
Interconnection and the Multiple Roles Played by Pricing



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The Current Debate

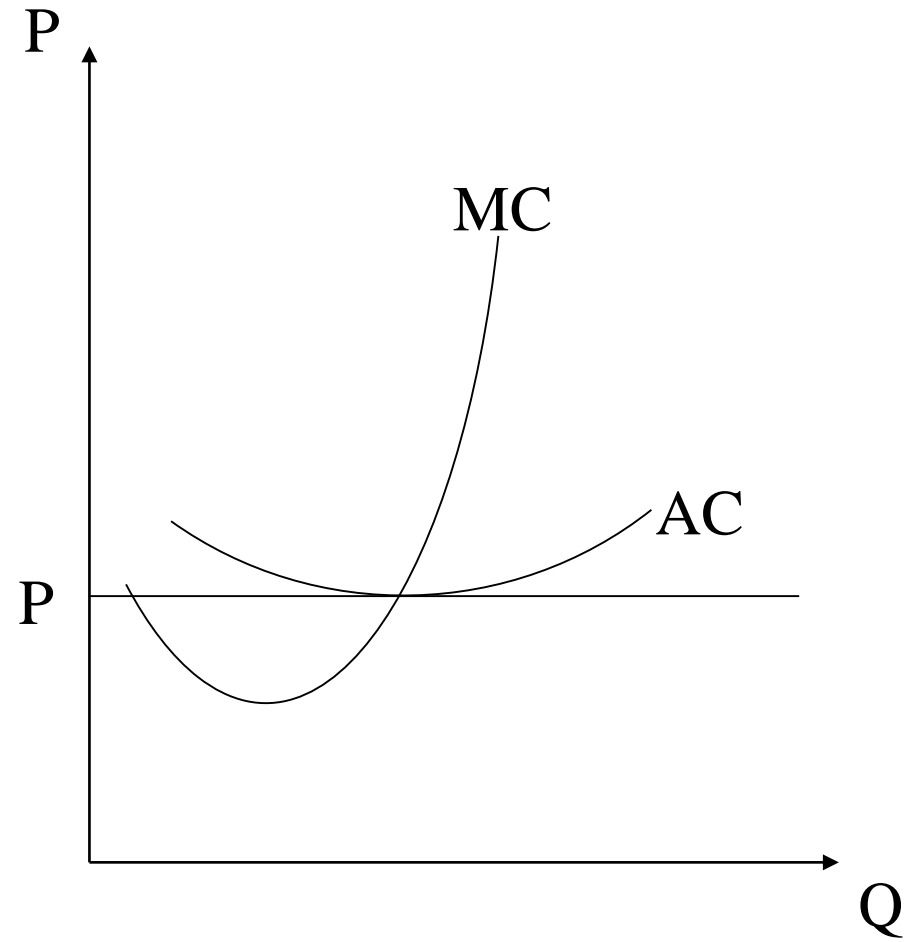
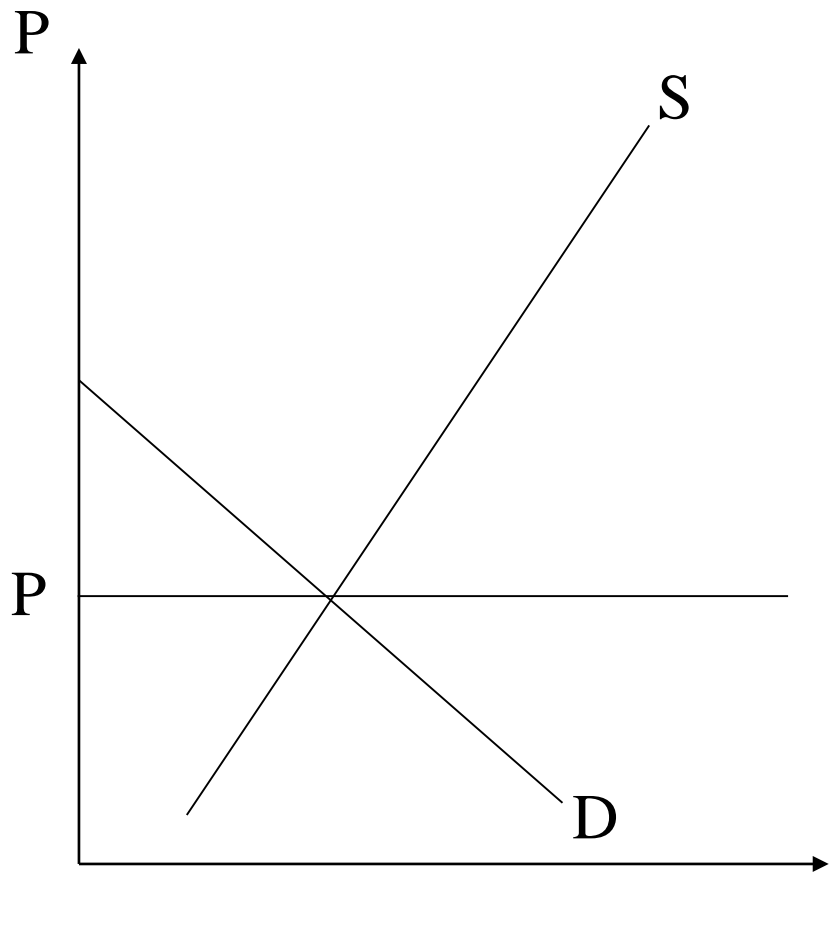
- Much of the current regulatory debate focuses on constraining pricing
 - Nondiscrimination
 - Zero-price interconnection
 - Regulation of server side, but not end-user side
- Policymakers must understand the role of prices

