Exclusivity as (in)efficient insurance

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Outline of talk

- Introduction
- Model without investors
- Model with investors
- Conclusion
- Extensions

Exclusion and Risk Sharing

- It is well known that an incumbent firm can use exclusivity contracts to monopolize an industry or deter entry
- Exclusive dealing contracts also help with efficiency by solving various problems (intrabrand competition, hold-up problems, etc.) Focus here is on *risk sharing*.
- An anticompetitive practice could be tolerated if it were associated to such efficiency gains
- Can the insurance provided by a long-term exclusivity contract be invoked to justify its use in the face of its negative impact on competition?

Illustration: Energy Market

- Large incumbent producer signs long term exclusivity contracts with large industrial consumers
- Competition authorities need to decide whether this contract should be forbidden as it may foreclose the market and keep potential entrants out of the market
- The defendants have two claims:
  1. The long-term exclusivity contract is required for risk hedging purposes
  2. There are no other parties (financial investors, banks) willing to insure this risk
- Concerns that lack of contracts will create market power, destabilize markets (*c.f. Californian Energy Crisis*) and hamper investments
- How should the Commission deal with this?

What we do

- We extend the Aghion-Bolton (1987) model
- One of the standard models to study exclusion
  - by introducing risk-aversion on the part of the buyer
  - by studying different contract environments (no contract, exclusivity contract, financial forward contract).
- Study the trade-off between
  - Risk allocation (**+**)
  - Exclusion of efficient entrant (**-**)

What we find (1)

- CLAIM 1: Exclusivity contracts help risk sharing
- An exclusivity contract indeed induces efficient risk-sharing
  - So, although exclusionary, it can be preferred to no contract at all
- However, risk sharing should **not** be allowed as an insurance defense for the exclusivity contract as alternative contracts exist
- The use of a financial forward contract dominates exclusivity
  - It induces **risk-sharing** and **efficient entry**

What we find (2)

- CLAIM 2: No other party wants to provide insurance
- This may be true..
  - But in order to sign a **bilateral** financial forward contract there is no need for the financial market to be liquid
  - As long as the spot price is contractible, firms can bilaterally sign a “financial forward contract”
- In fact, we expect this always to be true…if the incumbent would be allowed to offer exclusivity contracts
  - Due to moral hazard, investors will never provide insurance,
  - After buying protection from investors against high prices, the buyer can use the exclusivity contract to keep prices high

What we find (3)

- Exclusivity contract should be forbidden, as not only the entrant but also financial investors are excluded
- Financial L.T. contracts should be allowed
- **Conjecture:** Competition authorities should limit the penalty of breach of a contract to the "market value of the contract", as there are otherwise concerns of exclusion. This implies:
  - A contract that specifies a volume and a price equal to the spot price should be forbidden (no risk sharing, only exclusion)
  - Contract that does not allow resale of energy should be forbidden (suggestion Gunar)
  - Some take-or-pay contracts should be forbidden

