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The Impact of Property Rights on the Congestion in Electricity Distribution Network

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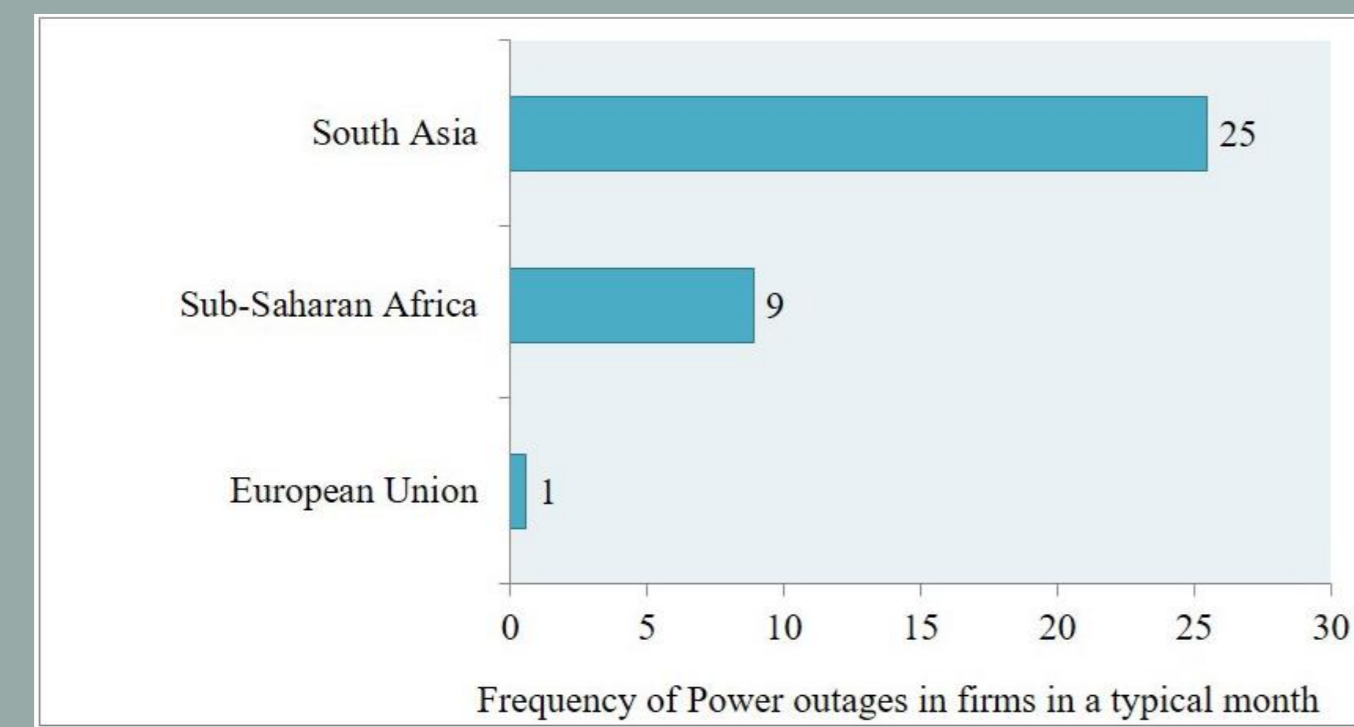
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The Impact of Property Rights on the Congestion in Electricity Distribution Network