Basic Roles of Simple Prices

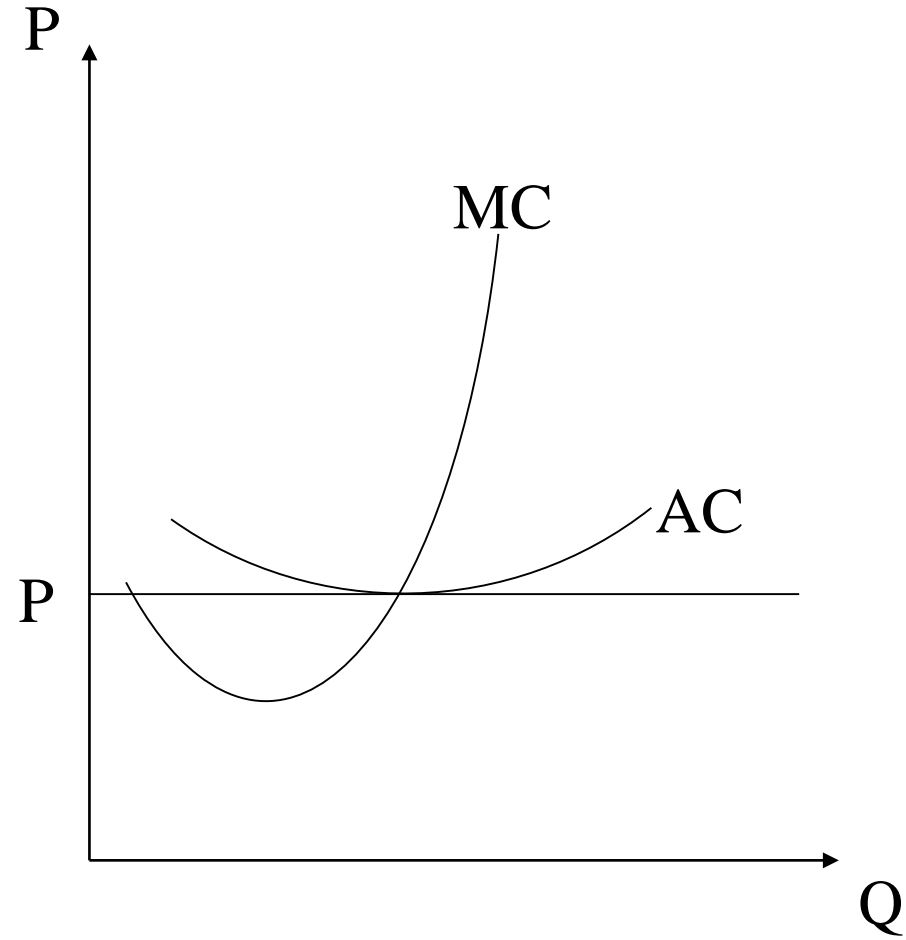
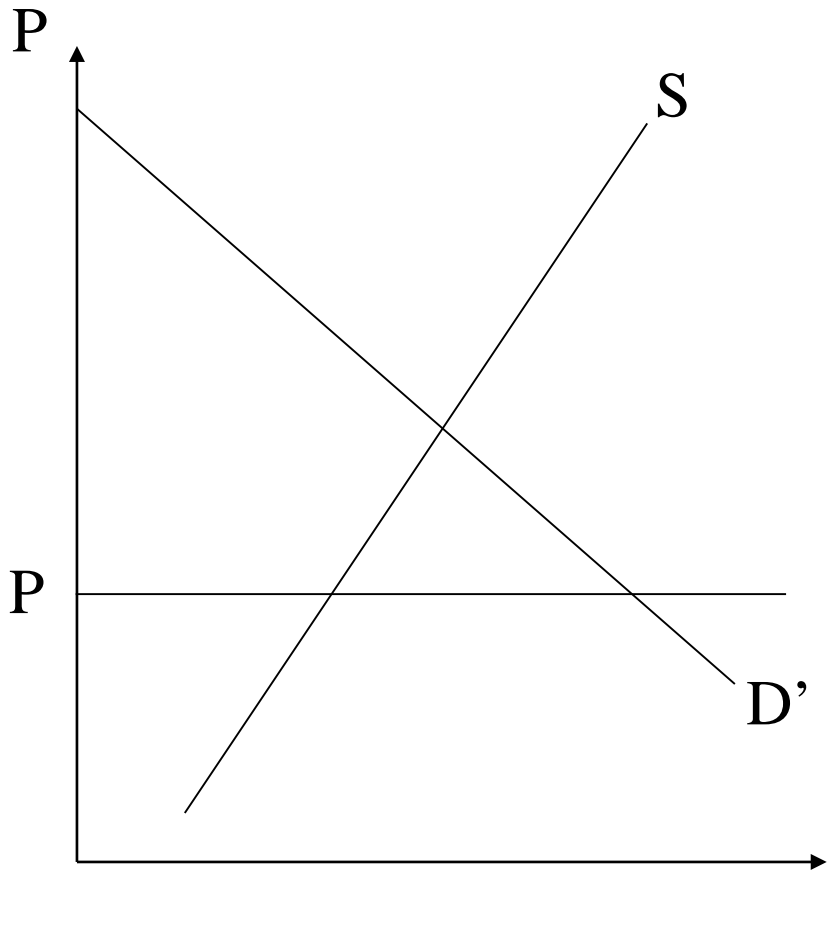
- Allocate scarce demand
- Provide incentives for conservation
- Signal need/provide incentives for equilibration

