Staying in Power, Cutting the Power: Leader Tenure and Electricity Distribution

Justin Melnick* Alastair Smith†

October 13, 2025

Abstract

We provide novel empirical evidence that residential consumption of electricity decreases and industrial consumption increases as leaders remain in office longer. This effect is concentrated in less democratic polities with smaller winning coalitions. Concomitantly, residential electricity prices increase with leader tenure, reflecting a decrease in both quality and supply of mass benefits. This evidence supports the theory of the "political life cycle:" as leaders stay in office longer, they provide fewer public goods, and they shift the provision of policy benefits toward private goods. The results have implications for decarbonization efforts in the Global South, where leaders are likely to be entrenched in power and rely heavily on the support of pro-fossil fuel special interests. While nations have committed to greater electrification efforts as part of their Paris Agreement pledges, our findings suggest that compliance with commitments is moderated by domestic political survival concerns.

*Ph.D. Candidate, Department of Politics, New York University, melnickj@nyu.edu

†Bernhardt Denmark Professor of International Relations, Department of Politics, New York University, as183@nyu.edu

1 Introduction

New leaders are often greeted as reformers who implement public goods-orientated policies and reduce corruption. Unfortunately, such reformist tendencies often do not persist. As a leader's tenure increases, she diminishes public goods provisions and substitutes toward private goods in what is known as a "political life cycle" (Melnick, Smith and Bueno de Mesquita 2026). We show empirical support for such political life cycle effects in the context of electricity distribution. Over a leader's tenure in office, the proportion of electricity consumed by the residential sector declines substantially, while consumption in the industrial sector increases. Moreover, residential electricity prices increase, demonstrating the diminution of public goods and a substitution of benefits toward groups often recognized as a leader's key backers. These effects are particularly acute in less democratic systems, where entrenched leaders find support from concentrated industrial interests (Hochstetler 2020).

Our results primarily contribute to the accumulation of empirical evidence in support of recent theoretical models of political life cycles. In such accounts, leaders shift the composition of policy benefits throughout the course of their time in office. The results show that, even accounting for regime type, increasing tenure induces a private goods focus and a substitution away from the public goods-oriented policies that often sweep new leaders into power (Bueno de Mesquita and Smith 2025; Melnick, Smith and Bueno de Mesquita 2026).

Extant literature focuses on the relationship between electricity distribution and regime type. We augment these studies by showing within-leader variation in the provision of electricity. Brown and Mobarak (2009) show that democratization results in more electricity being used by residential consumers relative to industrial users. Clark, Zucker and Urpelainen (2019) also provide evidence that power generated from coal is most prevalent in less democratic, less developed nations; richer democracies are less likely to commission coal-powered plants as clean air becomes a more sought after public good. These results are

consistent with a public goods focus in a leader's nascent years, and the political life cycle highlights how such effects evolve over the course of a leader's tenure.

More specifically, we speak to literature on the distributive politics of energy policy. Min (2015) shows that while electricity can be provided to enhance societal welfare, in practice it is all too often targeted toward different groups at different times (Min and Golden 2014). The pricing and distribution of electricity is complex, and this complexity gives governments the ability to target certain groups. For instance, a government might maintain the distribution network and set residential electricity rates close to cost. Such policies allow large swaths of the population to use electricity in their homes. Alternatively, a government might focus on providing for the few rather than the many, withholding basic services in areas where it does not face stiff political competition (Harding 2020). This may mean neglecting parts of the distribution network, literally leaving people in the dark. Or, as we find evidence of, the government might increase prices for residential use and instead subsidize the price of electricity for specific industrial sectors. The former actions have a public goods focus, while the latter actions target specific groups with private goods.

The political life cycle effects are strongest in less democratic systems. Some in the literature have contended that autocrats, facing slacker accountability constraints and wielding greater executive powers, may be most incentivized to mitigate the effects of climate change (Beeson 2010; Mittiga 2022). Principally, the green transition concerns the expansion of access to clean electricity. However, we show that tenure effects may complicate this picture of benevolent, climate-friendly autocrats: as leaders become more entrenched in power, they have greater incentives to provide fewer public services, like access to clean electricity.

