



Market Power

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Market Power in Generation

- Ability to raise price above cost
- Unilateral market power
 - individual generator
- Collective market power
 - tacit or overt collusion
- Implications
 - reduction in consumer surplus
 - increase in profits
 - cost inefficiency
 - distortions in technology choice

Unilateral Market Power

- Raising prices
 - reducing output in any given time period
 - shifting output between periods (hydro)
- Residual demand
 - demand net of competitors' supply
 - elasticity of demand
 - elasticity of competitors' supply
 - market share
 - overall capacity utilisation (off peak versus peak)
 - entry conditions
- Unique features of electricity
 - inelastic demand
 - capacity constraints
 - existence of pivotal players

Collective Market Power

- Raising prices
 - co-ordinated price setting
 - implicit or explicit agreements (price leadership)
 - threat of price war
- Discipline
 - temptation to undercut competitors
 - frequency of interaction (high in spot market)
 - transparency (individual behaviour)
 - capacity utilisation
 - entry conditions

The Structural Nature of Market Power

- Exercise of market power related to concentration
 - few and large generators
 - tight market conditions (pivotal players)
 - transmission constraints (local market power)
 - entry barriers
- Two examples
 - The 1990s England & Wales Electricity Pool duopoly
 - The fragmented Nordic industry
- A competitive electricity market can only be achieved with a de-concentrated market structure

Structural Remedies

- Antitrust measures
 - typically difficult to break up existing companies
 - may be possible to restrict expansion of existing generators
- Entry of new competitors
 - takes a long time, even in growing markets
 - depends, to a large extent, on government rules and regulations
- Transmission networks
 - strengthening networks to avoid market segmentation
 - eliminating all bottlenecks prohibitively costly
- Generation capacity
 - expanding capacity to reduce occurrence of pivotal players
 - maintaining excess capacity at all times prohibitively costly
- Participation of demand
 - increase demand response

Behavioural Remedies

- Market design
 - market places, contracts, price formation
- Transparency
 - sunshine regulation
 - co-ordination and (tacit) collusion
- Operational requirements
 - maintenance schedules
 - capacity availability, forced generation
- Contractual obligations
 - incentive to manipulate short-term prices
 - sufficient time horizon to extend competition to new/potential entrants
- Price regulation
 - explicit
 - implicit

Ex Ante versus Ex post

- Ex ante regulation
 - where market power is inherent and obvious
 - example: regulation of network tariffs
- Ex post regulation
 - where abuse of market power is only a possibility
 - example: antitrust or competition policy
- Trade offs
 - restrictions on behaviour of economic agents
 - tailoring measures to problem at hand
 - detecting exercise of market power
 - administrative costs of regulatory oversight and intervention

Triggers for Regulatory Intervention

- Detecting abuse of market power
 - establishing a benchmark
- Direct measures
 - price-cost margins (Lerner index)
 - difficulty of assessing relevant costs
- Indirect measures
 - price movements
 - market shares, concentration indices
 - residual demand, pivotal players
 - availability, generation, reservoirs, maintenance scheduling
- Direct versus indirect measures
 - indirect measures when direct measures not available or difficult to establish
 - but not necessary if price benchmarks are calculated anyway
- No obviously right way of determining when to intervene
 - discretion must be applied
 - elements of arbitrariness

Price Regulation

- Establishing “correct” prices
 - cost benchmarks
 - price comparisons
- If the price benchmark is too high
 - excessive pricing
 - creation of “focal points”
 - coordination of individual behaviour
- If the price benchmark is too low
 - insufficient return on investment
 - undermining longer term incentives

Hydro Power

- Hydro-dominated electricity markets
 - energy constrained, rather than power constrained
 - seasonal/annual swings in energy availability and hence prices
- Exercise of market power
 - spill of water
 - shift of output (water) between periods
 - incentives of thermal generators vary with hydrological conditions
- Regulatory intervention
 - establishing relevant (opportunity) cost (water value) of hydro
 - taking account of how market conditions depend on water availability

Nordic Market Power Mitigation

- Nord Pool
 - market surveillance to ensure “*confidence in pricing mechanisms, transparency of price relevant information and integrity of market*”
 - penalises market manipulation, insider trading
- National and European competition authorities
 - abuse of dominant position (ex. Elsam, Svenska Kraftnät)
 - anti-competitive agreements
 - merger control (ex. Elsam, Statkraft)
- Electricity market regulators
 - limited role in market power mitigation in wholesale markets
 - efficient use of resources (eg. spill of water)

Conclusion

- Market power originates from market structure
 - structural remedies should be given priority
 - behavioural remedies second best
- Colombia has a range of remedies in place, including
 - firm-energy auctions (competition from new entry)
 - scarcity price (long-term contract obligations)
 - reconciliation payments (local market power mitigation)
 - administrative investigations of anti-competitive behaviour
- Additional remedies should be considered carefully
 - What is the (remaining) market-power problem?
 - Is (further) regulation likely to solve or reduce the problem?
 - If regulation is necessary, what form should it take?