The Costs of Patronage:
Evidence from the British Empire

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I combine newly digitized personnel and public finance data from the British colonial administration 1854-1966 to study how patronage affects the promotion and incentives of governors. Governors are more likely to be promoted to higher salaried colonies when connected to their superior during the period of patronage. Once allocated, they provide more tax exemptions, raise less revenue, and invest less. The promotion and performance gaps disappear after the abolition of patronage appointments. Patronage therefore distorts the allocation of public sector positions and reduces the incentives of favored bureaucrats to perform.
JEL: O1, M51, D73

State capacity is fundamental to development and growth.[1] Bureaucrats are a key element of state capacity: they embody the human capital of the state and are responsible for the delivery of public services and the implementation of policies. Understanding how to promote and incentivize bureaucrats is central to improving organizational performance.[2]

Throughout history, patronage has been the dominant method for the appointment to public office (Grindle, 2012).[3] From chiefdoms to royal courts, patronage played a key role in the allocation of positions. Discretionary appointments of bureaucrats remain widespread even in developed countries today. In the U.S. alone, more than 8,000 senior federal positions are still allocated "at the pleasure of the President."[4] Discretionary appointments are also pervasive outside of the public sector. The appointment of CEOs or board members based on family ties and social networks, for example, is common practice (Bertrand, 2009).

[1] See for example Besley and Persson (2009), Besley and Persson (2010), and Acemoglu, Garcia-Jimeno and Robinson (2015).

[2] See Gibbons and Roberts (2012) and Lazear and Oyer (2012).

[3] "Patronage" refers to the discretionary appointment of individuals to governmental or political positions (Webster's II New College Dictionary 1995).

[4] This count is derived from the list published after each Presidential election in the "United States Government Policy and Supporting Positions", commonly known as the "Plum Book" (GAO-13-299R, March 1 2013).

In theory, the impact of patronage on organizational performance is ambiguous. Discretion over appointments can improve incentives through monitoring if principals hold private information over appointees or if loyalty limits agency problems. Patronage, however, can also be detrimental for organizational performance if favoritism disincentivizes subordinates (Aghion and Tirole, 1997; Prendergast and Topel, 1996). Despite the importance of patronage in shaping the allocation of bureaucrats, evidence on how patronage affects promotion incentives remains scarce due to data limitations and the lack of variation in appointment rules.

This paper studies how patronage affected the promotion and incentives of socially connected senior bureaucrats within a public organization that spanned the globe: the Colonial Office of the British Empire. At its peak, the Colonial Office administered close to a fifth of the world's land mass through its colonial governors. These governors were leaders of the colonies and were appointed at the discretion of their political minister, the Secretary of State for the Colonies. I digitized over 3,000 volumes of historical personnel and public finance reports to construct a unique individual-level dataset covering the universe of 456 colonial governors across 70 colonies from the birth of the Colonial Office in 1854 to its dissolution in 1966. This is the first time these historical sources have been assembled into a single dataset.

My setting provides two sources of variation to identify the impact of patronage. First, the turnover of Secretaries of State induced by the electoral cycle in London generated shocks in social connections among serving governors. These within-governor shocks enable me to examine how changes in connections affected the allocation and performance of the same governor, thus holding constant time-invariant unobserved characteristics. Second, the long study period captures variation in the extent of discretion the Secretary of State could exercise in allocating governorships. In the early period (1854-1930), governors were exclusively appointed at the discretion of the Secretary of State. After 1930, the Warren Fisher Reform placed the appointment of governors under the oversight of an independent civil service appointment board. Hailed as the "Magna Carta of the Colonial Office", this civil service reform limited the extent to which discretionary appointments could be made (Kirk-Greene, 2000; Banton, 2008). Combining both sources of variation allows me to study the impact of social connections on promotions and performance before and after the removal of patronage.

To measure social connections, I leverage genealogical and biographical data to construct predetermined proxies of connectedness between the Secretaries of State and governors that is defined by shared ancestry, membership of groups like the aristocracy or the attendance of the same elite school or university. To measure performance, I exploit the fact that governors were sufficiently important to control policies that could credibly affect measurable aggregate outcomes. Heading up entire colonies, governors wielded substantial executive and legislative power. Under the revenue imperative - whereby colonies had to "pay their way" by raising funds for public service provision - revenue generation was a central

measure of performance and state capacity (Jeffries, 1938; Besley and Persson, 2009). Building on the literature on leaders and CEOs, the focus on colonial governors allows me to map top bureaucrats to aggregate economic outcomes (Bertrand and Schoar, 2003; Jones and Olken, 2005).

My empirical analysis yields two of results. First, exploiting within-governor variation in connections to the Secretary of State induced by the ministerial turnover in London, I find that the same governor receives a 10% higher salary when connected during the period of patronage. As wages are typically fixed across positions, this increase is driven by the promotion to higher salaried governorships. These governorships are also in larger and richer colonies, suggesting that the salary difference reflects the assignment to more desirable jobs. The preferential promotion of connected governors disappears after the removal of patronage in the 1930 Warren Fisher Reform.

Second, exploiting governor-colony variation in connections to the Secretary of State, the same governor generates 4% less annual revenue in the same position when connected during the period of patronage. This decline is driven by lower customs revenue and coincides with lower investments. I use coded data on colonial tax laws to show that connected governors provide more trade tax exemptions. Text mining of newspapers and UK parliamentary debates provides evidence consistent with lower performance. When connected, governors are more likely to be associated with higher levels of reported social unrest, more likely to be mentioned with negative sentiments in the UK parliamentary debates and less likely to receive public awards. These performance differences disappear after the abolition of patronage.

Taken together, the results suggest that patronage not only distorts the allocation of public sector positions, but also reduces the incentives of favored bureaucrats to perform. My results therefore underpin a long tradition of intellectual thought that views the transition away from a patronage-based system of administration to a rule-based civil service as the emergence of the modern state (Northcote and Trevelyan, 1854; Weber, 1922).

The study of the organization of the state is rapidly expanding as state capacity is increasingly seen as a key driver of economic performance (Besley and Persson, 2009; Finan, Olken and Pande, 2015). My paper contributes to this growing literature by studying a global bureaucracy - the British Empire - and how the method of appointment of their leaders can affect colony-level performance. My paper differs from the existing literature as I focus on civil service leaders that have bearing on macroeconomic fiscal outcomes. In contrast to the larger body of literature on the selection of public servants (Brollo, Forquesato and Gozzi, 2017; Dal Bó, Finan and Rossi, 2013; Dal Bó et al., 2017; Deserranno, 2018; Teso, Colonnelli and Prem, 2017; Weaver, 2018), my empirical strategy holds selection constant, thus allowing me to add to the emerging literature on the incentives within the public sector. By providing evidence from civil service leaders, I complement the literature on promotion incentives among frontline

providers (Banerjee et al., 2012; Khan, Khwaja and Olken, 2018). In contrast to
Iyer and Mani (2012) and Jia (2017), the abolition of patronage also enables me
to study the impact of social connections under two different allocation regimes.[5]

I.   Empirical context and data

A.   Background and natural experiment

The organization under study is the Colonial Office. The Colonial Office was
founded in 1854[6] and tasked with administering overseas possessions.[7] At the
peak of British colonialism, this bureaucracy spanned the globe, covering nearly
a fifth of the world's land mass (Figure 1).

Figure 1. Territories administered by the Colonial Office - 1905

Note: British territories administered by the Colonial Office in 1905.

Two institutional settings of the Colonial Office provide variation that enable
me to study the impact of patronage on the allocation and performance of socially

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[5]In contrast to the role of connections in firms (Fisman, 2001; Bandiera, Barankay and Rasul, 2009, 2010; Kramarz and Thesmar, 2013), less is known about connections in public organizations. These organizations, characterized by low exit rates and the absence of performance pay, differ from firms in substantive ways (Dewatripont, Jewitt and Tirole, 1999). More broadly, I add to the growing literature on the incentives and selection of public servants (Khan, Khwaja and Olken, 2015; Persson and Zhuravskaya, 2016; Rasul and Rogger, 2017).

[6]From 1800-1853, the Colonial Office was merged with the War and Colonial Department. In 1907, the Dominions Division was created to oversee the relations with the self-governing territories of Canada, Australia, New Zealand, South Africa, Newfoundland and the Irish Free State. In 1966, the Colonial Office merged with the Foreign Office.

[7]Studying patronage in the Colonial Office, my analysis excludes all territories not under control of the Secretary of State for the Colonies. These comprise territories administered by the India Office (modern day India, Bangladesh, Burma and Pakistan) as well as territories whose oversight were devolved (e.g. due to independence or transfer to another department like the Dominions Division). See Appendix Table B1 for the full list.

connected bureaucrats. The first source of variation is the ministerial turnover. The Colonial Office was headed by the Secretary of State for the Colonies. A political position, the Secretary of State was appointed by the monarch on advice of the Prime Minister. Changes in the Secretary of State are driven by two margins: Cabinet reshuffles at the discretion of the Prime Minister, and changes of Prime Ministers through elections. The average duration of a Secretary of State appointment between 1854-1966 is around 3 years. The temporal changes in Secretaries of State with varying connectedness to the serving governors is the first source of variation I exploit.

The second source of variation is the change in the appointment regime. The Secretary of State enjoyed discretion over the appointment of governors who were tasked with administering their assigned colonies between 1854-1930.[8] Throughout the paper and following the historical term, I refer to this period of discretionary appointment as *patronage*. Governorships were explicitly held to be "proper objects for the exercise of patronage by the Secretary of State for the Colonies." Patronage was frequently employed, "overtly as *connections* or more obliquely through the recognition of shared politics, professional camaraderie, or the obligations of friendship and family" (Laidlaw, 2005).[9] Such connections extended well beyond the direct family to cover large kinship networks (Bourne, 1986), and patronage lasted well into the 20th century (Jeffries, 1938). While patronage appointments were progressively eliminated from the domestic Crown Civil Services and *de jure* replaced by competitive examinations following the seminal Northcote-Trevelyan Report of 1854, the "principle of patronage steadfastly continued until 1930" for senior appointments (Kirk-Greene, 2000). Only after 1930 were patronage appointments of governors replaced by a formal system of open recruitment. Named after the first Head of Home Civil Service Warren Fisher, the abolition of patronage appointments for governors has been hailed as the "Magna Carta of the Colonial Service."