In what follows, we briefly recapitulate the core of the political life cycle theory, demonstrating how it pertains to electricity distribution. We then describe our empirical strategy and main results, documenting a negative relationship between leader tenure and residential consumption, but a positive relationship between tenure and industrial consumption. Finally

we discuss the implications of our results for global decarbonization efforts.

2 Theory

The selectorate approach (Bueno de Mesquita et al. 2003) provides a useful framework to articulate the logic of the political life cycle. To retain office, a leader needs to maintain the support of a coalition of size W, referred to as the winning coalition, and to do so she provides her supporters with public and private benefits. When the winning coalition is large, as in democratic systems, private goods are expensive because many supporters need to be rewarded. Yet, in more autocratic settings, leaders are accountable to a smaller coalition of supporters: with fewer people needing to be rewarded, private goods become an efficient means of buying political support.

In addition to material rewards, leaders and supporters have idiosyncratic likes and dislikes for each other. Models of the political life cycle examine the implications of leaders learning about the affinity of their supporters (Melnick, Smith and Bueno de Mesquita 2026). If a leader learns that a supporter has low affinity for her, then she replaces that supporter with someone expected to be more loyal. When leaders are new to office, supporters discount the value of private goods because they know they risk being reshuffled out of the coalition, thus no longer receiving these benefits. This discounting makes private goods an inefficient way of rewarding supporters for a leader who is new to office. However, over time, much of the learning about affinity has taken place, so supporters anticipate receiving private goods because they are relatively secure in their position within the coalition. Therefore, as tenure increases, leaders shift away from public goods and toward private goods as the efficient means of buying coalition support, with this temporal shift being greatest in small coalition systems where private goods are relatively cheap.

As Min (2015) and others have noted, politicians can manipulate prices and distribution

networks such that electricity can be used to reward the many or to target rewards to a few core supporters. Brown and Mobarak (2009) examine this choice in the context of democratization. They find that as nations democratize, leaders shift energy policy such that more electricity is consumed by the masses, measured in terms of residential consumption. Here, we exploit a similar logic. As tenure increases, leaders have incentives to reward select supporters within certain industries, rather than the masses, and so consumption is expected to move away from the residential section to the industrial sector, especially in less democratic systems.

3 Data and Methods

Data on electricity consumption and pricing come from the International Energy Agency's World Energy Balance and Energy Price datasets (IEA 2023; 2024). To measure electricity consumption, we take the ratio of sectoral consumption over total final consumption, which normalizes for any potential shifts in increasing or contracting energy consumption. We contrast the residential sector and the industrial sector as demonstrating a public goods or private goods focus, respectively. We take the logarithm of yearly electricity prices measured in 2020 USD. Consumption data are available for 51 nations between 1970 and 2022, while price data are available for 109 nations between 1960 and 2024.

In keeping with the theoretical predictions of the political life cycle, our main independent variable of interest is the length of the leader's time in office. We utilize data by Smith (2024) which update the Archigos data (Goemans, Gleditsch and Chiozza 2009) through December 2024. We are also mindful of the fact that political institutions moderate the extent to which tenure impacts electricity usage (Brown and Mobarak 2009), so we adjust for the size of a leader's winning coalition, normalized to fall between 0 and 1 (Bueno de Mesquita and Smith 2022). Furthermore, we control for a nation's GDP per capita, population size,

and economic growth rate; data on these variables come from the World Bank's World Development Indicators (World Bank 2024).

For nation i in year t, we estimate the following twoway fixed effects equation via OLS,

$$Y_{i,t} = \beta \log(\text{Tenure}_{i,t}) + X'_{i,t-1}\gamma + \alpha_i + \lambda_t + \varepsilon_{i,t},$$

where $Y_{i,t}$ is either sectoral electricity consumption or the price of electricity. Our primary coefficient of interest is β, which captures the effects of tenure. The term $X'_{i,t-1}\gamma$ is a vector of covariates, lagged by one year, as enumerated above. Country fixed effects α_i account for baseline differences in nations' electricity consumption or pricing, and year fixed effects λ_t adjust for secular trends over time (e.g., energy price increases). Robust standard errors are clustered by country.