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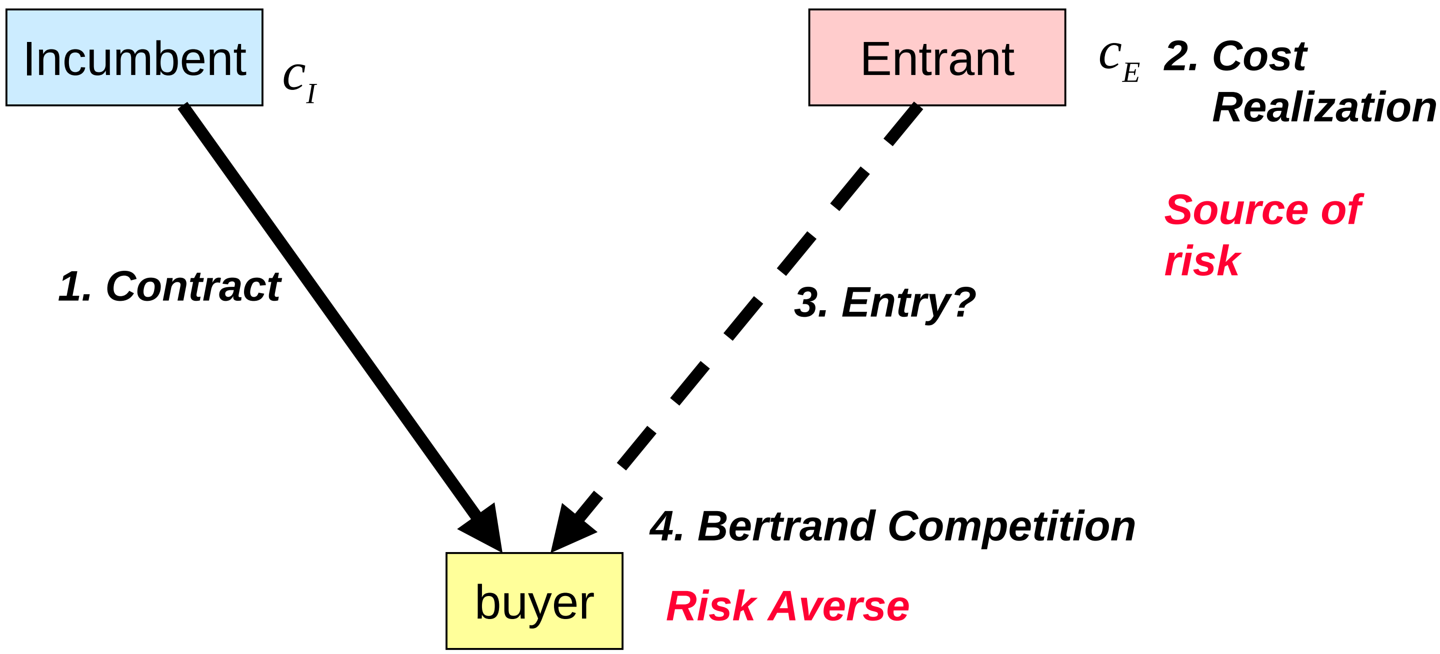
Model: Market



- Efficiency requires that:
  - Buyer is insured: It buys the good at a fixed price
  - Efficient entry: Entrant enters iff $c_E = c_I$

Scenarios: Type of Contracts

1. No contract

2. Exclusivity contract
   - Buyer commits not to buy from the entrant; can be breached against payment of penalty
   - Price for delivery of the good P
   - Penalty for beaching the contract P_0

3. Financial Forward contract (= contract for difference)
   - Insurance contract on the spot price p
   - Incumbent receives difference between forward price f and spot price $+ (f - p)$
   - Buyer pays difference between forward and spot price $- (f - p)$
   - Purely financial contract, no need for physical delivery of the good

Analysis: No Contracts

- Buyer faces risk
  - Low price if entry
  - High price if no entry
- Entry is efficient
  - Entrant will enter as long as he has a lower cost than the entrant

Analysis : Exclusivity Contracts

- Buyer is insured
  - When there is no entry: buyer buys the good at the contract price
  - When there is entry: buyer buys good from entrant, and pays penalty for breaching the contract
  - → buyer does not face risk
- Entry is inefficient
  - Entrant needs to compensate the buyer for the penalty it has to pay
  - Entrant will have to price lower than without contract (gains for incumbent-buyer)
  - Entrant will enter less than socially optimal

Analysis: Forward Contract

- Buyer is insured
  - It will pay the forward price specified in the contract
- Entry is efficient
  - Incumbent is fully hedged: it will bid competitively in the spot market (see Allaz and Vila type of models)
  - Incumbent bids at marginal cost
  - Entrant enters efficiently

Analysis: Summary

- Results

Contracts that the incumbent is allowed to sign	Main Buyer is insured?	Efficient Entry
None	No	Yes
Exclusive Contract	Yes	No
Financial Contract	Yes	Yes