The relationship between a colony and London was centered around the Secretary of State and the subordinate governor. As an appointed representative of the Crown for a fixed period of 6 years, a governor would directly report to the Secretary of State. With their duties codified in the *Colonial Rules and Regulations*, governors were bureaucrats in the classic sense. Their powers were formally delineated under the "general powers of an officer appointed to conduct colonial government." The main duties were (Regulations of 1862): (i) Control over public finance (III.16), (ii) Legislate (I.23) (iii) Confer civil service appointments in colonies (III.20) (iv) Security (III. 26), (v) Grant pardon (III.5) and approve marriages (I.18). Overall, the aim was to "direct [...] attention to [...] the Aboriginal

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[8]The title of the administrator of a colony is the governor, or lieutenant-governor, commander-in-chief, captain-general, governor-in-chief or governor-general. As their administrative functions were comparable (Banton, 2008), I refer to all these as *governors* for expositional simplicity.

[9]In the simplest theoretical formulation, the Secretary of State is altruistic towards connected subordinates or favors them in expectation of reciprocity (See Online Appendix for a discussion of the conceptual framework).

advancement in civilisation" (III. 25).

At the same time, however, they effectively acted, as famously noted by governor Frederick Lugard, as the "man on the spot". Despite the subordinate position, governors enjoyed substantial discretion in their administration of the colonies. Governors in the most unchecked colonies exercised all executive powers and could enact laws directly by proclamation. With colonies spread across the globe, "the distance between the centre and the periphery required a policy of trust" (Banton, 2008). In effect, high monitoring costs rendered "any attempt to conduct the details of the administration from this country [UK] [...] absolutely impracticable". The autonomy of the governor created widely different policies and practices across the dependencies. The delegation of power from London to the colonies enabled governors to develop "real" authority.

This tension between devolving real authority to the governor to promote initiative and the loss of control for the Secretary of State reflects the classic delegation problem (Aghion and Tirole, 1997). Governors balanced the demands of the local elites against the directives from the Secretary of State while maximizing their own rents from the public office (Gardner, 2012). As Banton (2008) summarizes, "in distant Crown Colonies the Home Government can only supervise - they cannot judge except on the governor's local information. Their original act is sending a good governor, and their check is dismissing him." With the appointment and dismissal subject to the discretion of the Secretary of State, however, patronage is likely to have had a large impact on the allocation and incentives of the governors.

B. Data sources and digitization

I undertook a large-scale data digitization exercise to construct an individual-level personnel dataset of the Colonial Office. My analysis combines newly digitized data from four sources: the Colonial Office List 1860-1966, the Colonial Blue Books 1821-1949, biographical data from DeBrett's and the UK Who-is-Who, and genealogical data from the online database The Peerage. The sample period is 1854-1966, tracing the entire period of the Colonial Office from its establishment to its dissolution. The Appendix Section B provides a detailed documentation.

Colonial Lists. The first source of data on the postings, backgrounds, and salaries of governors is derived from the Colonial Office Lists. These files have been systematically compiled by the Colonial Office to document changes in the administrative structure and personnel of each colony under the British Empire from 1860-1966. I digitized the entire set of Colonial Office Lists. This allows me to match governors at any given point in time to the appointed colony and the corresponding salary. For the period before these lists were available, I derive the same information from the Blue Books (see below).

Blue Books. The main source of colonial statistics is drawn from the Colonial Blue Books 1821-1949. The Blue Books were annually compiled administrative statistics providing detailed information about public finance (revenue and expenditures), demographics (population size, births and deaths), trade and socio-

economic statistics such as education (e.g. number of schools) and prices. The key advantage of the Blue Books is the comparability across colonies and time. Statistics from the Blue Books were collected through standardized forms, which governors were required to submit on an annual basis (See Figure A1). I conducted archival work to digitize the full set of 3,905 volumes from holdings at the UK National Archives, the Commonwealth Library and the library of the Royal Commonwealth Society to construct comparable public finance statistics across colonies and time. For the later periods, I use colony-specific statistical yearbooks to extend the series up to the dissolution of the colonies around 1966. The final dataset contains 70 colonies (See Appendix Table B1 for list).

Genealogical data. I obtained biographical information about the Secretaries of State and governors from the DeBrett's database and the UK Who-is-Who. For governors that were not listed in these data sources, information was drawn from the Colonial Lists and secondary sources. Finally, I drew upon genealogical data to create a comprehensive family network of the British elite. I use family tree data from The Peerage (www.thepeerage.com). The data provides a genealogical survey of the peerage of Britain as well as the royal families of Europe, including the family trees of the British elite. This enables me to create a measure of connectedness between the Secretary of State and his subordinate governors. The construction of the measure of connectedness is described in Section I.C.

Table 1 reports descriptive statistics for a wide set of governor and colony-level characteristics. About 9% of the governors are aristocrats and members of the peerage (Panel A).[10] The vast majority of governors (84%) served as civil servants before their first governorship. 44% of governors pursued a military career before first serving as a governor. 9% of governors held political positions prior to joining the Colonial Office. 18% (15%) of the governors graduated from Oxford (Cambridge). Governors are senior: the average age at entry is 49 years. Governors serve on average 8 years and in 1.8 colonies before retiring. In terms of colony-level characteristics (Panel B), average public revenue and expenditure increase over time. Trade taxes comprise nearly half of all revenue across the entire sample period. Governor salaries likewise increase over time, exhibiting substantial variation. While salaries vary both within and across governorships, 76% of the variation is explained by differences in colony size, as measured by total revenue and population (Appendix Table B4).

As Table 1 also shows, a special feature of the data is the unbalancedness of the panel. The spatial and temporal spread of the British Empire imposes natural constraints on the sample size. The unbalanced nature of the panel is therefore driven by the entry and exit of colonies administered by the Colonial Office. While the main within-governor analysis is unaffected by this feature, a systematic composition change may affect the interpretation of the reform effects. This issue will be taken up in the discussion of the results (Section II.B).

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[10]Peerage is defined as encompassing the hereditary titles of Duke, Marquess, Earl, Viscount and Baron.

Table 1—Descriptive characteristics of governors and British colonies

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Governor characteristics	Pooled years		By year			
	Mean	SD	1860	1900	1930	1960
Peerage	0.085	0.280	0.047	0.153	0.027	0.000
Civil servant	0.846	0.361	0.809	0.923	0.837	1.000
Military	0.440	0.497	0.416	0.411	0.323	0.200
Politician	0.087	0.283	0.166	0.128	0.027	0.000
Eton	0.109	0.312	0.125	0.066	0.068	0.111
Oxford	0.178	0.383	0.136	0.147	0.303	0.100
Cambridge	0.150	0.358	0.103	0.194	0.242	0.600
Age at entry	48.652	8.990	41.600	46.077	50.800	48.900
Years served	8.313	6.649	5.5	4.897	4.081	2.700
Colonies served	1.793	1.263	1.667	1.564	1.324	1.300
Observations	456 (330)		42 (22)	39 (30)	37 (29)	10 (9)
Panel B	(7)	(8)	(9)	(10)	(11)	(12)
Colony characteristics	Pooled years		By year			
	Mean	SD	1860	1900	1930	1960
(log) Total revenue	12.309	2.185	10.850	12.638	13.135	15.961
- Share customs revenue	0.477	0.219	0.566	0.457	0.431	0.575
(log) Total expenditure	12.333	2.166	10.879	12.551	13.236	15.964
(log) Population	11.689	1.995	10.823	12.037	12.071	13.052
(log) Governorship salary	7.929	0.795	7.739	7.961	8.079	8.877
Area tropics	0.652	0.423	0.564	0.591	0.720	0.742
(log) Distance from London	8.386	0.551	8.337	8.453	8.328	8.243
Observations	3,510 (2,708)		-	-	-	-
Number of colonies	70 (60)		42 (31)	39 (30)	37 (29)	10 (3)

Note: **Panel A** reports descriptive governor characteristics for all years, and 1860, 1900, 1930 and 1960. Peerage is a dummy that is 1 if the governor is a Duke, Marquess, Earl, Viscount or Baron. Civil servant/military/politician are dummies that are 1 if the governor served as a civil servant/in the military/as a politician before assuming the first governorship. Eton/Oxford/Cambridge are dummies that are 1 if the governor was educated in the named institutions. Age at entry is the age of the governor at time of first governorship. Year served is the total number of years served as governor in the Colonial Office. Colonies served is the number of governorships held. **Panel B** reports descriptive colony-level statistics. Total revenue and expenditures are in nominal terms. Share of customs revenue is the share of external (trade) taxes over total revenue. Population is the total count derived from the census and (linearly) interpolated between the years. Governor salary is the total annual compensation. Area tropics is the share of the colony within the tropics. Distance from London is the distance from London to the nearest port in the colony. Number in parentheses denotes the minimum number of observations across all variables.

C. Measuring connectedness

This study requires a valid measure of social ties between the Secretary of State and the governors. This measure must meet two criteria. First, it must capture objective ties. This is a challenge as social connections are difficult to observe directly. Second, the measure of social ties must address the issue of endogenous network formation. If high ability governors are more likely to both be promoted and establish social ties with their superior, the resulting estimates would mistakenly attribute unobserved ability differences to the effect of connectedness in explaining promotion patterns. To meet both criteria, I combine several pre-determined measures to proxy for unobserved social ties: shared ancestry, membership in the aristocracy, and having attended the same elite school or university. These are group traits that historians have shown to be important predictors of homophily and patronage networks in the 19th century British colonial service (Kirk-Greene, 2000). More generally, these are measures that have been shown to affect economic outcomes in a variety of settings (Ashraf and Bandiera, 2017).

Shared ancestry. I use exogenous family networks to proxy for unobserved social ties. By measuring connectedness through relatedness by blood, I derive a network measure that is both predetermined and objectively measurable using family trees. The use of family networks as a measure of connectedness is particularly suitable in my context. As a large share of Secretaries of State and governors originate from the British elite, their ancestry is well documented in existing genealogical datasets. Furthermore, the role of family ties in securing jobs has been well documented in the literature (Laidlaw, 2005).