- Current example: airline fuel prices

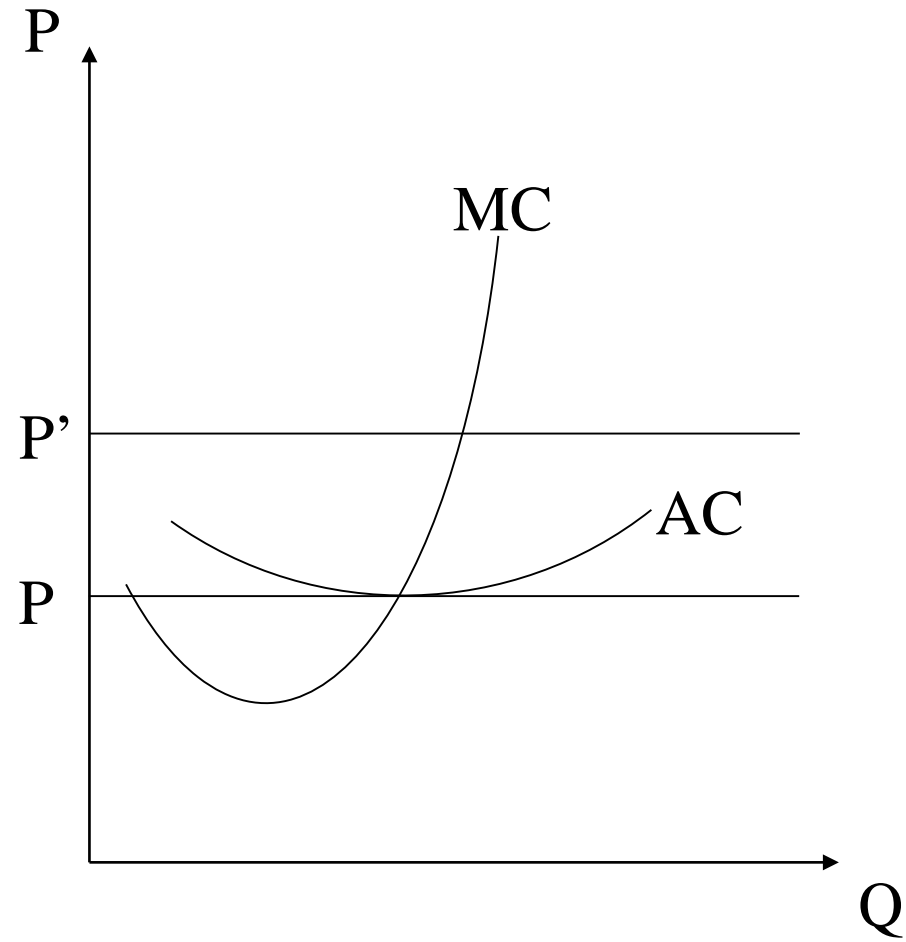
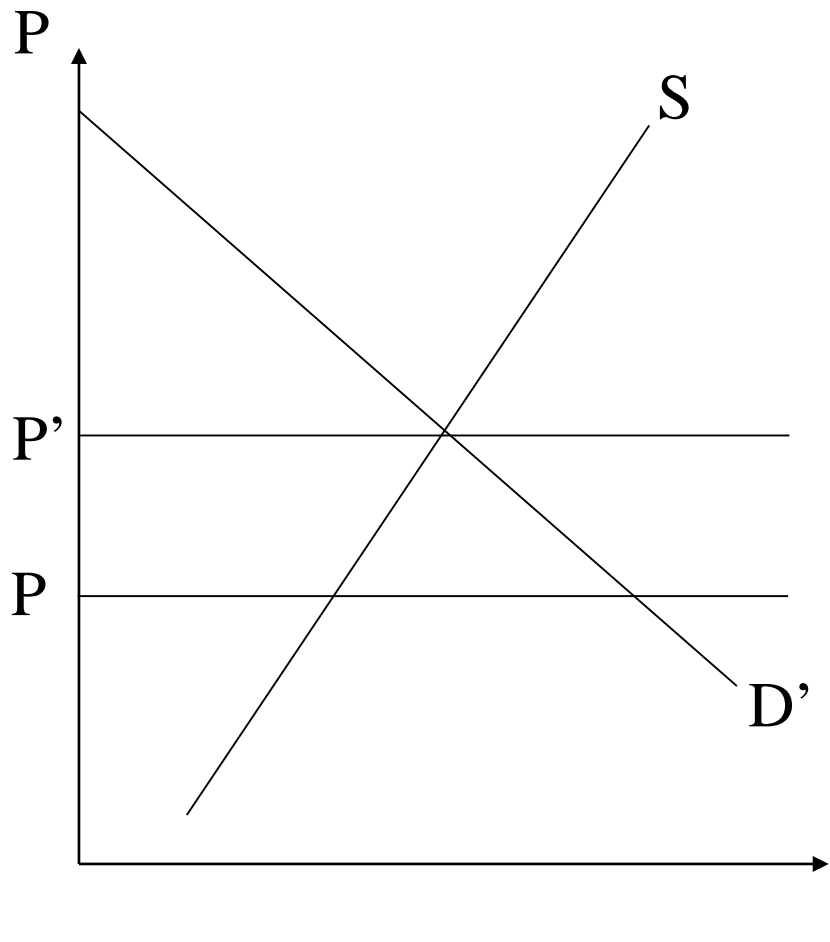
Role of Prices in Equilibration