- Welfare
  - Financial forward contract gives highest level of welfare
  - Exclusivity contract may be better than no contract if risk aversion is large, and loss related with exclusion is small

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Game with financial investors

1. Investors offer to sell forward contracts on competitive financial markets
2. Buyer decides whether it buys a forward contract from investors

3. *Incumbent offers contract to buyer*
   Exclusivity contract of forward contract
4. *Buyer accepts or rejects contract*
5. *Cost of Entrant is realized*
6. *Entrant decides about entry*
7. *Incumbent and (Entrant) simultaneously set prices (Bertrand competition)*

Results: Summary

Financial investors present?	Contracts that the incumbent is allowed to sign	Financial market develops?	Main Buyer is insured?	Efficient Entry
No	**None**	No	No	Yes
No	**Exclusive Contract**	No	Yes	No
No	**Financial Contract**	No	Yes	Yes
Yes	**None**	Yes	Yes	Yes
Yes	**Exclusive Contract**	No	Yes	No
Yes	**Financial Contract**	Yes	Yes	Yes

- Financial market will only develop if incumbent is not allowed to offer exclusivity contracts
- If the financial market develops
  - We have optimal risk sharing and optimal entry
  - Incumbent loses its market power in insurance market, the buyer benefits from this (no longer pays premium for LT contract)
- Even without LT contract between the buyer and the incumbent, we obtain the welfare optimum

Intuition

- If the incumbent is allowed to offer an exclusivity contract, then the financial market will brake down due to moral hazard
- Once the buyer is insured against high spot prices, it is optimal for the incumbent to exclude the entrant completely (and keep spot prices high)
  - They can extract rent from the insurance provider
- As a result the insurance contract will only be offered at a very high price by speculators
- At this price the buyer will never buy this insurance contract as it reduces its bargaining position vis-à-vis the incumbent
- An exclusivity contract will exclude not only potential competitors but also speculators

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Conclusion

- Exclusivity contracts can do better than no contract at all but if problem really is insurance, no need for an exclusivity contract. Simple financial instrument is all that is required.
- If incumbent has a choice, he will offer exclusivity contracts. So, if we allow for insurance defense of such contracts, run the risk of making life too easy for dominant incumbents.
- Note that we do not assume that the financial market is liquid, only that the spot market is liquid.
- Forbidding all L.T. contracts is too strong as a restriction. It only reaches the optimal outcome when financial investors are present in the market

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Extensions of this model

- **(work in progress)**
- Upon entry, competition is less fierce (Cournot)
  - Under no contracting = too much entry
  - Financial contracts have beneficial effect on spot market competition → Prices give better signals for value of entry to entrant + hedging effect
- Risk-averse incumbent
- Different contract types
  - Take-or-pay, options, indexed contracts, destination clauses

Related work

- Exclusion through speculation
  - With Cedric Argenton (Mimeo, 2008)
  - Incumbent may over-contract (= speculate) to exclude an efficient entrant
  - Incumbent should not be allowed to speculate

- Risk Management in Electricity Markets: Hedging and Market Incompleteness
  - With Joris Morbee (Working paper, 2008)
  - Relation between type of contracts, hedging and investments

- Physical and Financial Power plants, will they make a difference ?
  - (Working paper, 2005)

- Market power mitigation by regulating contract portfolio risk
  - With Emmanuel de Corte (Energy Policy, 2008)

EXTRA SLIDES

Related Literature

- Exclusion literature: It is well known that an incumbent firm can use exclusivity contracts to monopolize an industry or deter entry
- Two “theories of harm” from exclusive contracts
  - “naked exclusion”: Rasmusen et al. (1991), Segal and Whinston (2000): incumbent denies viable scale to potential entrant by signing up enough customers
  - Aghion and Bolton (1987): incumbent uses contractual provisions to force the entrant to price low, and capture efficiency gains