The main source of genealogical data comes from the online database The Peerage, which maps the ancestry of over a million individuals across Europe's elite. I first extract the data to create a large dataset of dyadic relationships. I then restrict the relationships to blood-relations and identify the 456 governors and 37 Secretaries of State by matching them against their full name and date of birth. Given their elite status, 94% of the Secretaries of State are reliably matched in the genealogical data. Reflecting the less elite circles from which the subordinate governors are recruited, only 34% are matched in the data. As the family trees of nearly all Secretaries of States are fully mapped out, I assume that the missing governors are unconnected to their superior. Since I am exploiting within-governor variation, this assumption does not introduce selectivity issues. For the remaining individuals, I apply Dijkstra's shortest path algorithm to calculate the degrees of separation between any governor and his superior Secretary of State. I define a Secretary of State and governor to have shared ancestors if both are connected in the family tree and if the degree of separation is sufficiently close.

There is a trade-off in choosing the cut-off that defines "closeness." A low degree of separation increases the likelihood of an actual social tie. At the same time, a close cut-off will reduce the number of Secretary of States and governors that are classified as kins. As the empirical strategy requires observing governors both

connected and unconnected, a lower degree of separation reduces the number of "switchers" (Appendix Figure A3). To obtain sufficient variation in shared ancestry, I hence use the cut-off of 16 degrees of separation. This maximizes the switcher sample and corresponds to 25% of the governors sharing ancestry with their superior. The results do not critically hinge on this choice of the cut-off point.[11]

Membership in the aristocracy and common schooling. I complement the measure of shared ancestry with three additional measures. First, I define "both aristocrats" to be a dummy that is 1 if both the governor and Secretary of State are members of the British peerage, holding hereditary aristocratic titles (e.g. Baron, Duke). Second, I construct a dummy "Both Eton" that is 1 if the governor and Secretary of State both attended Eton, an elite school which nearly half of the Secretaries of State attended. Finally, I use a dummy "Both Oxbridge" that is 1 if both the governor and Secretary of State attended Oxford or both attended Cambridge. As Secretaries of State are on average older than their subordinates, there is little contemporaneous overlap and common schooling can hence be interpreted as an alumni network.

These proxies of social ties do not go without objections. In terms of shared ancestry, being connected per se, especially if with a large degree of separation, need not always imply the presence of social ties.[12] Indeed, neither the intensity nor the direction of the actual social tie between two relatives is observed. Similarly, belonging to the aristocracy does not imply that two individuals have necessarily established social ties. All these measures of connectedness are, in effect, proxies for social ties that are not directly observed. For the purpose of the identification strategy and the interpretation of my reduced form estimates, I only require that two connected individuals are more likely to share social ties - either directly or indirectly through their membership in the same kinship or alumni network - than two unconnected individuals.[13] Although the actual social ties are never observed, all four measures of connectedness are, consistent with the assumption, positively correlated (Appendix Table B2). In my analysis, I combine all measures into a single measure of connectedness. Figure 2 shows the variation in the share of connected governors over time. The overall share of connectedness remains relatively constant as the decline in family ties is gradually offset by a rise in schooling ties.

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[11]The main results are robust to cut-offs between 13 to 17, corresponding to the peak of the switcher sample.

[12]Compared to the population, 16 degrees of separation by blood is still relatively close (8th cousins). When drawing 1,000 random pairs from the full Peerage dataset, only 10% of the links are closer than 16 degrees of separation (Appendix Figure A2). Henn et al. (2012) provide an upper bound of 590,000 8th cousins for a given individual. With the UK population in the 1851 Census estimated at 27,368,800, this corresponds to 2.1% of the British population.

[13]This is the standard assumption in models of network formation, see Breza (2016).
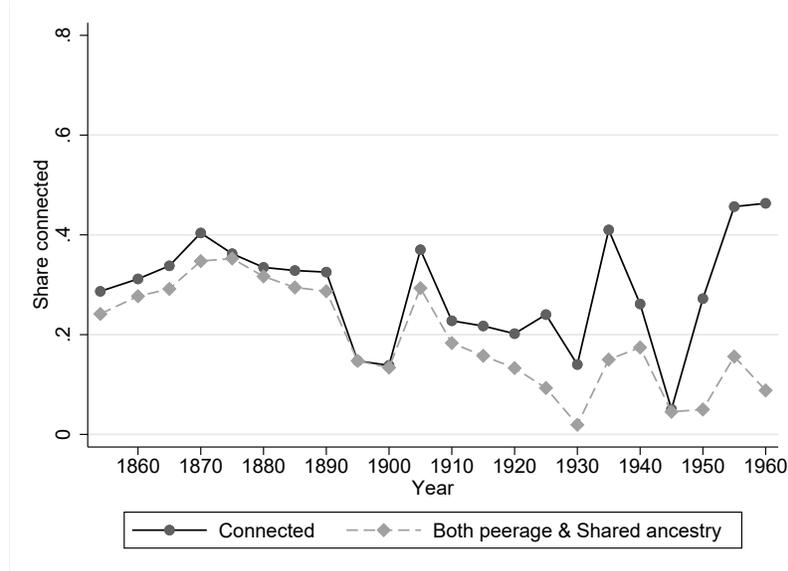
FIGURE 2. SHARE OF GOVERNORS CONNECTED TO THE SECRETARY OF STATE

Note: Share of serving governors connected to the Secretary of State for 1854-1966. Connectedness is defined as sharing common ancestors, both belonging to the aristocracy, having attended the same elite university (Oxford/Cambridge) or elite school (Eton).

II. Salaries, Promotions and Connectedness

Figure 3 motivates the analysis by providing descriptive evidence for the average salaries of connected and unconnected governors over time. On average, governors who are connected to the Secretary of State receive higher salaries. The gap is largest in the late 19th century and closes following the 1930 reforms. Of course, the observed salary gap could reflect many factors: higher paid governors may be more talented to begin with. Similarly, the closing of the salary gap may reflect pay compression as decolonization sets in.

To test if connected governors of same ability are more likely to be allocated to higher salaried governorships during the period of patronage, I estimate the reduced form effect of social connections on the salary and allocation of serving governors. I then combine the shocks in connections with the removal of patronage. The resulting double-differences then identify the extent to which patronage affected the pay and allocation of connected governors.

A. Salary premium of social connections

To move beyond the raw data, I first estimate the average impact of social connections on governor remuneration. For governor i in colony s at time t, I
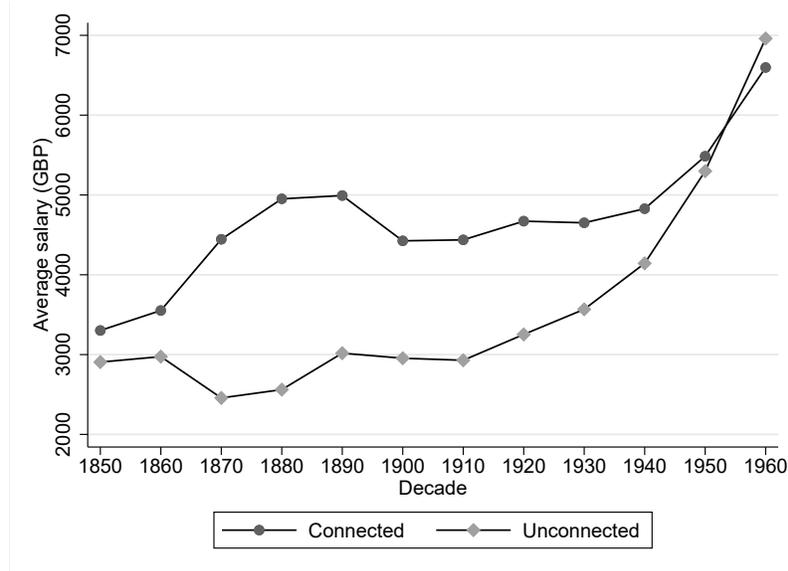
FIGURE 3. AVERAGE SALARY CONNECTED VS. UNCONNECTED OVER TIME

Note: Average annual governor salary (GBP) for connected and unconnected governors over time.

estimate following specification:

$$(1) \qquad \log w_{ist} \quad = \quad \beta \times c_{it} + \theta_i + x'_{it}\gamma + \tau_t + \varepsilon_{ist}$$

where w_{ist} is the governor's salary and the dummy $c_{it} = \{0, 1\}$ denotes the connectedness to the Secretary of State in office. The connectedness between the governor and his superior is measured by the shared ancestry, the membership in the British aristocracy, or having attended the same elite secondary school (Eton) or university (both Oxford/both Cambridge).

The turnover of Secretaries of State in London generates variation in social connections to serving governors. To exploit this source of variation, I introduce governor fixed effects θ_i. These absorb all unobserved governor-specific heterogeneity that is correlated with connectedness, for example that higher ability governors receive higher salaries and are more likely to be connected. The identification is therefore driven by governors who change their connections during their career. Table B6 provides balancing statistics for these "switchers." In terms of descriptive statistics, the "switchers" are between those who are always connected and never connected (Appendix Table B7).

Around 21% of the 456 governors experience a change in connections over their career, corresponding to 28% of the full sample in the governor-year panel. Governors are as likely to be connected early on in their careers and appointments as later. There is also no statistically discernible difference in the likelihood of trans-

fer to another governorship and retirement from the Colonial Office. Throughout the subsequent analysis, I include the remaining governors to remove noise and to obtain more precise estimates.

With the governor fixed effects holding constant time-invariant confounders, the remaining identification threat is that "within-governor" shocks in connections are correlated with other time-varying governor-specific characteristics. As Table B6 shows, however, this variation is uncorrelated with time-varying individual-specific observables. While concerns over unobserved time-varying governor-specific characteristics may still remain, there are few obvious candidates. The reason is that the measure of connectedness is pre-determined and driven by the temporal turnover of Secretaries of State which, in turn, generates cross-sectional variation in connectedness to *all* serving governors. So although the unobserved lobbying activities of an exceptionally powerful governor may, for example, induce the appointment of a connected Secretary paying higher salaries, the entry of the new Secretary will generate shocks to connections to all other serving governors. This implies that lobbying as an omitted variable will only pose a threat if all governors who became connected at a given time engaged in lobbying. This case, however, is captured by the inclusion of year fixed effects τ_t that absorbs unobserved temporal shocks common to all serving governors. The ministerial turnover occurs through elections unrelated to colony outcomes.[14]

Nonetheless, I include x_{it} as a vector of time-varying characteristics: these comprise the total number of colonies served and a full set of dummies for each year of tenure in the current governorship. Finally, ε_{ist} is the error term, which is clustered at the governor-secretary level, corresponding to the level of the identifying source of variation. The results, however, are robust to alternative clustering strategies (Appendix Table B11).

