differing lengths of tenure as a minister, and investigating whether the political and benefits of holding a ministerial position are declining over time as the number of ministerial positions on offer grows.

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