- Vertical restraints literature: Exclusive dealing contracts help efficiency by solving various problems (intrabrand competition, hold-up problems, etc.) Focus here is on *risk sharing*.
- An anticompetitive practice could be tolerated if it were associated to such efficiency gains

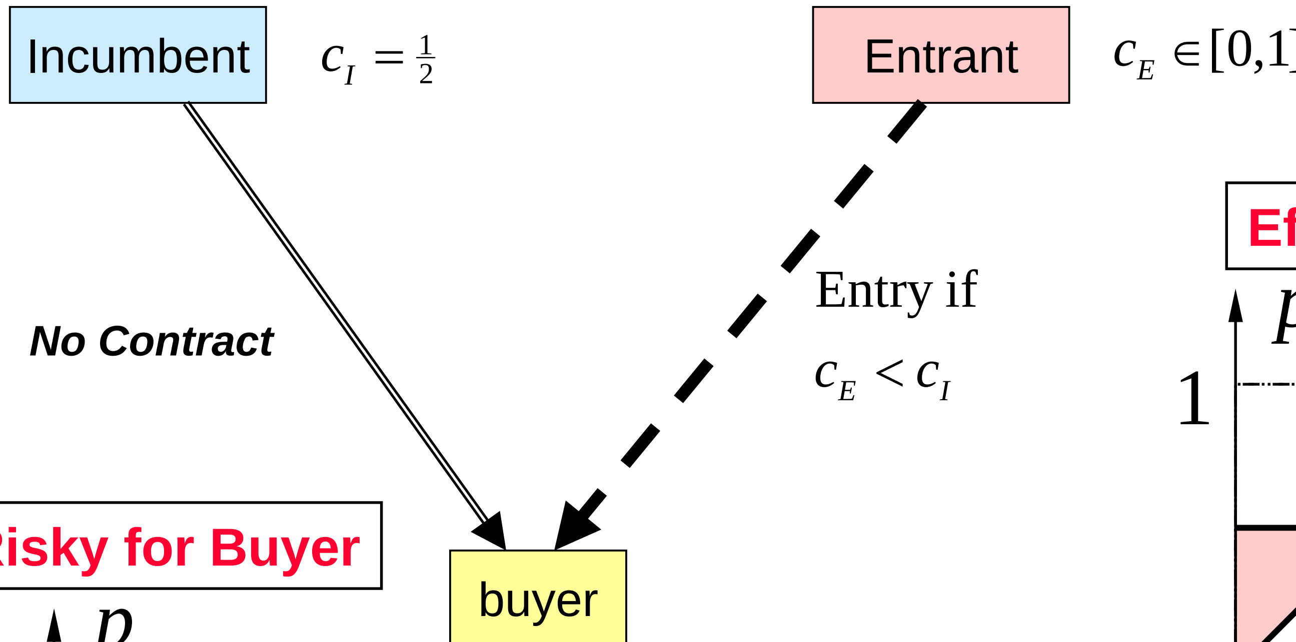
- Few papers study the trade-off between exclusion and efficiency gains of contracts