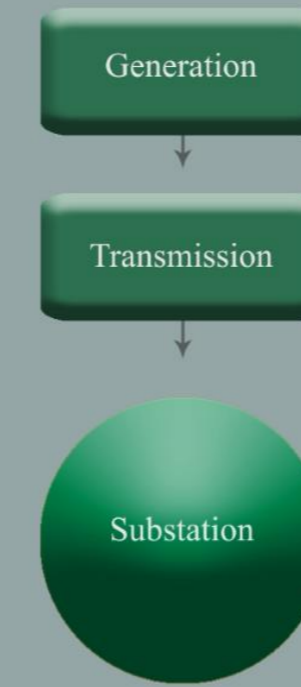
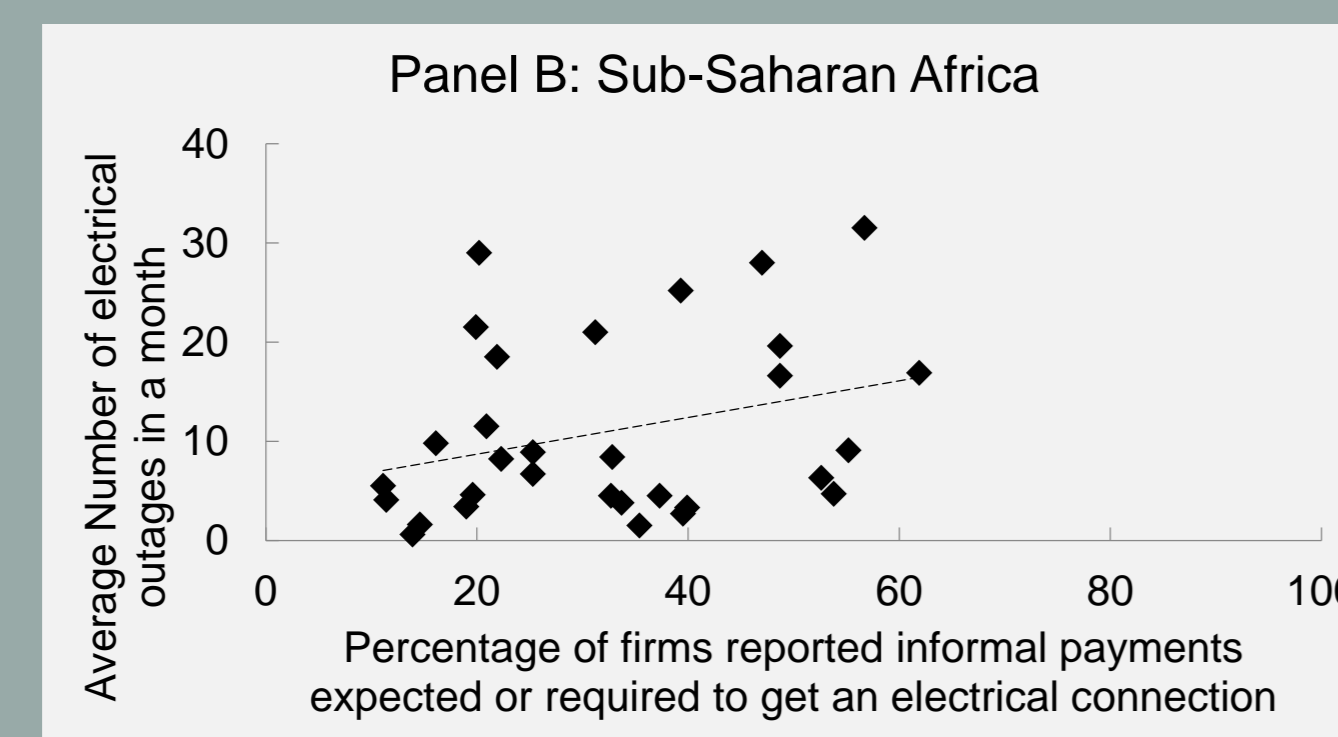