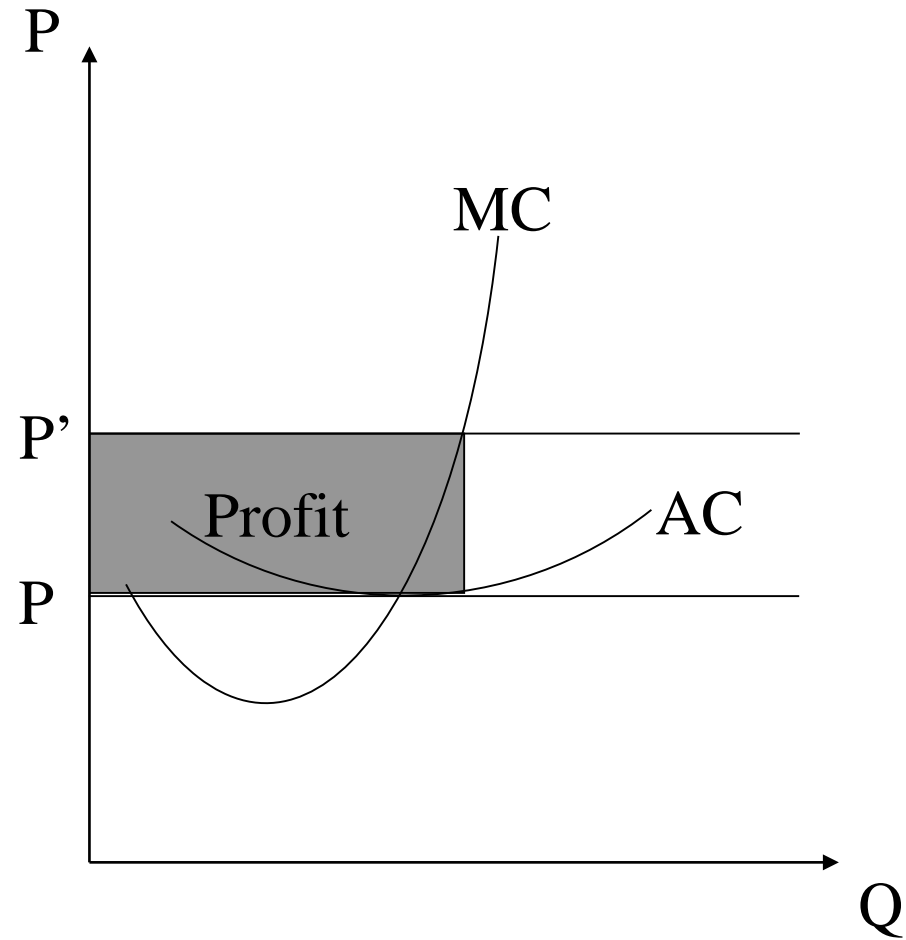
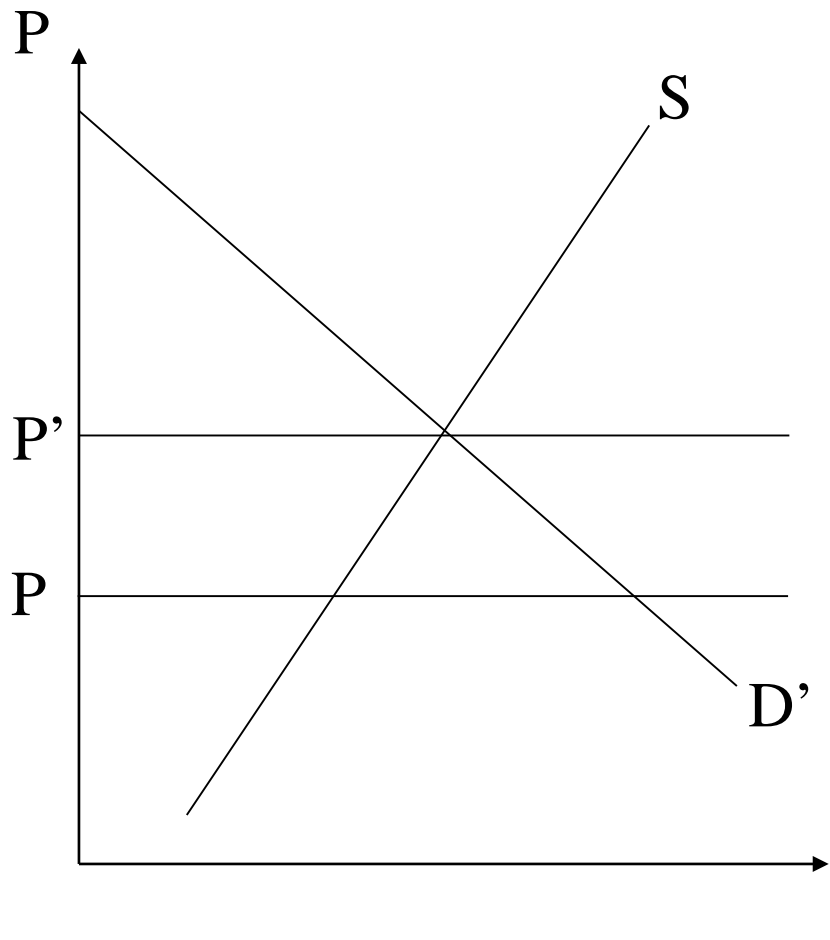
Role of Prices in Equilibration