The results are presented in Table 2 and suggest that connected governors receive substantially higher salaries. Columns 1 to 4 include each separate measure of connectedness, showing that the same governor, at times connected to the Secretary of State, receives higher salaries based on all four measures. In terms of the point estimate, the salary premium is largest when both are members of the British aristocracy and comparable for the shared ancestry and having attended the same elite school and university. These four measures of connectedness are positively correlated, suggesting that connected individuals are more likely to share similar biographies and socio-economic backgrounds (Appendix Table B2). When including all four measures of social connectedness (Column 5), the point estimates are smaller and noisier. Given the noisiness of the estimates, however, I cannot statistically reject the equality of all point estimates. To increase the power, Column 6 combines all measures into a single measure of connectedness that is 1 if the governor and Secretary of State are connected based on at least

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[14]The only predictor of turnover are elections (Appendix Table B5). The results are robust to using only variation in connections induced by elections (Appendix Table B10, Column 3).

TABLE 2—GOVERNOR SALARY AND CONNECTEDNESS TO SECRETARY OF STATE

	(1)	(2)	(3)	(4)	(5)	(6)
	log Governor salary in GBP					
Mean of dep. var	7.929	7.929	7.929	7.929	7.929	7.929
No. colonies served	0.221	0.222	0.223	0.222	0.224	0.223
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
Shared Ancestors	0.103				0.093	
	(0.047)				(0.046)	
Both Aristocrats		0.215			0.176	
		(0.124)			(0.121)	
Both Eton			0.133		0.118	
			(0.077)		(0.081)	
Both Oxbridge				0.072	0.073	
				(0.047)	(0.045)	
Connected						0.097
						(0.036)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Governor FEs	Yes	Yes	Yes	Yes	Yes	Yes
Spell length FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,510	3,510	3,510	3,510	3,510	3,510

Note: Unit of observation is the governor-year. Sample period 1854-1966. Dependent variable is the (log) salary in GBP paid to a governorship in a given year. No. of colonies served is the number of colonies the governor has served in up to the given year. Connected is a dummy that is 1 if the governor and Secretary of State share either common ancestry, are both aristocrats, both went to Eton, or both studied at Oxford or both at Cambridge. Spell length FEs are dummies for each year of the term. Robust standard errors in parentheses, clustered at the dyadic governor-secretary of state level.

one of the four dimensions.[15] The combined estimate shows a salary premium of 9.7%.[16]

While the within-governor analysis alleviates concerns over unobserved fixed governor-specific confounders, these estimates are invariably conditional on governors not exiting from the Colonial Office. A potential selection bias may then arise if the changes in connections are associated with exit. Assuringly, however, there is no statistically significant association between the within-governor shocks in connections and exit (Appendix Table B6). Similarly, the career duration of connected governors is comparable to those of unconnected governors (Appendix Figure A4). Since the main focus of this paper is to understand how social connections shape the allocation of jobs *within* the organization, exit would imply a salary of zero. Given the seniority of the governors (the median age at exit is 58), almost all governors retire after their last governorship. The estimate of the

[15]The main margin of connectedness is on a single dimension. 74% (94%) are connected on one (two) of the four dimensions. The results are robust when dropping one of the four dimensions in turn (Appendix Table B12).

[16]An alternative interpretation is that the shock in connections does not only reflect changes in the dyadic connection to the direct superior but to the entire cabinet, reflecting an in-group vs. out-group effect and not a personal tie. To provide evidence against this, Appendix Table B10, Column 1 runs a horse-race between the connectedness to the Secretary of State and the Prime Minister. The results show that the salary premium is only driven by the connectedness to the direct superior. The premium for connections does not vary by the party in office (Column 4).

premium I obtain from only comparing the salaries of those who did not exit the organization will hence constitute a lower bound.

The large increase in salaries for connected governors is striking as salaries within bureaucracies are typically fixed across positions. Table 3 sheds light on the drivers of the observed salary increase by exploring two channels: increasing the salary for connected governors in the same colony or by transferring connected governors to higher paid colonies.

TABLE 3—TRANSFERS AND CONNECTEDNESS TO SECRETARY OF STATE

	(1)	(2)	(3)	(4)	(5)
			Fixed colony characteristics		
	log Governor		log Initial	Area in	log Distance
	salary (GBP)		revenue	tropics	London
Mean of dep. var	7.929	7.929	10.74	0.653	8.563
No. colonies served	0.223	0.035	0.737	-0.017	0.063
	(0.035)	(0.020)	(0.095)	(0.025)	(0.029)
Connected	0.097	0.011	0.177	0.014	-0.019
	(0.036)	(0.018)	(0.099)	(0.029)	(0.033)
Year FEs	Yes	Yes	Yes	Yes	Yes
Governor FEs	Yes	Yes	Yes	Yes	Yes
Colony FEs	-	Yes	-	-	-
Spell length FEs	Yes	Yes	Yes	Yes	Yes
Observations	3,510	3,510	3,510	3,510	3,510

Note: Unit of observation is the governor-year. Sample period 1854-1966. Dependent variable is the (log) salary of a governorship. No. of colonies served is the number of colonies the governor has served in. Connected is a dummy that is 1 if the governor and Secretary of State share either common ancestry, are both aristocrats, both went to Eton, both studied at Oxford or both at Cambridge. Spell length FEs are dummies for each year of the term. Robust standard errors in parentheses, clustered at the dyadic governor-secretary of state level.

Column 1 reports the salary premium based on the combined measure of connections (the same as in Table 2, Column 6). To first test whether the observed increase by 9.7% is driven by increasing the salary for the same position, I repeat the exercise by holding constant the position using colony fixed effects (Column 2). The result suggests that the increase is not driven by the intensive margin, and the salary premium for connections within the same colony is near zero. Consistent with the rigidity of the salary structure within bureaucracies, the finding suggests that the salary increase is driven by transferring connected governors to larger governorships.[17]

I provide evidence for this in Columns 3 to 5, where the dependent variables are time-invariant colony characteristics. The results suggest that connected governors are indeed more likely to be promoted to larger colonies (Column 3). In line with a career based civil service, both the salary and the assigned colony are increasing with experience, as captured by the number of colonies served. Eval-

[17]As demotions are rare, this increase is entirely driven by the promotion of newly connected governors to higher salaried colonies (Appendix Table B3).

uating the coefficients, the premium of connections corresponds to almost a half of the gain from serving in one additional colony (Column 1). The reallocation channel through which Secretaries of States increase their connected subordinates' salaries stands in stark contrast to the private sector, where discretionary salary hikes within the same position are common (Kramarz and Thesmar, 2013). Discretion in promotions could hence undermine the ability of fixed wage schedules to limit favoritism.

Although all governors exercise comparable administrative duties across different colonies, one concern for the interpretation is that differences in salaries may reflect compensating differentials (Dal Bó, Finan and Rossi, 2013). While expenses in the colonies were typically covered by the Crown, thus alleviating concerns over differences in local price levels, salary differences could still arise due to amenity differences across colonies. Governors are then, for example, compensated with a higher salary for serving in colonies with a greater disease burden or further away from London. In Columns 4 and 5, I test if the higher paid and larger colonies are also more likely to be in tropical regions or further away from London. The results show that this is not the case, providing evidence against compensating differentials. Higher paid governorships thus are more likely to indeed reflect more desirable jobs.[18]

B.   The removal of patronage - Warren Fisher Reform 1930

The results demonstrate the centrality of social connections in shaping the allocation of governors during a period in which securing senior positions through connections was the norm. Although the practice of patronage appointment was gradually eliminated from the domestic civil service following the seminal Northcote-Trevelyan report of 1854, civil service reforms within the Colonial Office had lagged behind. While competitive examinations were introduced for the lower-tier colonial administrative service as early as the 1850s, the right to appoint senior governors by patronage remained a legal privilege until the reform of 1930.

Implementing the Warren Fisher report "On the System of Appointment in the Colonial Office and Colonial Services" published in the same year, the Colonial Office saw sweeping changes in the system of appointment. As the report noted, the "system is open to criticism first and foremost as being at any rate in theory, a system of patronage", where the "[Secretary of State] has the sole power, through his private secretary, over the selection of candidates."[19] The report hence recommended that the "existing arrangement should be replaced by a system of recruitment at once more authoritative and more independent."

More specifically, the reform replaced the role of the private secretary of appointments, who acted under the direct control of the Secretary of State, with

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[18]If anything, colonies with higher settler mortality pay lower wages. Given the incomplete data on settler mortality, however, I only report the cross-colony correlations in Appendix Table B4.

[19]Warren Fisher Committee Report on System of Recruitment (1930, CAOG 13/317), page 21.

the *Colonial Service Appointments Board.* This board consisted of a Chairman and two members nominated by the independent UK civil service commission. Although the final selection was submitted to the Secretary of State, upon whose authority appointments would ultimately be made, the board imposed considerable constraints on the extent of discretion by overseeing the machinery of recruitment and appointments. The Warren Fisher Reform, therefore, replaced the "century-old patronage system by a public process of application and interview under the auspices of an independent and formal selection board" (Kirk-Greene, 2000). The reform led to the creation of a personnel department by separating the recruitment functions from the direct influence of the Secretary of State. In effect, these reforms led to the professionalization of the colonial bureaucracy. Hailed as the "Magna Carta of the Colonial Service", the 1930 reform was a defining moment of the Colonial Office (Kirk-Greene, 2000).