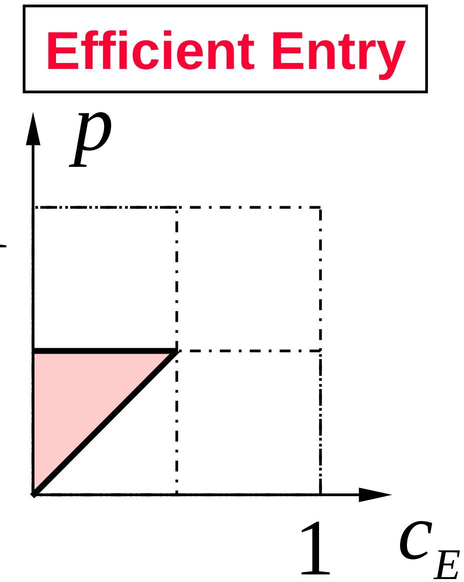
Related Literature

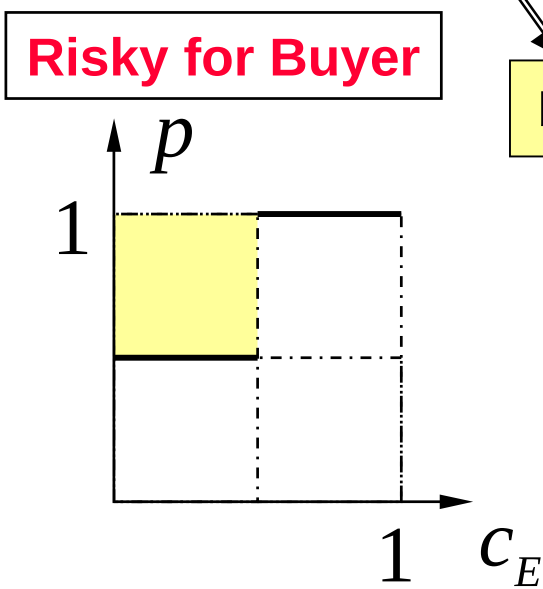
- Financial instruments and product market competition
- Allaz and Vila (1993): in Cournot oligopoly, firms sell forward contracts in order to commit to competing more aggressively (for quantities are strategic substitutes)
- Willems (2005) shows that similar results hold for option contracts.
- Mahenc and Salanié (2004): in Bertrand oligopoly, buy forward contract to commit to being less aggressive (for prices are strategic complements)

- This literature can be criticized for not looking at impact on incentives to enter
- We show that once firms are hedged, both the spot market and entry decisions will become more competitive