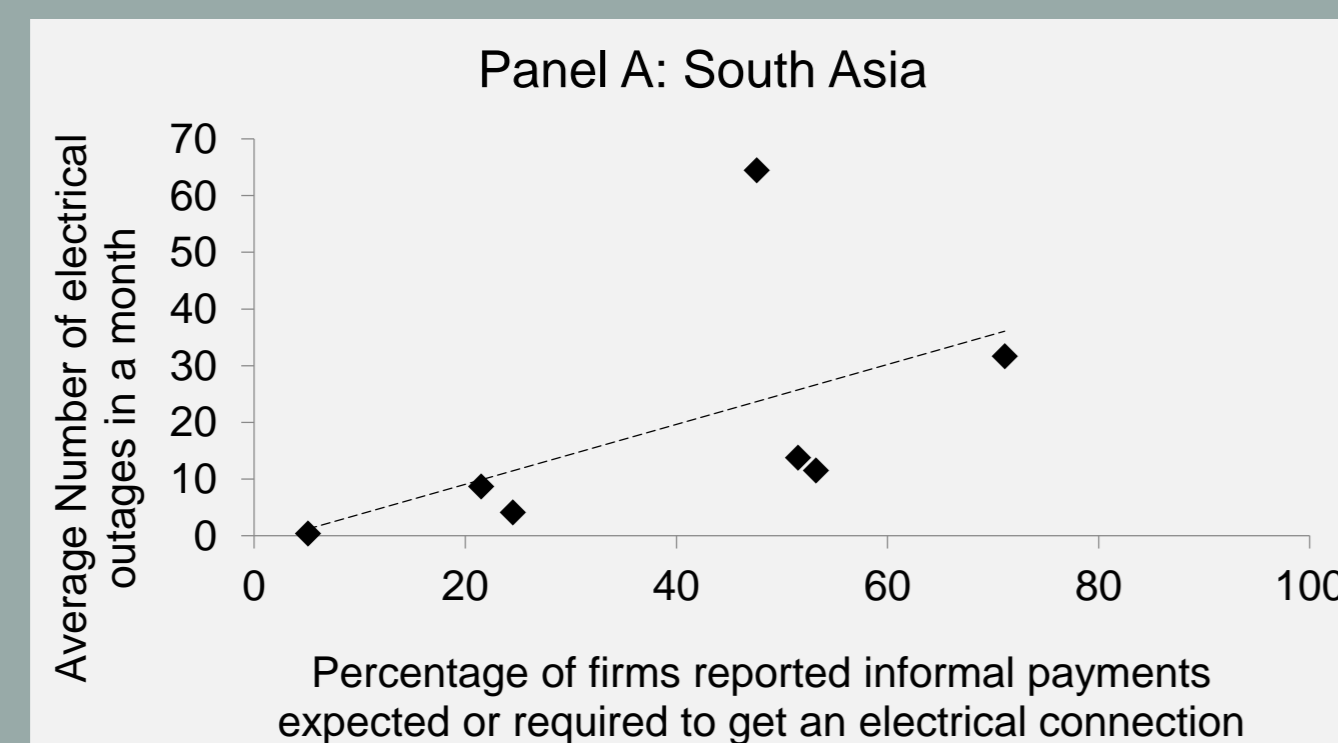
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Motivation

