

“The Causes and Effects of Electricity Load Shedding in Pakistan”

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I am applying for this research grant to support ongoing research on the intersection between load shedding and governance in Pakistan. Load shedding and electricity supply issues routinely appear above the fold in the leading Pakistani newspapers. In the summers, load shedding can exceed 18 hours in many areas, effectively depriving them of power altogether. While the main cause of load shedding is a shortage of power generation—some estimates place the unmet demand at 25 percent—there is also significant variation in the distribution of load shedding, with some firms and urban areas receiving preferential treatment. While electricity is primarily a federal issue, the energy distribution companies (DISCOs) are provincially or sub-provincially demarcated. Furthermore, while the National Transmission & Despatch Company determines the amount of electricity provided to each DISCO, the distribution of that electricity can be determined by the local engineers at the DISCO who may be influenced by any number of actors, including national and provincial assemblymen and bureaucrats. This study hopes to uncover and explain political patterns in load shedding as well as the effects of load shedding upon both household and firm productivity.

Specifically, I hope to build on the rich literature in distributive politics by providing fine-grained evidence on the distribution of public goods across safe and competitive (core and swing) districts (for a review, see Golden and Min 2013). By overlaying the electricity infrastructure with low-level electoral boundaries, I will be able to show whether politicians prefer to target persuadable, competitive regions when they are better able to target load shedding within their constituencies (see Cox 2010). I am also able to test whether the finding by Baskaran et al. (2015) that electricity is redirected to competitive constituencies in the run up to an election is generalizable to a context with increased uncertainty; specifically, I can test whether the new constituencies drawn for the local government elections in Pakistan drive parties to be more conservative and target their base as they are unsure of the true level of support and hope to solidify control in a new institution, the local governments.

Furthermore, I provide more robust evidence than most of the literature on electricity and governance (e.g. Baskaran et al. 2015) by employing monthly rather than yearly data and by focusing on union councils, a low level of government, that provides variation in levels of support within provincial assembly constituencies. Looking at the consequences of load shedding, I follow Reinikka and Svensson (2002) and Kumar et al. (2017) in estimating the effects of uncertainty in public goods provision on both firm and household welfare. I also aim to estimate the electoral returns to load shedding by collecting ward-level electoral data in the local government elections of 2015.

Due to the intimate connection between electricity and development as well as the focus on governance, this project has important implications for policy in Pakistan. Improving incentives to target load shedding for non-political reasons, learning the distribution of load shedding across provinces and areas controlled by particular political parties, and understanding the magnitude of the welfare losses from the uncertainty of electricity provision all can inform stakeholders about a path to a more efficient Pakistan.

The AIPS research grant would support me spending one to two months in Lahore, where, thanks to two months spent in Islamabad working on a different governance project, I already have connections at the Center for Economic Research in Pakistan, based at the Lahore University of Management Sciences, and the Energy Department and the Government of Punjab. AIPS supported this initial trip by providing housing, transport, and counsel in Islamabad, proving to be of great assistance. In addition to monthly satellite imagery of electricity availability (previewed in Figure 1), I have already collected a diagram of the major electricity feeders in Pakistan to map on to political boundaries of the 2013 general election (which I have already obtained) and the 2015 local government elections (maps of which I am only beginning to obtain). My time in Lahore would permit pursuing electoral data from additional districts and following connections at the energy department to collect data about electricity infrastructure and load shedding. I would also hope to engage additional actors in power generation and

distribution to both gather and disseminate more information about efficiency in the Pakistani energy sector.

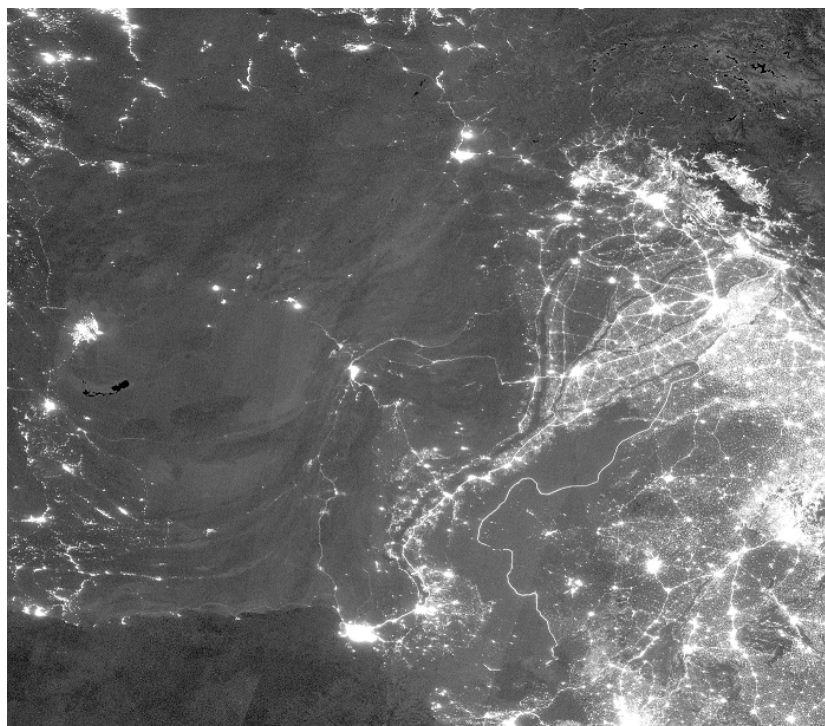


Figure 1 – Satellite imagery of night lights in Pakistan. The data are fine-grained enough to produce estimates of electricity availability for regions about 400 by 350 meters in size on a monthly basis.

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