4 Results

Table 1 presents our main results in which we study the effect of leader tenure on residential and industrial electricity consumption. In column 1, we report a negative association between leader tenure and residential electricity consumption. While consistent with theoretical expectations—leaders direct fewer resources toward the masses in the form of public goods the longer they are in office—the effect fails to reach conventional levels of statistical significance. To explore the theoretically predicted heterogeneity, we interact tenure with our measure of political institutions in column 2. Here, it is clear that there is a strong negative relationship between tenure and electricity consumption, but it is concentrated in small-coalition systems. As evidenced by the interaction term, the effects of tenure all but cancel out in large-coalition systems like advanced democracies. Column 3 confirms this as we subset the data to nations with coalition sizes less than 0.7, uncovering a negative and

significant effect.

Table 1: Effects of Tenure on Residential and Industrial Electricity Consumption

	Residential Ratio			Industry Ratio		
	(1)	(2)	(3)	(4)	(5)	(6)
$\log(\text{Tenure}_t)$	-0.004	-0.024***	-0.009***	0.006*	0.023*	0.009
	(0.002)	(0.008)	(0.003)	(0.004)	(0.014)	(0.006)
$\text{Coalition Size}_{t-1}$	0.079***	0.022	-0.064	-0.083	-0.035	-0.017
	(0.027)	(0.033)	(0.045)	(0.053)	(0.079)	(0.074)
$\log(\text{Tenure}_t) \times \text{Coalition Size}_{t-1}$		0.026**			-0.022	
		(0.010)			(0.016)	
Controls	✓	✓	✓	✓	✓	✓
Sample	Full	Full	$W_{t-1} \leq 0.7$	Full	Full	$W_{t-1} \leq 0.7$
Number of Countries	51	51	18	51	51	18
Observations	2,204	2,204	326	2,204	2,204	326
R^2	0.809	0.810	0.916	0.861	0.862	0.936
Within R^2	0.088	0.095	0.200	0.057	0.060	0.048
Country fixed effects	✓	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓	✓

p-values: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Robust standard errors clustered at the country level

The effect of tenure on the distribution of electricity is substantial. The estimates in model 2 indicate that, in the least democratic systems (Coalition Size = 0), the proportion of electricity used in the residential sector declines by about 5.5% over a leader's first ten years. Since in nondemocratic systems the residential share of electricity consumption averages about 22%, this decline equates to about a quarter less electricity to the residential sector. In contrast, in the most democratic systems, tenure has no discernible impact on electricity consumption.

Columns 4-6 report analogous results for industrial electricity consumption. Again consistent with the effects of a political life cycle—leaders shift their optimal policy mix away from public goods and toward private benefits—the industrial sector consumes more elec-

tricity as leader tenure increases, particularly in small-coalition systems. Per model 5, the proportion of electricity used in the industrial sector increases by approximately 5.3% over a leader's first ten years in office, but this effect all but cancels out in large-coalition systems.

Table 2: Effects of Tenure on Residential Electricity Prices

	log(Price)		
	(1)	(2)	(3)
$\log(\text{Tenure}_t)$	0.054**	0.058	0.081**
	(0.023)	(0.078)	(0.033)
Coalition Size_{t-1}	0.027	0.037	-0.048
	(0.201)	(0.321)	(0.464)
$\log(\text{Tenure}_t) \times$ Coalition Size_{t-1}		-0.005	
		(0.094)	
Controls	✓	✓	✓
Number of Countries	109	109	60
Observations	3,419	3,419	873
R^2	0.882	0.882	0.918
Within R^2	0.057	0.057	0.052
Country fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓

p-values: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Robust standard errors clustered at the country level

We attribute these changes in consumption to shifts in optimal policy provision: over time, there is less electricity going to the residential sector, and more toward industry. Interestingly, we do not find that total consumption is decreasing (see Table A-1 in the appendix). One means through which a leader can induce changes in consumption is through changes in prices, which we now examine. Table 2 investigates the effects of leader tenure on residential electricity prices, demonstrating that prices increase as a leader becomes more entrenched in power. Based on model 1, the impact of leader tenure over ten years is to increase residential electricity prices by about 13%. As before, we find that these effects are particularly concentrated in small-coalition systems. Table A-2 in the appendix examines

the relationship between leader tenure and industrial electricity prices and finds a weakly positive but noisy relationship over the course of the leader's tenure. Taken together, these results show that prices are one possible mechanism through which leaders can reallocate rewards from the masses and concentrate them to select supporters.