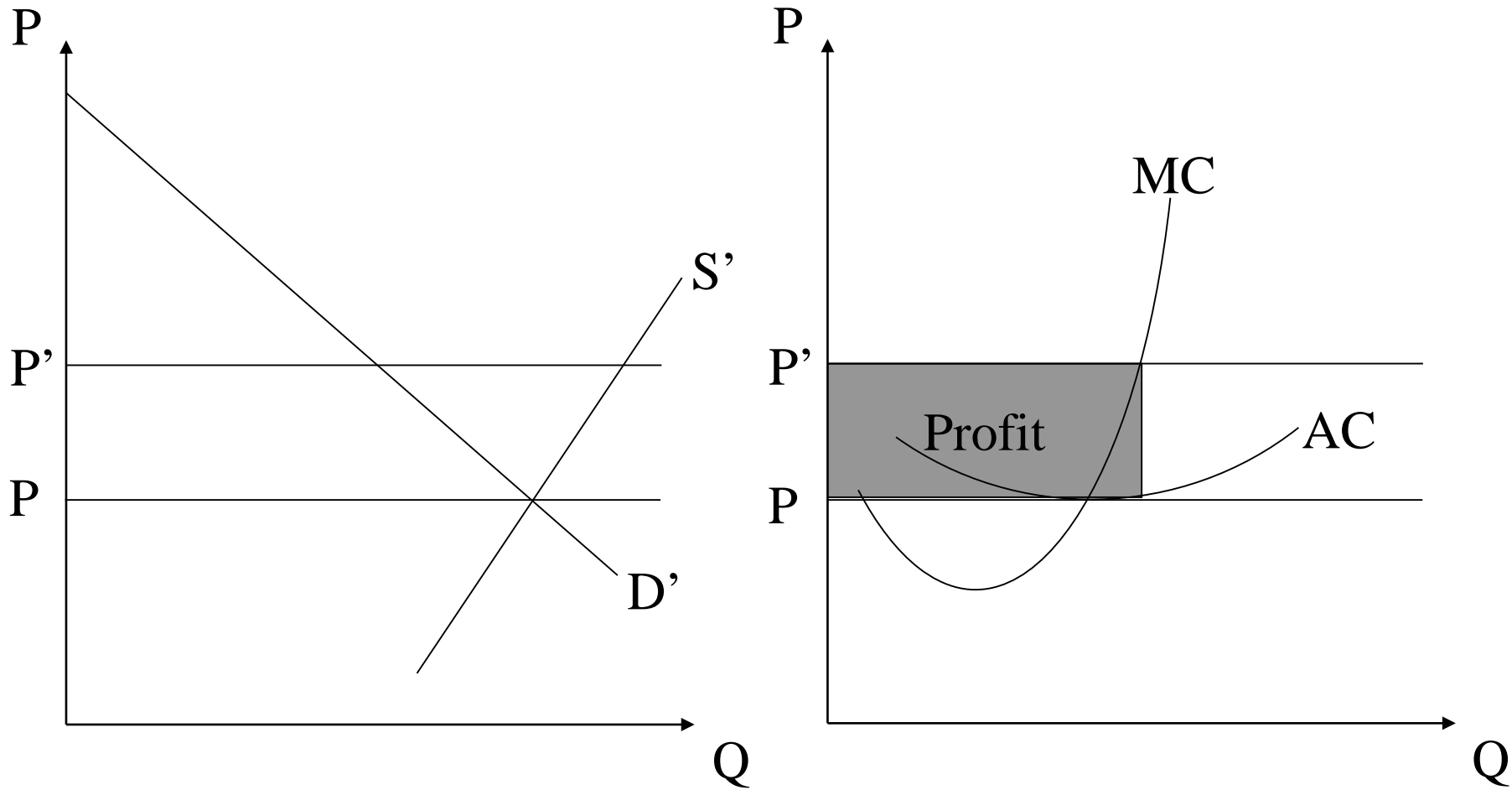
Role of Prices in Equilibration



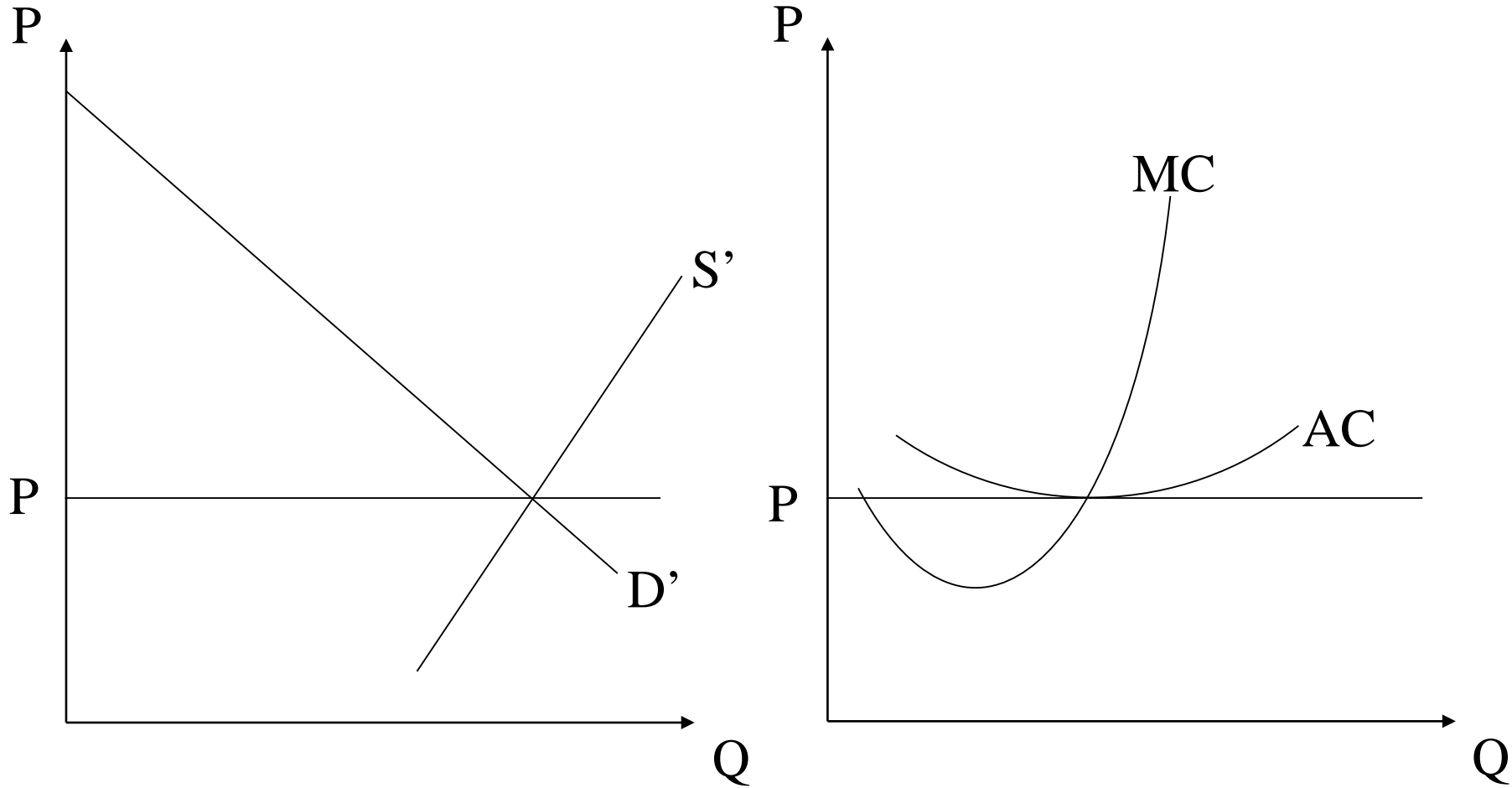
Role of Prices in Equilibration



Role of Prices in Equilibration



Role of Prices in Equilibration



Two-Sided Markets

- Special type of network economic effect
 - Network consists of two types of participants
 - Value is determined by number of other class