- Firms in many developing countries suffer from unreliable supply of electricity since distribution systems are overloaded due to congestion.



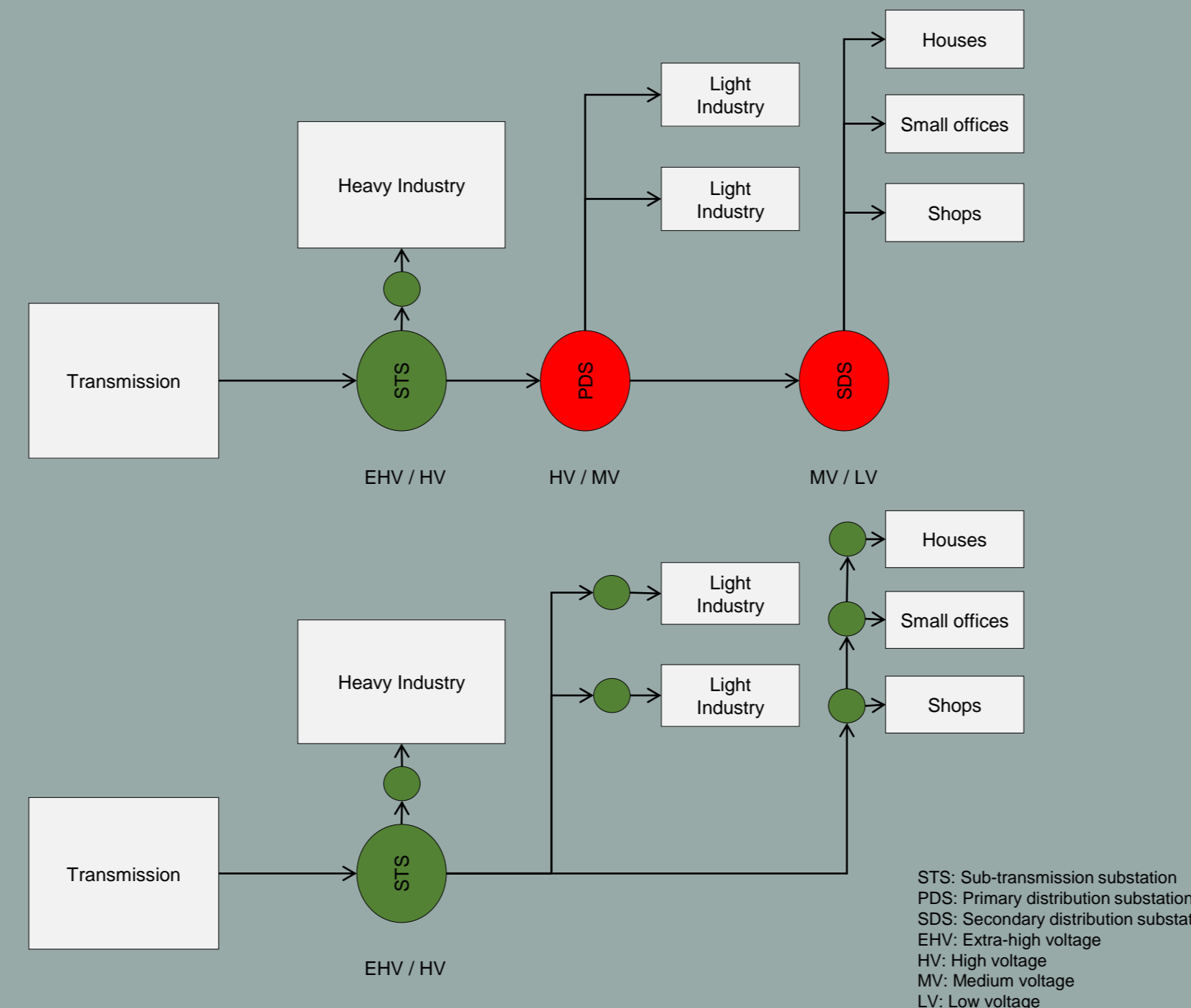
- Given that consumers are interconnected at the substation level, they share a common level of reliability. But, each individual's action can affect others' reliability.
- How? Let us consider the case of bribing to get an electrical connection.



