Collusion and Private Information
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- Basic Repeated Game with Full Information
  - Stationary: many useful comparative statics
  - Public demand shocks: Rotemberg-Saloner
- Imperfect Observability (Hidden Actions)
  - Public monitoring: Green-Porter, APS
- Private Information (Hidden Types)
  - Static mechanism design work (with transfers)
  - Public prices, private costs: Athey, Bagwell, Sanchirico

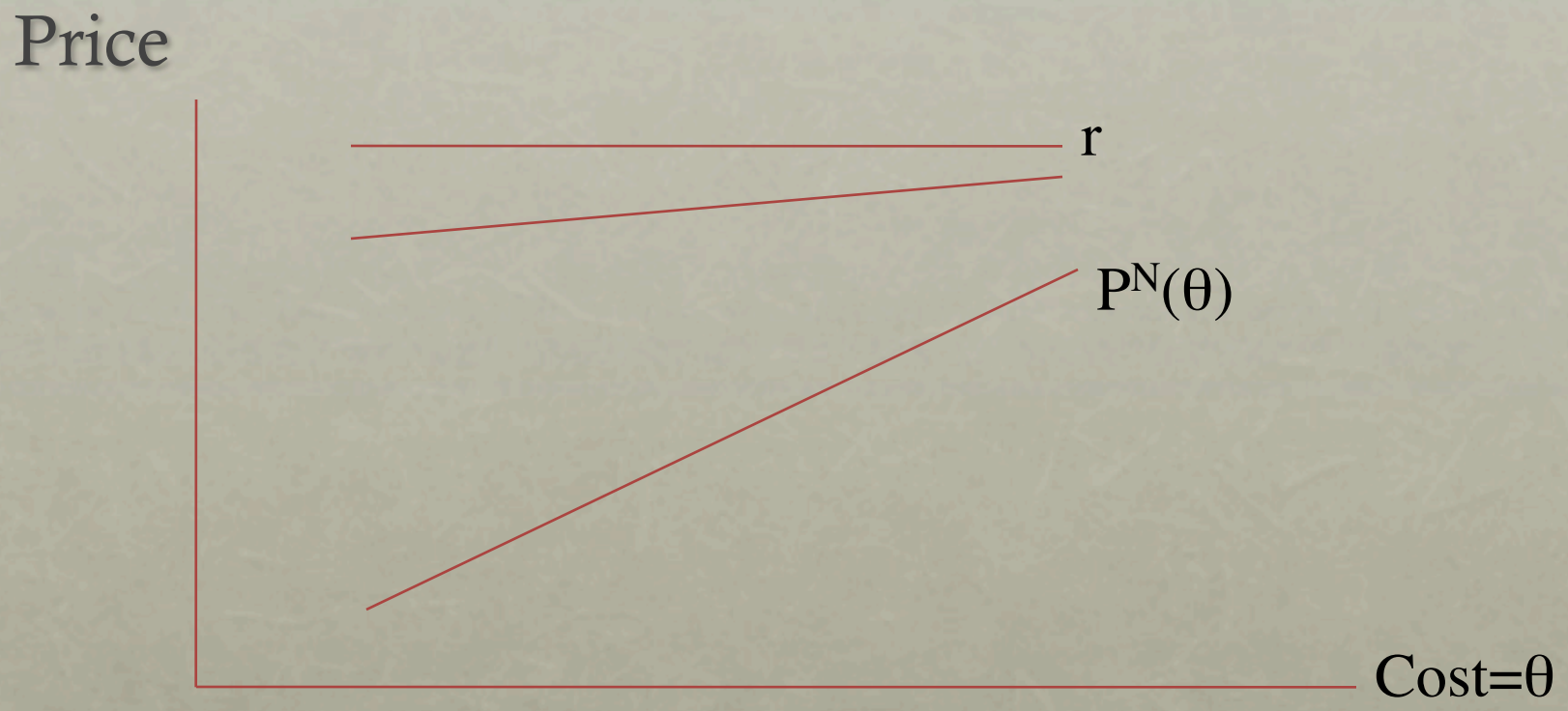
MOTIVATIONS

- Greater Realism
  - Private information: costs, capacity, demand, etc.
- New Predictions
  - Collusive conduct (screening)
  - Welfare
  - Role of communication
- Methodological Advance
  - Unite repeated games and mechanism design
  - Continuation values as (restricted) transfers

Collusion and Price Rigidity (ABS (2004))

- Model
  - Repeated Bertrand game: public prices, private costs
  - Costs are iid across firms and over time
  - Inelastic demand (mainly)
- Strongly Symmetric Equilibria
  - Industry-wide price wars only
  - Transfers (as price wars) are wasteful
- Goals of Collusion
  - Raise price
  - Productive efficiency

ILLUSTRATION OF TRADEOFFS



Collusion and Price Rigidity: Findings

- Log concave dbn, sufficiently inelastic demand and patient firms: *rigid pricing and stable markets shares is the optimal strongly symmetric equilibrium for colluding firms*.
- Sufficiently inelastic demand: No wars.
- Some support for variance screening.

Optimal Collusion under Private Information (AB 2001)

- Model: Same except two types (L or H)
- Allow Symmetric & Asymmetric Equilibria
  - Symmetric (wars wasteful: transfers out of cartel)
  - Asymmetric (redistributive within cartel)
- Continuation values: Two roles
  - Play role of transfers *from* one firm *to* another, restricted by equilibrium incentives (future market share favors)
  - Play role of delivering future efficiency

Optimal Collusion under Private Information: Findings

- Large parameter space, high but finite patience level: *optimal collusion achieves first-best profits.*
- Achieve high price *and* productive efficiency goals.
- Idea: Use ties to repay favors without incurring efficiency losses.
- Implications:
  - Screening and inter-temporal market shares
  - Communication in cartels
  - Collusion and welfare

Collusion with persistent cost shocks (AB 2008)

- Model: Now allow for persistent private costs
- Dynamic game: signaling and beliefs enter
- Non-cooperative play
  - No longer static Nash
  - Use carrot-stick pooling punishments
- Allow for symmetric and asymmetric equilibria

Collusion with persistent cost shocks: findings

- Perfectly persistent cost shocks: if log-concave dbn, sufficiently inelastic demand and patient firms, then *the optimal collusive equilibrium entails rigid pricing and stable market shares*.
- Idea: Allow for asymmetric equilibrium, but future favors of less value if types constant over time.
- Imperfect persistence, two types:
  - *use future market share favors to get at least partial productive efficiency.*
  - *First-best if high patience relative to persistence*

NEW DIRECTIONS

- Communication and Cournot (Bagwell-Toikka)
- Price wars and bargaining (AB 2008, Roos 2006)
- Collusion and reputation