The reform provides a natural experiment to study the extent to which the removal of patronage appointments limited favoritism among Secretaries of States. I test for a differential effect of social connections after the reform by estimating the difference-in-differences:

$$(2) \qquad \log w_{ist} \quad = \quad \beta_0 \times c_{it} + \beta_1 \times c_{it} \times \mathbf{1}[t \geq 1930] + x_{it}'\gamma + \theta_i + \tau_t + \varepsilon_{ist}$$

where w_{ist} is the wage and $c_{it} = \{0,1\}$ is the dummy for connectedness. This specification now allows the gap between the connected and unconnected governor to vary before and after the reform. Since the Warren Fisher Reform formally abolished patronage, I expect the promotion gap to be smaller after the reform. The remaining variables are defined as before, with the only difference being that the vector x_{it} now also allows for the impact of a large set of observable characteristics to vary after the reform. This mitigates concerns that the reform also had impacts on dimensions other than social connections. These time-interacted characteristics include the number of colonies served, as well as the previous career background of the governor (civil servant, military, politician).

The results in Table 4 show that the promotion gap disappears after the 1930 reform. While connected governors receive 12.7% higher salaries before 1930, the salary gap is statistically indistinguishable from zero after the reform (Column 2). This is an important result as the introduction of a formalized appointment board changes the allocation and promotion patterns of governorships: the preferential treatment of connected governors, as evidenced in the positive salary difference, disappears after the reform limited the extent of discretion the Secretary of State could exercise. This suggests that the Warren Fisher Reform was effective in reducing the impact of connections on shaping the allocation of public leadership positions.

TABLE 4—WARREN FISHER 1930 - REMOVAL OF PATRONAGE

	(1)	(2)	(3)	(4)	(5)	(6)
			Governor salary			
Mean of dep. var	7.929	7.929	7.929	7.929	7.929	7.986
Connected	0.097	0.127	0.205	0.129	0.091	0.172
	(0.036)	(0.043)	(0.059)	(0.043)	(0.041)	(0.045)
Reform dummy × Connected		-0.123	-0.222	-0.119	-0.138	-0.205
		(0.056)	(0.079)	(0.058)	(0.078)	(0.056)
Connected + Reform dummy	-	0.004	-0.017	0.009	-0.046	-0.033
× Connected		(0.040)	(0.041)	(0.048)	(0.068)	(0.038)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Governor FEs	Yes	Yes	Yes	Yes	Yes	Yes
Spell length FEs	Yes	Yes	Yes	Yes	Yes	Yes
Time-varying controls	Yes	Yes	Yes	Yes	Yes	Yes
Connected × Trend (centered 1930)	-	-	Yes	-	-	-
Connected × Governor characteristics	-	-	-	Yes	-	-
Connected × Colony characteristics	-	-	-	-	Yes	-
Sample			Full sample			Pre/post
Observations	3,510	3,510	3,510	3,510	3,510	2,429

Note: Unit of observation is the governor-year. Sample period 1854-1966. Dependent variable is the (log) salary of a governorship. Connected is a dummy that is 1 if the governor and Secretary of State share either common ancestry, are both aristocrats, both went to Eton, or both studied at Oxford or both at Cambridge. Reform dummy is a dummy that is 1 after 1930. Time-varying controls comprise the number of colonies the governor has served in. Governor characteristics are: dummies for previous career track prior to first governorship (civil servants, military, politician) and number of colonies served. Connected × Trend interacts the connected dummy with a linear time trend centered around 1930. Connected × Governor characteristics interacts all governor characteristics (centered around sample mean) with the connectedness dummy. Fixed colony characteristics are: (log) initial revenue of the colony, area (%) of colony in the tropics, (log) distance to London and the first year the colony was administered by the Colonial Office. Connected × Colony characteristics interacts all time-invariant colony characteristics (centered around sample mean) with the connectedness dummy. Spell length FEs are dummies for each year of the term. Columns 1-5 present results for the full sample. Column 6 constrains the sample to only colonies observed both before and after 1930. Robust standard errors in parentheses, clustered at the dyadic governor-secretary of state level.

A caveat of this design is that time-varying unobservables may still confound the impact of the reform. The reform, for example, nearly coincided with the Great Depression. Similarly, reforms such as the unification of the Colonial Administrative Service happening concurrently may have also affected the allocation of governors. Given the double-difference design, however, the set of potential temporal confounders is reduced as any confounder would also need to differentially affect connected and unconnected governors. To address related concerns that the reform may capture the gradually declining role of connections, Column 3 allows the impact of social connections to trend linearly. To ensure that the results are not driven by composition shifts in the pool of governors, Column 4 allows the impact of connections to vary by a host of observable governor characteristics. The results are nearly unchanged.

A related concern is that the composition of colonies may have changed after the reform: as colonies enter and exit from the British colonial administration, a concern is that the mitigated effect of connections post-reform is not driven

by the reform itself but by the fact that the only colonies remaining after 1930 were those where connections have no discernible treatment effect. To account for differential treatment effects driven by such a composition change, Column 5 allows the impact of connections to vary by initial colony-characteristics such as the revenue size, the area in the tropics, landlockedness, age and the distance to London. In addition, Column 6 constrains the sample to only colonies that existed both before and after the reform. Once again, the results remain comparable both in terms of point estimates and statistical significance.

To further alleviate empirical concerns, Appendix Table B13 (Panel A) provides a set of additional robustness checks. The results are robust to dropping the World War II years (Column 2), the Great Depression (Column 3) and interacting the impact of connectedness with the British GDP growth rate to account for business cycle effects (Column 4).
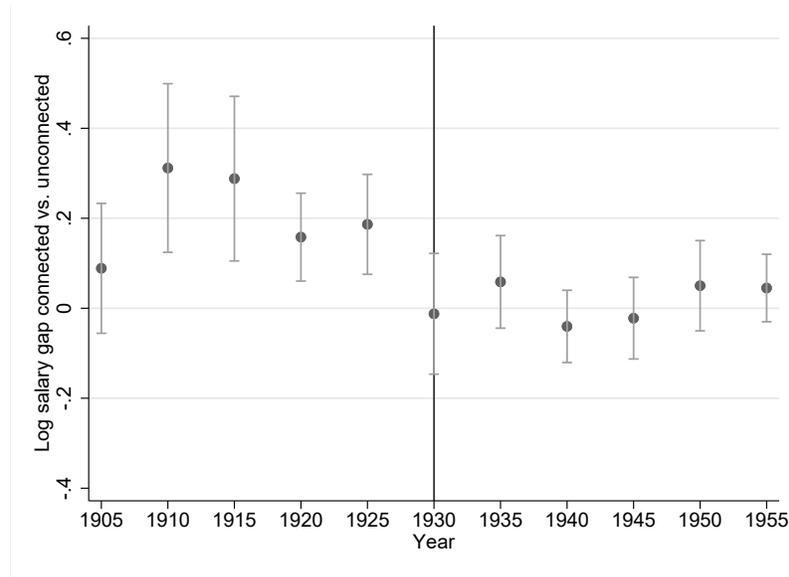
FIGURE 4. SALARY GAP AND THE REMOVAL OF PATRONAGE (WARREN FISHER REFORM 1930)

Note: Difference in (log) salaries for connected and unconnected governors around the Warren Fisher Reform 1930 (solid vertical line). The salary gaps are estimated with an extension of specification (3), where connectedness is allowed to vary by five year bins. Reporting 90% confidence intervals.

Finally, Figure 4 provides visual evidence by plotting the salary gap for social connections around the reform. The focus around a narrow window ensures that the environment such as the number of colonies remains roughly constant over time. The gap is estimated using an augmented version of (2) where the effect of social connections is allowed to vary by year bins. I choose five year bins to ensure that each cell includes enough switchers to identify the coefficient. The

figure shows that the point estimates for the salary gap are, on average, positive in the pre-reform period. After 1930, however, the point estimates are close to zero, consistent with the weaker impact of social connections in determining the salaries and positions of governors after the abolition of patronage. While it is ultimately not possible to rule out all potential confounders in this historical setting, the combined robustness checks at least suggest that the observed lack of heterogeneity after 1930 is consistent with the reform impacts.

III.   Governor and colony performance

The interpretation of the salary premium hinges on the performance of connected governors. If connected governors perform better (e.g. due to greater loyalty), the preferential allocation of connected governors need not be detrimental to organizational performance.

To investigate the implications on performance, my empirical test focuses on gross revenue generation as the central outcome measure. As the "man on the spot," governors exercised direct control over their colony's public finances.[20] Under the "revenue imperative," revenue generation was a key measure of performance. Since governors were required to raise their revenue domestically, the size of the budget was naturally a direct measure of state capacity. As Jeffries (1956) writes, "the colonies were expected to pay their way [...] If they were prosperous, they were free to go ahead with whatever [...] developments the local authority wished." Most importantly, Appendix Table B9 validates the revenue measure empirically by showing that promotions at completion of the six year terms were indeed made based on past revenue performance. With the performance measure y_{ist} at hand, I now estimate for governor i in colony s at year t the reduced form impact of social connections:

$$(3) \qquad y_{ist} \quad = \quad \beta \times c_{it} + \gamma' x_{it} + \nu_{is} + \tau_t + \varepsilon_{ist}$$

where $c_{it} = \{0, 1\}$ is the dummy for connectedness. The governor-colony fixed effects ν_{is} limit the variation to "within-appointment" shocks in connections. This alleviates concerns over governor-colony specific match heterogeneity that may be correlated with connections, for example that higher ability governors perform better in larger colonies. As appointments are fixed for six years, I compare the performance of the same governor already allocated to a colony when connected and unconnected, holding constant the selection margin. The within-position performance differences reflect incentive effects.

Appendix Table B8 reports balancing statistics for the within-appointment switcher sample. The switcher sample is now more stringent. Only 15% of all 729 appointments experience a shock in connections, corresponding to 20% of governors. Appendix Table B8 shows balance on all time-varying characteristics:

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[20]As the Colonial Rules and Regulations state, all the "monies to be expended for public services are issued under his [the governor's] warrant." (Colonial Rules and Regulations 1862, III. 17.)

governors are as likely to experience a shock earlier on in their appointment as later on. The probability of exit does not significantly vary by connectedness. Finally, the inclusion of year fixed effects τ_t absorbs shocks common to all colonies. The errors ε_{ist} are clustered at the governor-secretary level.[21] As before, I estimate the regression using the full sample to obtain more precise estimates.