Congestion in Electricity Network

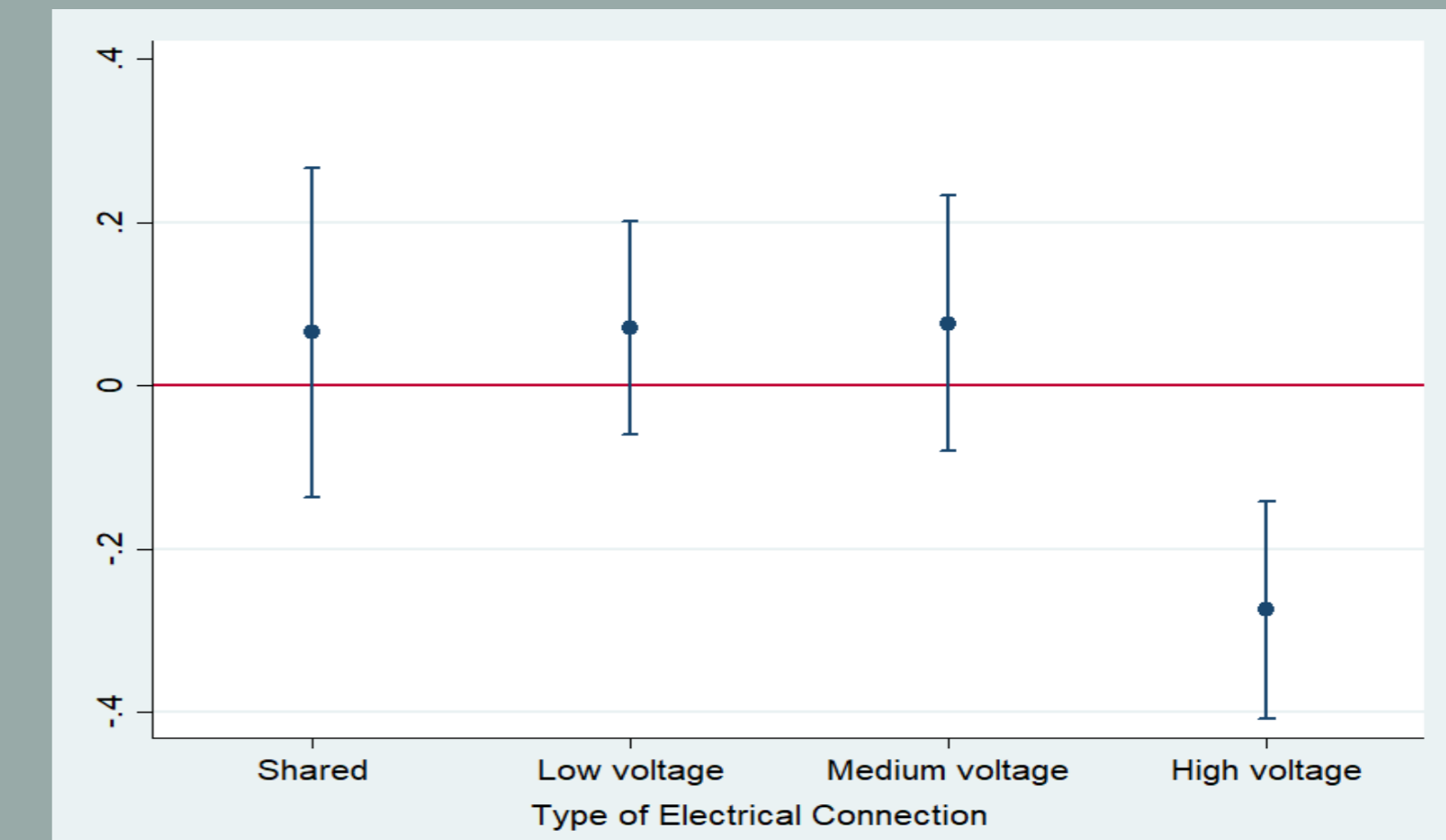
Research Question

- How property rights can affect the electric network congestion?
- Hypothesis: Substations are overloaded because they are shared among a number of consumers.
- Potential solution? Let those with high willingness to pay for reliability invest in their own substations.