 - Classic examples: singles bars, credit cards, advertising
- Key insights
 - Pricing is determined by the elasticity of the other side
 - Increases in the profitability of one side lowers the price on the other side
 - Magnitude and direction of cash flow is arbitrary

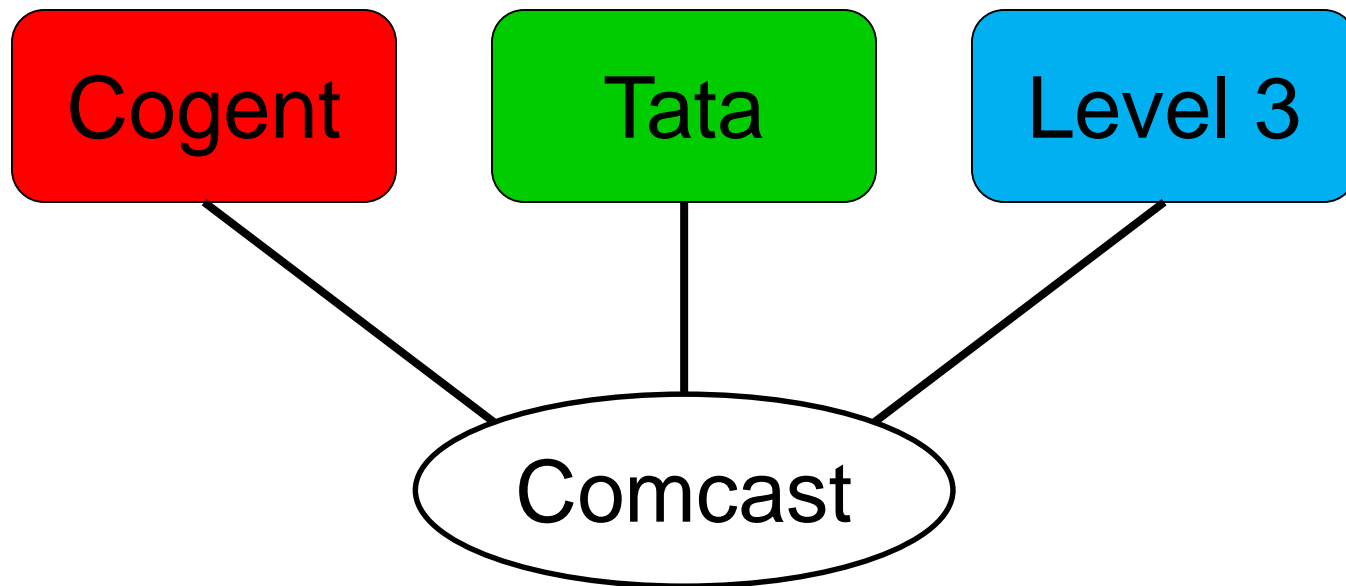
Dynamic View of Pricing

- Multiple options exist ex ante/pricing is endogenous
 - Jet fuel: spot markets, futures markets, self-provisioning
 - Internet: multiple transit and peering paths, direct interconnection, CDNs
- There is no reason to prefer one pricing structure
 - “Paying twice” rhetoric is misleading
 - All value comes from consumers
 - Interconnection pricing may be fairer
- Full information not reflected in bilateral prices