5 Discussion

Our results provide additional empirical evidence for the theoretical proposition of the political life cycle (Melnick, Smith and Bueno de Mesquita 2026): as a leader becomes further entrenched in power, she cuts back on public goods for the masses and shifts the focus of policy toward private benefits. The analysis suggests that even the provision of basic services like electricity is not immune to a leader's domestic political survival concerns: staying in power increases the incentive to leave residents in the dark as the leader fortifies her support among her winning coalition.

Moreover, our results have important implications for the future of electrification and decarbonization in the Global South. The Global South is central to carbon-neutral futures and requires urgent environmental remediation and electrification to enact a global green transition (Grossman, Sacks and Xu 2026). As of June 2024, 107 countries have committed to decarbonizing their energy sector with net zero pledges in their Paris Agreement targets, which often includes expanding public access to clean electricity.[1] However, small winning coalition systems in the developing world are precisely the polities with entrenched leaders and deep ties to fossil fuel industries (Hochstetler 2020). Political life cycle effects suggest that such leaders have incentives opposed to electrification, which may complicate the pursuit of global mitigation goals.

[1] https://www.un.org/en/climatechange/net-zero-coalition

References

Beeson, Mark. 2010. "The coming of environmental authoritarianism." *Environmental Politics* 19(2):276–294.

Brown, David S. and Ahmed Mushfiq Mobarak. 2009. "The Transforming Power of Democracy: Regime Type and the Distribution of Electricity." *American Political Science Review* 103(2):193–213.

Bueno de Mesquita, Bruce and Alastair Smith. 2022. "A new indicator of coalition size: Tests against standard regime-type indicators." *Social Science Quarterly* 103(2):365–379.

Bueno de Mesquita, Bruce and Alastair Smith. 2025. *Anticipating Instability*. Cambridge: MIT Press.

Bueno de Mesquita, Bruce, Alastair Smith, Randolph M. Siverson and James D. Morrow. 2003. *The Logic of Political Survival*. Cambridge: The MIT Press.

Clark, Richard, Noah Zucker and Johannes Urpelainen. 2019. "Political Institutions and Pollution: Evidence from Coal-Fired Power Generation." *Review of Policy Research* 36(5):586–602.

Goemans, H. E., Kristian Skrede Gleditsch and Giacomo Chiozza. 2009. "Introducing Archigos: A Dataset of Political Leaders." *Journal of Peace Research* 46(2):269–283.

Grossman, Guy, Audrey Sacks and Alice Xu. 2026. "The Politics of Climate Change in the Developing World." *Annual Review of Political Science* .

Harding, Robin. 2020. "Who Is Democracy Good For? Elections, Rural Bias, and Health and Education Outcomes in Sub-Saharan Africa." *The Journal of Politics* 82(1):241–254.

Hochstetler, Kathryn. 2020. *Political Economies of Energy Transition: Wind and Solar Power in Brazil and South Africa*. Business and Public Policy Cambridge: Cambridge University Press.

IEA, The. 2023. "World Energy Balances.".

IEA, The. 2024. "Energy Prices.".

Melnick, Justin, Alastair Smith and Bruce Bueno de Mesquita. 2026. "Political Life Cycles." *Journal of Politics* 88(1).

Min, Brian. 2015. *Power and the Vote: Elections and Electricity in the Developing World*. Cambridge: Cambridge University Press.

Min, Brian and Miriam Golden. 2014. "Electoral cycles in electricity losses in India." *Energy Policy* 65:619–625.

Mittiga, Ross. 2022. "Political Legitimacy, Authoritarianism, and Climate Change." *American Political Science Review* 116(3):998–1011.

Smith, Alastair. 2024. "National Political Leaders and Causes of Death.".

World Bank, The. 2024. "World Development Indicators 2024.".