TABLE 5—FISCAL PERFORMANCE AND CONNECTEDNESS TO SECRETARY OF STATE

Panel A: Revenue	(1)	(2)	(3)	(4)
	Colony-level Public Finance			
	Public revenue			
	Overall		Trade	Internal
Mean of dep. var	12.31	12.31	11.47	11.59
Connected	-0.040	-0.055	-0.053	-0.043
	(0.017)	(0.021)	(0.026)	(0.032)
Connected ×		0.061		
Reform dummy		(0.033)		
Connected + Connected ×	-	0.005	-	-
Reform dummy		(0.026)		
Year FEs	Yes	Yes	Yes	Yes
Governor-Colony FEs	Yes	Yes	Yes	Yes
Spell length FEs	Yes	Yes	Yes	Yes
Time-varying controls	Yes	Yes	Yes	Yes
Observations	3,510	3,510	2,670	2,657
Panel B: Expenditure	(5)	(6)	(7)	(8)
	Public expenditure			
	Overall		Tax	Works
Mean of dep. var	12.33	12.37	9.015	10.32
Connected	-0.029	-0.042	-0.089	-0.107
	(0.019)	(0.023)	(0.053)	(0.062)
Connected ×		0.053		
Reform dummy		(0.034)		
Connected + Connected ×	-	0.010	-	-
Reform dummy		(0.025)		
Year FEs	Yes	Yes	Yes	Yes
Governor-Colony FEs	Yes	Yes	Yes	Yes
Spell length FEs	Yes	Yes	Yes	Yes
Time-varying controls	Yes	Yes	Yes	Yes
Observations	3,510	3,510	1,742	2,588

Note: Unit of observation is the governor-year. Sample period 1854-1966. The dependent variable in **Panel A** is the (log) total revenue (Column 1-2), trade (customs) revenue (Column 3) and internal revenue (Column 4). **Panel B** reports the overall expenditure (Column 5-6), expenditures for tax/revenue services (Column 7) and public works (Column 8). Columns 2 and 6 interact connectedness with a reform dummy that is 1 after 1930. Connected is a dummy that is 1 if the governor is connected to the Secretary of State. Time-varying controls comprise the number of colonies the governor has served in. Spell length FEs are dummies for each year of the term. Standard errors in parentheses, clustered at the dyadic governor-secretary of state level.

Table 5 reports the performance results. Under patronage, governors perform worse when connected to their superior. The same governor in the same colony

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[21]Again, the results are robust to alternative clustering strategies. See Appendix Table B11.

generates 4% lower annual revenue in years connected compared to years unconnected to the Secretary of State (Panel A, Column 1). Consistent with the mitigating effect of the Warren Fisher reform on the salary gap, the negative performance gap vanishes after the abolition of patronage in 1930 (Column 2).[22] Patronage hence impacts the revenue performance of colonies run by connected governors, suggesting that the incentives of leaders can affect macroeconomic outcomes.[23]

The remaining columns provide the breakdown of the aggregate revenue to shed light on the nature of the observed fiscal reduction. For data quality reasons, this analysis is confined to a subsample: changing accounting standards often prevented the construction of comparable time-series. The main results, however, also apply to this subsample, thus alleviating concerns of sample selection. I break down revenue by external and internal sources: external sources comprise trade/customs taxes, while internal sources are primarily licenses and direct taxation (e.g. land revenue, hut/income taxes). Trade taxes are collected at entry points (e.g. a customs house at ports), while the collection of internal revenue is more decentralized. The decrease in revenue generation is primarily driven by a reduction in customs revenue, which make up the bulk of the colonial revenue (Table 1). The point estimate for internal revenue is negative but insignificant (Columns 3 to 4).

Turning to the expenditure side (Table 5, Panel B), the lower revenue generation coincides with a decline in overall expenditure for connected governors, though the point estimate is statistically insignificant (Column 5). Once broken down by reform period, however, the expenditure gap is statistically significant (Column 6). This suggests that the negative gap is once again driven by the patronage period. The decline in public spending can be interpreted in two ways: first since colonies were self-financed under the Crown's "revenue imperative", the decrease in revenue will necessarily translate into a decrease in public spending. Second, since spending public funds requires active effort, lower expenditures can also be interpreted as a measure of performance. To that end, I also disaggregate expenditures to study spending for revenue collection services and public works (Panel B, Columns 7 to 8). Observing differential spending on revenue collection and infrastructure investments may provide further evidence for the underlying mechanism that drives the decrease in revenue generation. As most of the expenditures are determined by the size of the bureaucracy fixed by the Crown, I focus on "extraordinary" spendings over which governors have purchase. The decrease in public investments in revenue collection is substantial: the point estimate suggests a significant decrease by about 8.9%. For public works, there

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[22]The reform effects are robust to the robustness checks conducted for the salary results (Appendix Table B13).

[23]While informative of relative performance differences, this empirical design does not shed light on whether the connected (unconnected) governor is under-performing (over-performing). If the removal of patronage increased the overall revenue performance within the Colonial Office, the performance gap would even underestimate the overall effect.

is a significant decrease by 10.7%. Connected governors, hence, decrease their revenue generation. Faced with a smaller budget, this translates into lower investments in fiscal capacity and public works.[24] Finally, Figure 5 summarizes the results in an event study: shocks to connections have a contemporaneous impact but also affect fiscal performance in subsequent years. In contrast, there is no evidence for anticipatory effects, with no impacts in periods preceding the shock to connections.
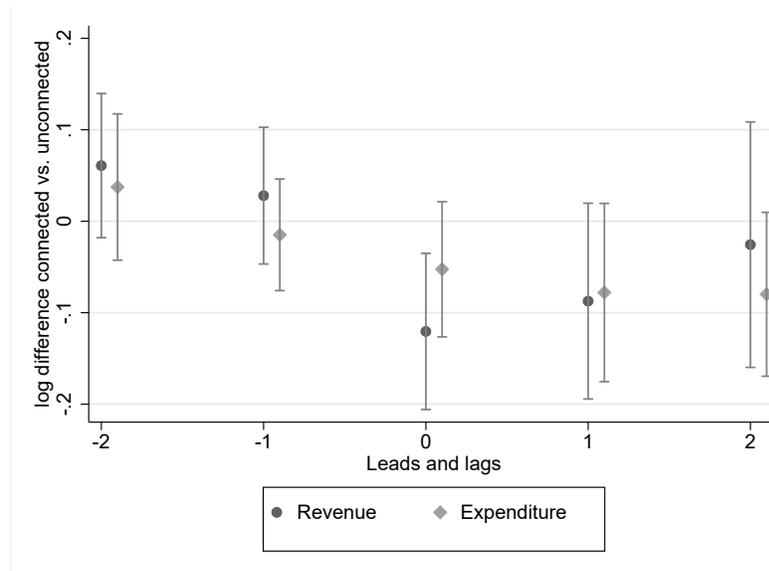
FIGURE 5. PERFORMANCE GAP AND CONNECTEDNESS - EVENT STUDY

Note: Difference in (log) revenue/expenditure for connected and unconnected governors with leads and lags. 0 marks the year the governor becomes connected. Reporting 90% confidence intervals.

Three empirical patterns corroborate the interpretation of incentive effects. First, the sign of the incentive effect depends on whether connections and performance are complements or substitutes for promotions (Jia, Kudamatsu and Seim, 2015). Consistent with the negative performance gap, connections and performance are substitutes in the Colonial Office (Appendix Table B9).[25] Second, the negative performance effect is largest among governors who are likely to face the same connected Secretary of State at time of promotion. As Secretaries of States change, on average, every three years, a connected governor in the first two years is unlikely to face the same Secretary of State by the end of the term.

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[24]These results are robust when splitting the connected measures by family and alumni ties (Appendix B14).
[25]This difference also reconciles my results with Jia, Kudamatsu and Seim (2015) and Jia (2017) who find a complementary role of connections and performance for promotions of Chinese governors.

Indeed, the negative gap is only statistically significant in the later years of the term (Appendix Figure A6). Finally, gaining a connection and losing a connection has a symmetric effect (Appendix Table B15), consistent with connections substituting for performance.[26]

One threat to the interpretation of the results is selective exit. In the absence of a perfect compliance with the fixed six year term limit, the results could be spuriously driven by selective attrition: if connected governors, for example, are more likely to be kept in their appointment when subsequent revenue performance is low, the negative results may be driven by the fact that unconnected governors never stay in the colony when revenue grows. Three pieces of evidence, however, suggest that selective noncompliance with the six year term is unlikely to be a major concern: first, as Table B8 shows, the probability of exit does not vary with connections.[27] Second, the results do not change significantly when dropping those who are immediately moved after experiencing a shock to connections (Appendix Table B15).

Finally, for the observed negative performance effects to be spuriously driven by the early termination of appointments requires that connected governors are more likely to be moved when future revenue is high. To assess if such a data generating process could have produced this spurious pattern, Appendix Table B16 conducts a bounding exercise by filling in six year terms for early exits and using different assumptions for the counterfactual fiscal performance: (log) linearly extrapolating the trend and assuming that growth would have been 2% (4%) above trend. Consistent with the uncorrelatedness between shocks to connections and the probability of early exit, the coefficients remain nearly unchanged.

A.   Tax policy and exemptions

The revenue decline by 4% is striking. Indeed, there are many channels through which connected governors may have impacted fiscal performance: connected governors could have exerted lower effort in monitoring, thereby increasing tax evasion. Similarly, connected governors could have also engaged in more corruption by diverting revenue. Given the covert nature of such activities, however, it is inherently difficult to test specific channels.

To provide evidence for one observable channel, I examine whether the reduction is driven by actual changes in tax policy. As the Colonial Rules and Regulation state, governors not only controlled public finances but enjoyed substantial discretion to legislate on tax-related matters (Banton, 2008).[28] Raising taxes in the

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[26]Connectedness can also affect the ability of governors to communicate and coordinate effectively with the Secretary of State, which might increase performance. The negative incentive effects therefore constitute lower bounds.

[27]There is also no statistically significant difference in the survival curves for governors when connected and unconnected (Appendix Figure A5).

[28]The colonial regulations of 1862 on the duties of the governor, for example, state: "The moneys to be expended for the public service are issued under his Warrant, as the law may in each particular case direct; [The governor] has the power of granting or withholding his assent to any Bills which may

colonies required legitimacy, and "rebellion by [local] taxpayers was a constant worry which shaped tax policy" (Francis, 1992; Gardner, 2012). Governors were hence forced to balance pressure from urban elites against the directives of the Secretary of State to whom they were ultimately accountable. Connected governors could have acted against the interest of the Crown by succumbing more easily to local political pressure or by extracting private rents from providing tax exemptions.