Analysis : No Contracts

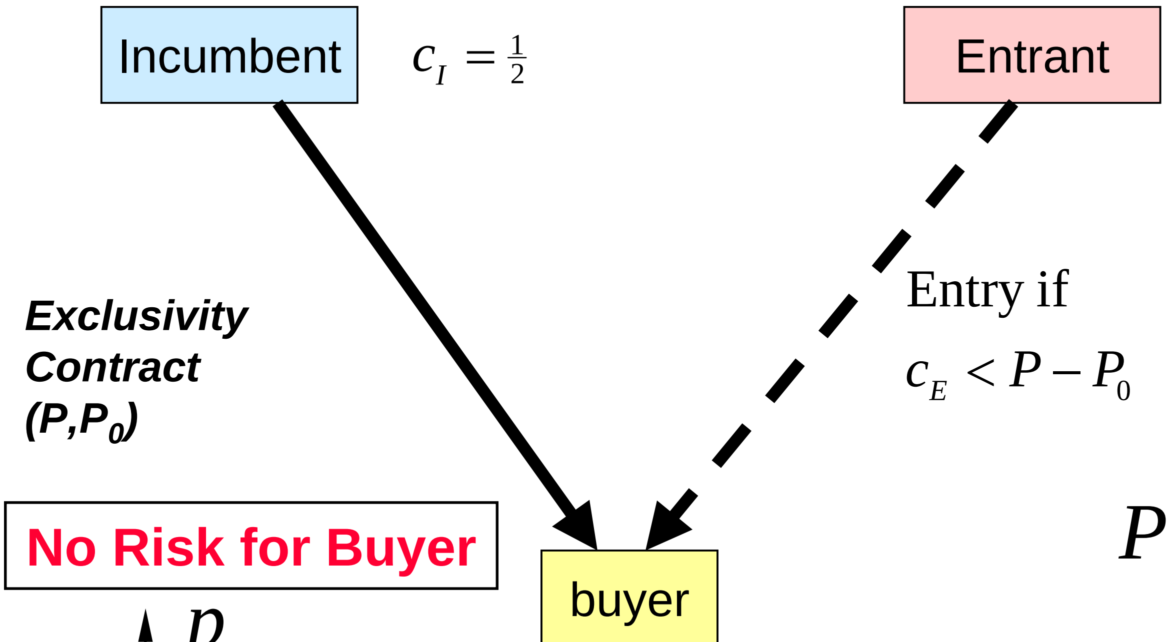






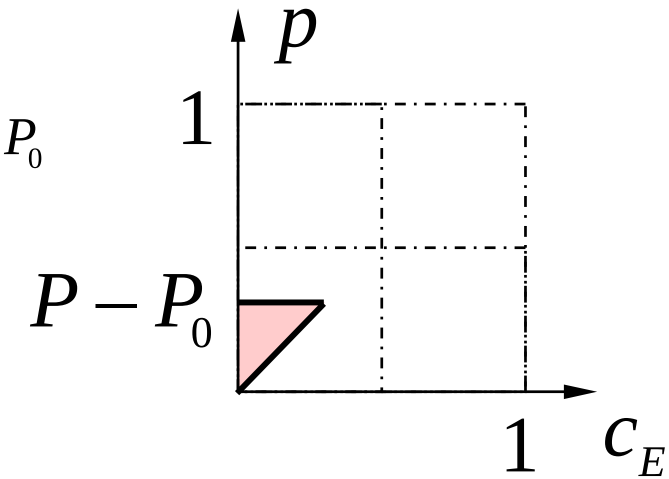
- Entrant enters when efficient
  Captures all efficiency gains
- Buyer bears “risk of entry” (price variability)