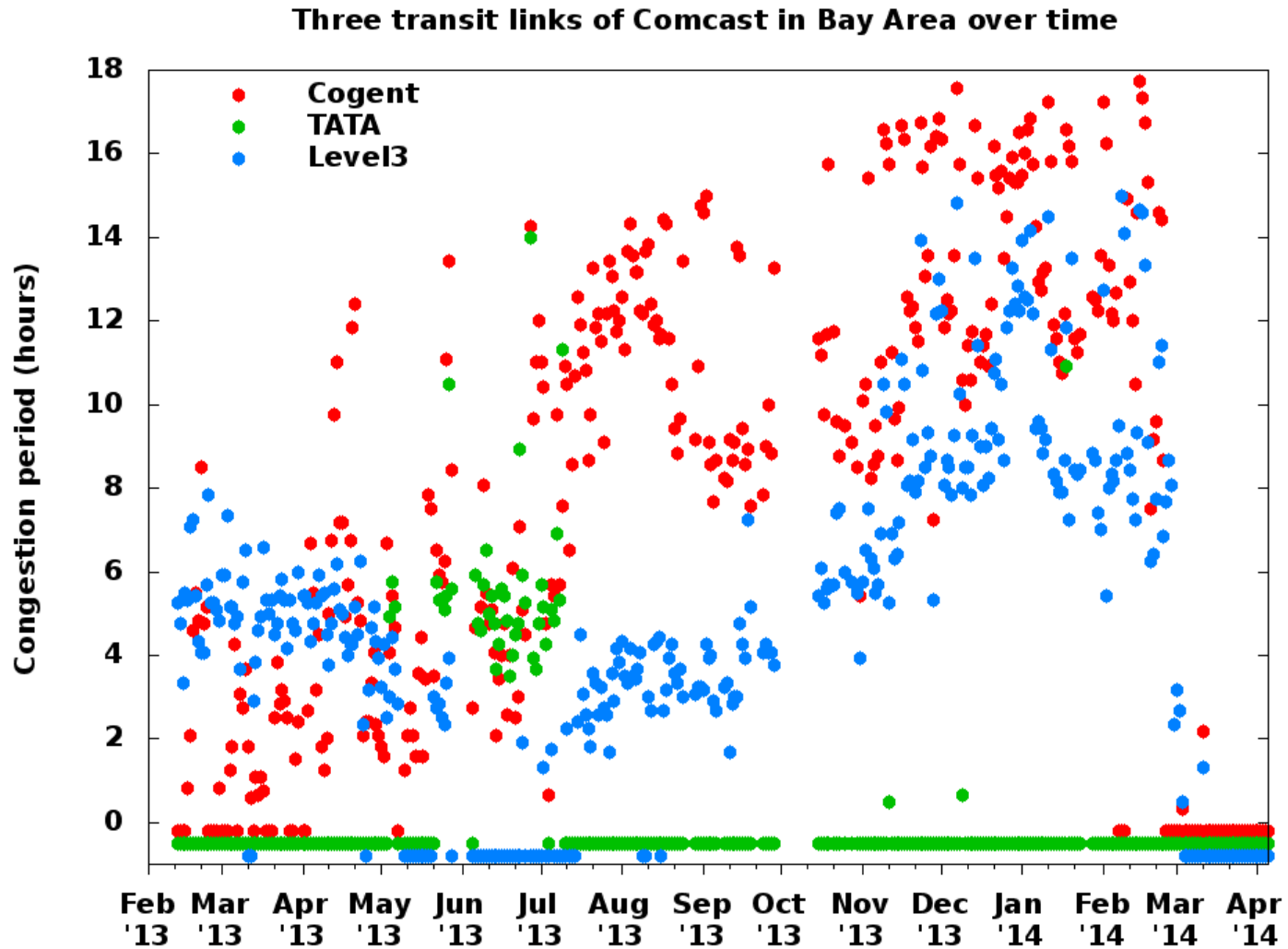
Distinguishing Between Different Sources of Bargaining Power

- Good sources: investments, foresight, risk
- Bad sources: market power, terminating access
- Challenge: address only bad sources
- Multiple sources of strategic behavior
 - Last-mile provider
 - Transit provider (e.g., consistent problems, Cogent's prioritizing retail over wholesale)
 - Edge provider

Comcast-Netflix Transit Relationships



MIT Study on Comcast Congestion



Implications

- Pricing flexibility is key to any economic system
- Innovation depends on distinguishing between good and bad sources of bargaining power
- Pricing and topology are related choices/endogenous
- Simple bilateral pricing does not yield enough information
 - Market makers
 - Alternative institutional forms to align incentives