In order to test this, I extracted information on legislation from the National Archive's catalogue and the Blue Books. By the colonial regulations, governors were required to report changes in legislation made through ordinances and proclamations to the Colonial Office. These changes were communicated in two ways: through direct correspondence with the Secretary of State, and by reporting the full set of ordinances and proclamations in the Blue Book. I code both the direct correspondence catalogued in the National Archives into different types of legislation as well as the content of specific laws.

Given data constraints, extracting and reading the full set of correspondence and legislation lies beyond the scope of this paper. To reduce the data intensity, I therefore constrain the historical sample to the switcher sample (Table B6). This is the sample of governors that experience a switch in connectedness while serving in the same colony and hence drive the identification of the main results (Section III). Dropping the large part of the full sample, while not impeding the identification strategy, however, comes at a cost of noisier estimates. The results of this subsample are therefore more likely to be attenuated.

The results are summarized in Table 6. The regressions are based on the same within-appointment identification used to estimate performance effects in the previous sub-section. In Column 1, the dependent variable is the total number of ordinances as computed based on the National Archive's catalogue extract. Consistent with the proposed institutional mechanism, I find that connected governors are more likely to issue ordinances than unconnected governors. As before, the effect is driven by the patronage period. The remaining columns break down the total number of ordinances by type. The results show that the increase in legislation is primarily driven by more ordinances in tax and customs, which mainly comprise legislation on import tariffs and duties. This is consistent with customs driving the decline in colonial revenue (Section III). As before, the removal of patronage mitigates the gap.

One concern is that the amount of legislation on trade tax laws does not allow me to capture the exact policies that were implemented. More legislation need not be detrimental but instead indicate a more active governor. To address this interpretational issue, I read and coded 405 years worth of laws. Given data constraints, I focus primarily on an easily measurable policy change, namely the introduction of import tariff exemptions (See Appendix Figure A7 for an exam-

be passed by the legislative bodies; in colonies not having representative assemblies, the initiation of all laws in general belong to the governor.

ple). There are several reasons why this is particularly suitable. First of all, tariff exemptions are more systematically recorded and unambiguously reduce trade revenue. Identifying changes in exemptions is hence substantially easier than computing the average tariff rates for all goods. Customs laws are also more harmonized than tax laws, making it easier to compare policies across colonies. Additionally, import customs revenue is economically significant as it makes up more than 50% of the revenue throughout the study period. Finally, import taxes had a disproportionate impact on the settler elite as it was "mainly levied on luxury items such as spirits, beer, wine, tobacco, fire-arms, gunpowder and manufactured cloth" (Davis and Huttenback, 1986). Trade taxes thus have been a particularly contested margin of colonial tax policy, as perhaps famously known in the Boston Tea Party rebellions against the Townshend import duties.[29] The

TABLE 6—TAX ORDINANCES, EXEMPTIONS AND CONNECTEDNESS TO SECRETARY OF STATE

	(1)	(2)	(3)	(4)	(5)	(6)
	Legislation		Broken down by ordinance type			
	ordinances	Direct tax	Customs	Exemptions	Social	Works
Mean of dep. var	0.020	0.0105	0.0140	0.226	0.012	0.00698
Connected	0.085	0.048	0.068	0.202	0.004	-0.011
	(0.037)	(0.031)	(0.031)	(0.063)	(0.027)	(0.019)
Connected	-0.083	-0.051	-0.066	-0.369	-0.003	0.013
× Reform dummy	(0.037)	(0.032)	(0.031)	(0.137)	(0.029)	(0.019)
Connected + Connected ×	0.001	-0.003	0.002	-0.167	0.001	0.002
Reform dummy	(0.005)	(0.004)	(0.004)	(0.125)	(0.005)	(0.003)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Governor-Colony FEs	Yes	Yes	Yes	Yes	Yes	Yes
Spell length FEs	Yes	Yes	Yes	Yes	Yes	Yes
Time-varying controls	Yes	Yes	Yes	Yes	Yes	Yes
Data source		National Archives		Blue Book		N. Arch.
Observations	573	573	573	405	573	573

Note: Unit of observation is the governor-year. The sample is restricted to the "switchers" of serving governors who experience a change in connections within the position. In Column 1, the dependent variable is the number of ordinances issued, as recorded by the National Archive catalogue. Columns 2-6 provide more detailed breakdowns. This is broken down by topic of the ordinances: tax related (Column 2), customs related (Column 3), social services (education, health, welfare) (Column 5) public works related (Column 6). Column 4 is a dummy that is 1 if an exemption was added to the import tariff schedule. Connected is a dummy that is 1 if the governor is connected to the Secretary of State. Reform dummy is a dummy that is 1 after 1930. Time-varying controls comprise the number of colonies the governor has served in. Spell length FEs are dummies for each year of the term. Robust standard errors in parentheses, clustered at the dyadic governor-secretary of state level.

result is summarized in Column 4, where the dependent variable is a dummy that is 1 if the governor introduced a customs exemption in a given year and 0 otherwise. Connected governors are more likely to legislate import exemptions during the period of patronage but not thereafter. Finally, connected governors

[29]Despite all efforts, the sample is smaller as it was not possible to obtain the tax legislation for all years. The results documented using the full sample, however, also apply to the smaller sample, alleviating concerns over selectivity.

have no statistically discernible bearing on other legislation, such social programs encompassing education, health and welfare (Column 5) or public works (Column 6), consistent with the fiscal channel uncovered.

B. Additional performance measures

Revenue generation may not be an adequate measure of governor performance. Lower revenue generation, for example, could indicate that connected governors are less extractive. Under multitasking, connected governors may have also directed their efforts to other dimensions of performance which revenue does not capture.

My analysis does not take a stance on whether revenue generation is detrimental for the colonies. The focus instead lies on the principal-agent relationship between governors and their superior. Since revenue generation was one of the declared duties of the governors, deviations from this objective can be interpreted as lower performance. To alleviate remaining concerns over the interpretation of the revenue measure, I corroborate the findings using additional performance proxies. In particular, I use newspaper reports of social unrests, sentiment analysis of parliamentary debates and individual-level public awards to proxy for performance. To keep the exposition concise, I only briefly describe the outcome measures and refer to the Appendix Section B.B3 for a detailed description.

I examine social unrest as an additional colony-level outcome. Uneven taxation of the natives and dismal colony conditions have been associated with unrest, with the infamous Sierra Leonian Hut Tax riots of 1898 and the Jamaican Morant Bay rebellion of 1865 as prominent examples. I use the reports of riots in UK newspapers to proxy for social unrest. This has several advantages. First, it enables the measurement of conflict in a consistent way as colonial conflict data is largely absent. Second, while reported unrests may not capture all unrests in the colony, the visibility of colony conditions in London explicitly captures the principal-agent relationship: bad news about a colony in the domestic press is likely to reflect poorly on the Secretary of State. Following the same logic, I text-mine parliamentary debates in London. As Secretaries of State were themselves accountable to the parliament, observing a large number of discussions over a given colony and its associated sentiment can be seen as an alternative performance measure. For this purpose, I extracted all parliamentary debates between 1855-1966 during which a given colony was mentioned. For each of the mentions, I compute the sentiment using standard text mining procedures.[30] The algorithm assigns sentiment scores to text passages, where a negative score indicates a more negative sentiment. Finally, for awards as an individual-level performance measure, I focus on the highest awards, the Knight Grand Cross for the Order of St. Michaels and the Order of Bath (GCMG/GCB). These awards were introduced

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[30]The sentiment analysis is implemented using R's *qdap polarity*. See Appendix B.B3 for a detailed description.

by the Crown in 1818 as part of an honors system to recognize the outstanding performance of public servants in the colonies. The recommendation is made by the Secretary of State, but the final approval is made by the Crown. Table 7

TABLE 7—ALTERNATIVE PERFORMANCE MEASURES AND CONNECTEDNESS

	(1) Social unrest	(2) Parliamentary debates Mentioned	(3) Sentiment	(4) Highest award
Mean of dep. var	0.049	0.724	0.097	0.021
Connected	0.038	0.029	-0.045	-0.031
	(0.022)	(0.028)	(0.024)	(0.015)
Connected	-0.037	-0.040	0.039	-0.007
× Reform dummy	(0.022)	(0.031)	(0.029)	(0.028)
Connected + Connected ×	0.001	-0.010	-0.006	-0.037
Reform dummy	(0.002)	(0.015)	(0.016)	(0.024)
Year FE	Yes	Yes	Yes	Yes
Governor-Colony FEs	Yes	Yes	Yes	Yes
Spell length FEs	Yes	Yes	Yes	Yes
Time-varying controls	Yes	Yes	Yes	Yes
Data source	News	Hansard		Who's Who
Observations	3,510	3,510	2,481	3,510

Note: Unit of observation is the governor/state-year. Sample period 1854-1966. Dependent variables are a dummy for reported unrests in London newspapers (Column 1), whether a colony has been mentioned in the parliamentary debates (Column 2), the mean sentiment in the debates (Column 3) and a dummy for being awarded a GCMG/GCB, the highest distinction class (Column 4). Connected is a dummy that is 1 if the governor is connected to the Secretary of State. Reform dummy is a dummy that is 1 after 1930. Robust standard errors in parentheses, clustered at the dyadic governor-secretary of state level.

summarizes the results using alternative measures of performance. To be consistent, I use the same double-differences specification as in (3). In column 1, the dependent variable is a dummy that is 1 if a social unrest was reported in the UK newspapers. The estimate suggests that colonies of connected governors are 3.8% points more likely to have social unrest reported during the period of patronage. As before, this gap vanishes after the removal of patronage. Columns 2 to 3 report evidence from parliamentary debates. On average, colonies with connected governors are mentioned more than those with unconnected governors in a given year, though the estimate is not statistically significant (Column 2). The associated sentiment, however, is significantly less likely to be positive (Column 3). Consistent with previous results, this negative sentiment gap vanishes after the removal of patronage. Finally, the dependent variable in Column 4 is a dummy that is 1 if the governor received the Knight Grand Cross. The estimate suggests that connected governors are 3.1% points less likely to receive the highest award. Compared to the mean of the dependent variable (2%), the decrease is economically large. These findings, combined with the fiscal performance results, thus provide a coherent picture consistent with the lower performance of connected governors.