Analysis : Exclusivity Contracts

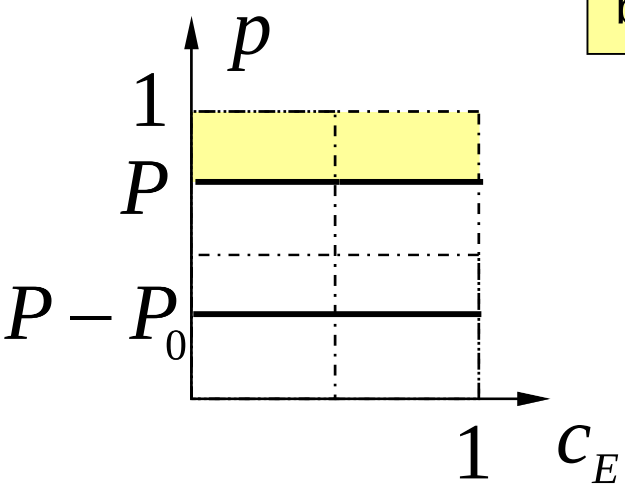


$c_E \in [0,1]$

Inefficient Entry

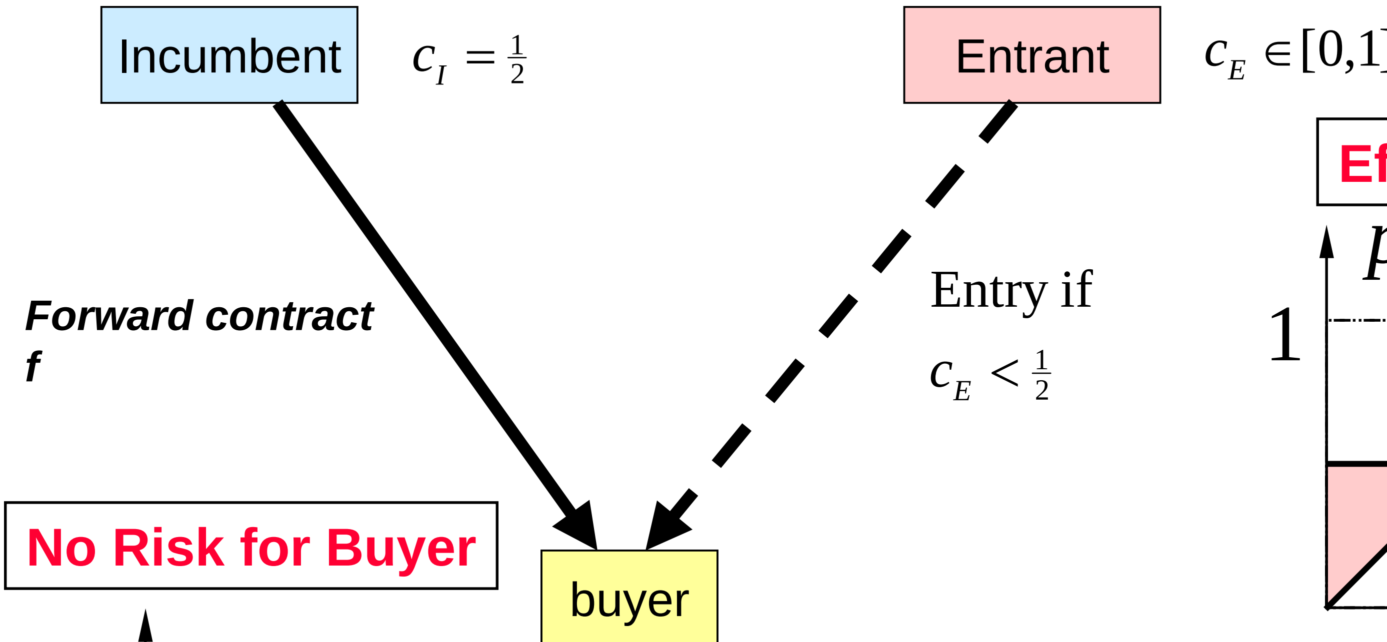


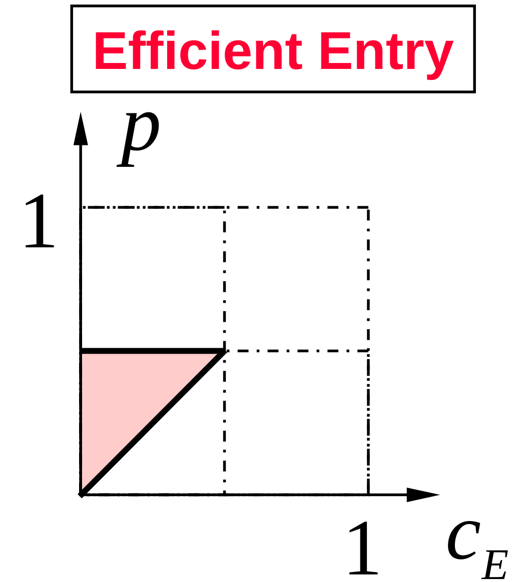
No Risk for Buyer

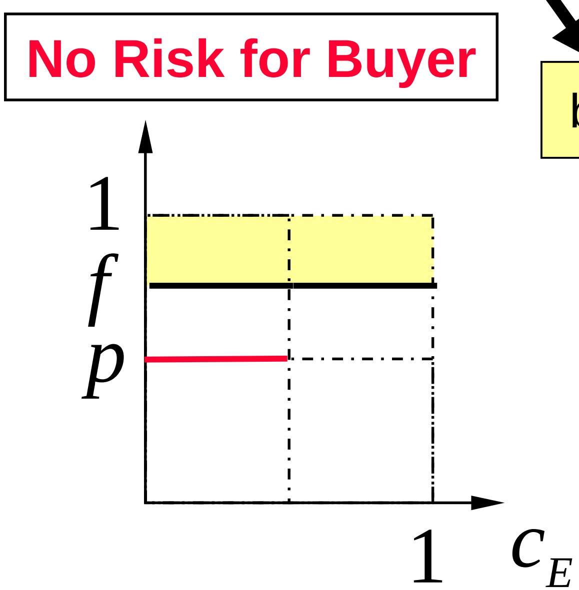


- Buyer is insured,
- Entry is over-deterred (standard monopsony distortion)

Analysis : Forward Contract







- Financial contract does not affect spot market competition *$p = max(c_I, c_E)$ (Bertrand)*
- Hence entry is efficient
- Financial contract insures buyer