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Comments on the paper : “How do electricity shortages affect productivity?
Evidence from India”
by Hunt Allcott, Allan Collard-Wexler and Stephan O’Connell

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Motivation of the paper

- Have electricity shortages significant impacts on Indian manufacturing?
 - Output
 - Productivity
 - Small plants vs large plants
 - Firm size distribution
 - Decision to purchase a generator

Three different empirical analysis

- A case study on Large textile manufacturers measuring the effect of « power holidays » on energy costs, output and TFP
- An econometric analysis using India's Annual Survey of Industries (ASI 1992 to 2010 data)
- Simulations using a model with a CD-Leontief production function calibrated on ASI data

Three main results

- Electricity shortages are responsible for around a 5% decrease in output
- Electricity shortages affect productivity much less than output
- Shortages have heterogeneous effects on plants with vs without generators, small plants are much more affected

- Two types of shortages:
 - Predictable shortages (« Power Holidays »)
 - Unpredictable shortages
- Reasons for shortages:
 - Infrastructure quality
 - No adjustment of prices to supply and demand conditions
 - Underinvestment in new generation capacity

Relative cost of electric power bought from the grid vs self-generated: $p^{E,G} / p^{E,S}$

- $p^{E,G}$ is average cost for public grid electricity
- $p^{E,S}$ is average cost for generator electricity
- If shortages mainly occur when demand is high, $p^{E,G}$ should be higher than average cost, consequently $p^{E,G}$ should be higher than 55% (the assumption made in section 7)
- An sensitive analysis has been made but only with $p^{E,G} / p^{E,S} = 25\%$

Hypothesis about the elasticity of output demand

- Elasticity of demand ($d\log q / d\log p$) is assumed to be -10 , two alternative assumptions are also used, -4 and -20
- But, elasticity of demand is usually shown to be less than -1

Estimation of electricity demand in the absence of shortages

- Shortages (δ) = percent difference between **estimated** demand in the absence of shortages and observed demand
- Demand is estimated by the Central Electric Authority as the quantity that would be demanded at **current prices** in the absence of shortages
- If electricity is subsidized, at current prices corresponds an inefficient demand, this implies a possible overestimation of δ

- Self generation is not the only firms' answer to shortages
- In the presence of shortages a firm can choose to shift from electricity to another energy form, this is an alternative to self-generation of electricity (not taken into account in the paper)

Other comments and questions

- Consequences of electricity shortages are measured on revenue and not output (right?)
- How is measured TFP (equation (23)?)
- Electricity pricing in India: is electricity price more or less related to the load curve (Is electricity under priced when demand is high?)?