IV. Conclusion

For much of human history, bureaucrats have been allocated based on discretionary appointments. It was through the seminal thinking of Weber (1922) and landmark contributions like Northcote-Trevelyan (1854) and Warren Fisher (1930) that this practice has been curtailed and modern professional bureaucracies developed. Despite numerous civil service reforms, the use of patronage in appointing civil servants remains widespread today. Whether or not discretionary appointments undermine government effectiveness and state capacity, however, remains an open question and theory is ambiguous about this issue.

My paper contributes to answering this question. I undertook a large-scale digitization of colonial records to construct a unique dataset that matches personnel records with public finance data of all British territories administered by the Colonial Office from its birth in 1854 to its dissolution in 1966. Two sources of variation are critical for my analysis. The first source of variation stems from observing how connected governors and colonies are linked to the Secretary of State in London. The second source of variation is the Warren Fisher Reform of 1930 which removed the full discretion of the Secretary of State to appoint governors. Combining changes in connections to the Secretary of State with the introduction of the Warren Fisher Reform enables me to study whether differences in the promotion and performance of socially connected bureaucrats vary with the extent of discretionary appointments.

My data and empirical setup is particularly relevant as governors were administrative leaders of the colonies. I am hence able to examine whether or not patronage had costs by affecting the revenue performance of these territories during the colonial period. This paper therefore goes beyond the existing body of literature that focuses on lower level bureaucrats and front-line providers who are unlikely to have discernible effects on macroeconomic outcomes.

Two key findings emerge from my analysis. First, I find that governors when connected to the Secretary of State enjoy higher salaries through the promotion to higher paid and larger colonies. This salary premium only appears in the period before the discretionary power of the Secretary of State in appointing governors was curtailed. Second, even when examining the same governor in the same position, I find that the colony's revenue performance declines in years during which the governor is connected to the Secretary of State. This is consistent with the interpretation that patronage exerts a negative effect on the performance of socially connected governors. Consistent with the previous result, the fiscal performance gap disappears after the removal of patronage. While the study provides evidence on how favoritism in promotions can affect the incentives of governors, a limitation is that the research design is not able to shine light on selection effects. Future work could therefore focus on exploring the combination of incentive, selection and match effects to expand our knowledge about the full costs of patronage.

REFERENCES

Acemoglu, Daron, Camilo Garcia-Jimeno, and James A. Robinson. 2015. "State Capacity and Economic Development: A Network Approach." *American Economic Review*, 105(8): 2364–2409.

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review*, 91(5): 1369–1401.

Aghion, Philippe, and Jean Tirole. 1997. "Formal and Real Authority in Organizations." *Journal of Political Economy*, 105(1): 1–29.

Ashraf, Nava, and Oriana Bandiera. 2017. "Social Incentives in Organizations." *In preparation for the Annual Review of Economics.*

Bandiera, Oriana, Iwan Barankay, and Imran Rasul. 2009. "Social Connections and Incentives in the Workplace: Evidence From Personnel Data." *Econometrica*, 77(4): 1047–1094.

Bandiera, Oriana, Iwan Barankay, and Imran Rasul. 2010. "Social Incentives in the Workplace." *Review of Economic Studies*, 77(2): 417–458.

Banerjee, Abhijit, Raghabendra Chattopadhyay, Esther Duflo, Daniel Keniston, and Nina Singh. 2012. "Improving Police Performance in Rajasthan, India: Experimental Evidence on Incentives, Managerial Autonomy and Training." NBER Working Papers 17912.

Banton, Mandy. 2008. *Administering the Empire, 1801-1968: A Guide to the Records of the Colonial Office in the National Archives of the UK.* University of London, Institute of Historical Research.

Bertrand, Marianne. 2009. "CEOs." *Annual Review of Economics*, 1(1): 121–150.

Bertrand, Marianne, and Antoinette Schoar. 2003. "Managing with Style: The Effect of Managers on Firm Policies." *The Quarterly Journal of Economics*, 118(4): 1169–1208.

Besley, Timothy, and Torsten Persson. 2009. "The Origins of State Capacity: Property Rights, Taxation, and Politics." *American Economic Review*, 99(4): 1218–44.

Besley, Timothy, and Torsten Persson. 2010. "State Capacity, Conflict, and Development." *Econometrica*, 78(1): 1–34.

Bourne, John M. 1986. *Patronage and Society in Nineteenth-century England.* Edward Arnold.

Breza, Emily. 2016. "Field Experiments, Social Networks, and Development." *Oxford Handbook on the Economics of Networks.*

Brollo, Fernanda, Pedro Forquesato, and Juan-Carlos Gozzi. 2017. "To the Victor Belongs the Spoils? Party Membership and Public Sector Employment in Brazil." *Mimeo.*

Dal Bó, Ernesto, Frederico Finan, and Martin A. Rossi. 2013. "Strengthening State Capabilities: The Role of Financial Incentives in the Call to Public Service." *The Quarterly Journal of Economics*, 128(3): 1169–1218.

Dal Bó, Ernesto, Frederico Finan, Olle Folke, Torsten Persson, and Johanna Rickne. 2017. "Who becomes a politician?" *The Quarterly Journal of Economics*, 132(4): 1877–1914.

Davis, Lance E., and Robert Huttenback. 1986. *Mammon and the Pursuit of Empire: The Political Economy of British Imperialism, 1860-1912.* Cambridge University Press.

Deserranno, Erika. 2018. "Financial Incentives as Signals: Experimental Evidence from the Recruitment of Village Promoters in Uganda ." *Forthcoming American Economic Journal: Applied Economics.*

Dewatripont, Mathias, Ian Jewitt, and Jean Tirole. 1999. "The Economics of Career Concerns, Part II: Application to Missions and Accountability of Government Agencies." *Review of Economic Studies*, 66(1): 199–217.

Dijkstra, Edsger W. 1959. "A note on two problems in connexion with graphs." *Numerische Mathematik*, 1(1): 269–271.

Finan, Frederico, Benjamin A. Olken, and Rohini Pande. 2015. "The Personnel Economics of the State." *NBER Working Paper 21825.*

Fisman, Raymond. 2001. "Estimating the Value of Political Connections." *American Economic Review*, 91(4): 1095–1102.

Francis, Mark. 1992. *Governors and Settlers: Images of Authority in the British Colonies, 1820-60.* Canterbury University Press.

Gardner, Leigh. 2012. "Taxing Colonial Africa: The Political Economy of British Imperialism." *Oxford University Press.*

Gibbons, Robert, and John Roberts. 2012. *The Handbook of Organizational Economics.* . 1 ed., Princeton University Press.

Grindle, Merilee. 2012. *Jobs for the Boys: Patronage and the State in Comparative Perspective.* Harvard University Press.

Henn, Brenna, Lawrence Hon, Michael Macpherson, Nick Eriksson, Serge Saxonov, Itsik Pe'er, and Joanna Mountain. 2012. "Cryptic Distant Relatives Are Common in Both Isolated and Cosmopolitan Genetic Samples." *PLoS One*, 7(4).

Iyer, Lakshmi, and Anandi Mani. 2012. "Traveling Agents: Political Change and Bureaucratic Turnover in India." *The Review of Economics and Statistics*, 94(3): 723–739.

Jeffries, Charles. 1938. *The Colonial Empire and its Civil Service.* Cambridge University Press.

Jia, Ruixue. 2017. "Pollution for Promotion." *mimeo.*

Jia, Ruixue, Masayuki Kudamatsu, and David Seim. 2015. "Political Selection in China: The Complementary Roles of Connections and Performance." *Journal of the European Economic Association*, 13(4): 631–668.

Jones, Benjamin F., and Benjamin A. Olken. 2005. "Do Leaders Matter? National Leadership and Growth Since World War II." *The Quarterly Journal of Economics*, 120(3): 835–864.

Khan, Adnan Q., Asim I. Khwaja, and Benjamin A. Olken. 2015. "Tax Farming Redux: Experimental Evidence on Performance Pay for Tax Collectors." *The Quarterly Journal of Economics.*

Khan, Adnan Q., Asim I. Khwaja, and Benjamin A. Olken. 2018. "Making Moves Matter: Experimental Evidence on Incentivizing Bureaucrats through Performance-Based Postings." *NBER Working Paper 24383.*

Kirk-Greene, Anthony. 2000. *Britain's Imperial Administrators, 1858-1966.* Palgrave Macmillan.

Kramarz, Francis, and David Thesmar. 2013. "Social Networks in the Boardroom." *Journal of the European Economic Association*, 11(4): 780–807.

Laidlaw, Zoe. 2005. *Colonial Connections 1815-1845: Patronage, the Information Revolution and Colonial Government. Studies in Imperialism*, Manchester University Press.

Lazear, Edward P., and Paul Oyer. 2012. "Personnel Economics." In *The Handbook of Organizational Economics.* , ed. Robert Gibbons and John Roberts. Princeton University Press.

Northcote, Stafford H., and Charles E. Trevelyan. 1854. *Report on the Organization of the Permanent Civil Service.* HMS.

Persson, Petra, and Ekaterina Zhuravskaya. 2016. "The Limits of Career Concerns in Federalism: Evidence from China." *Journal of the European Economic Association*, 14(2): 338–374.

Prendergast, Canice, and Robert H. Topel. 1996. "Favoritism in Organizations." *Journal of Political Economy*, 104(5): 958–78.

Rasul, Imran, and Daniel Rogger. 2017. "Management of Bureaucrats and Public Service Delivery: Evidence from the Nigerian Civil Service." *The Economic Journal*, 1–34.

Teso, Edoardo, Emanuele Colonnelli, and Mounu Prem. 2017. "Patronage in the Allocation of Public Sector Jobs." *mimeo.*

Weaver, Jeff. 2018. "Jobs for Sale: Bribery and Misallocation in Hiring." *Mimeo.*

Weber, Max. 1922. *Wirtschaft und Gesellschaft.* Mohr Verlag.