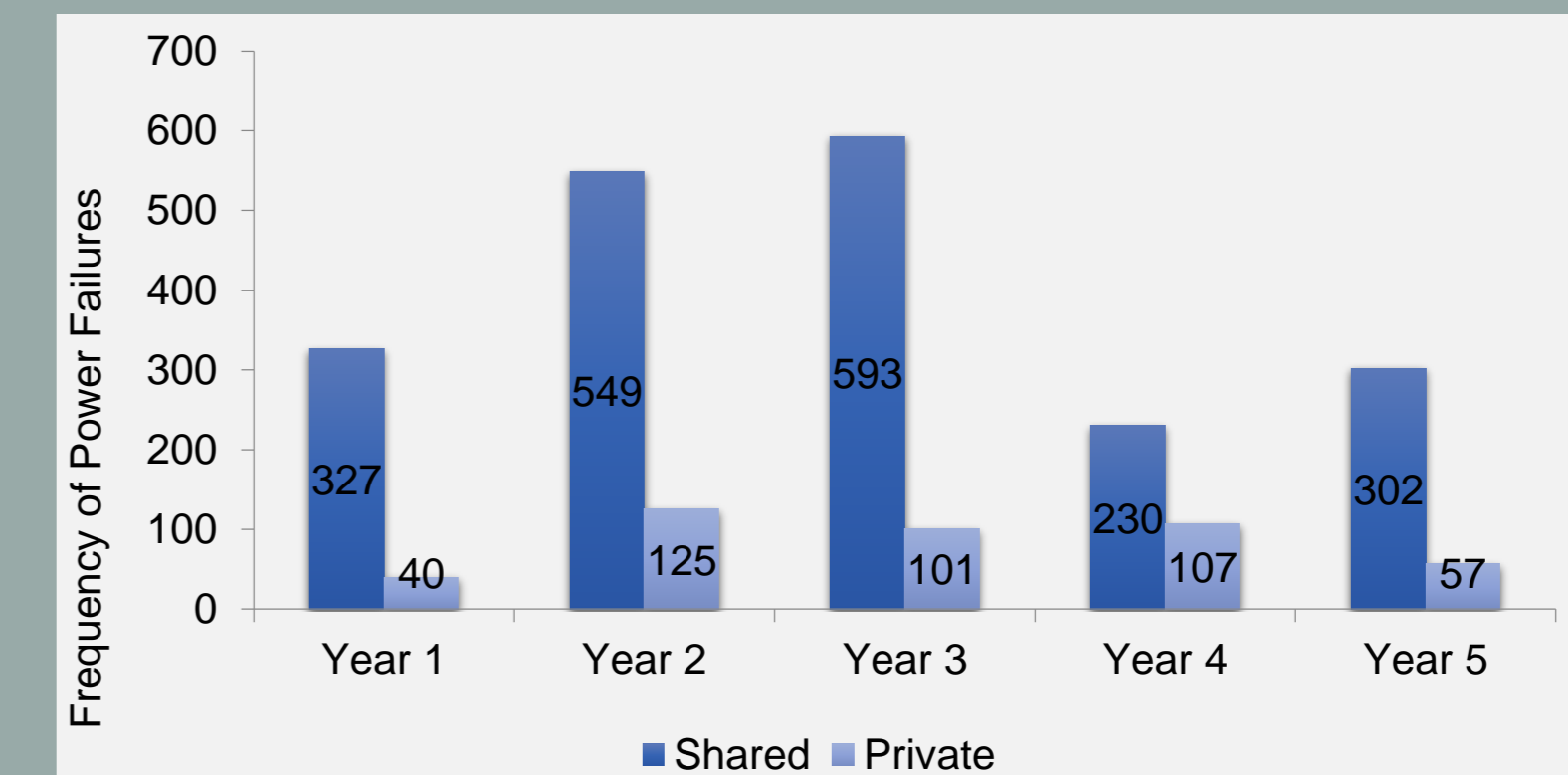


Findings

- Firms with private substations experience less daily outages.



- Outages in supply from the private substation are substantially less. While a shared substation is the collective responsibility of multiple consumers, a private substation has an owner who internalizes the costs of overloads.



Implications

- Privatized electricity substation: Power outages due to overloaded substation can be separated from other electricity system failures.
- Privatized electricity substation is a feasible investment, even when additional generation capacity to improve overall electricity reliability is not justified.