

Deal or No Deal: Licensing Negotiations By Standard Development Organizations

Richard Gilbert

Pros and Cons of Standard-Setting

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Mitigation of Standard-Related Market Power

- Fair, Reasonable, and Non-Discriminatory Royalties (FRAND)
- What is FRAND?
 - The Georgia-Pacific factors for determining a reasonable royalty?
 - Do not address lock-in
 - Auction outcomes (Baumol-Swanson)?
 - Complications with complementary patents
 - Any outcome from arms-length bargaining?

FRAND Alternatives

- Ex ante joint negotiation of license terms
 - Business review letters to VITA and IEEE;
DOJ/FTC/EU guidance re rule of reason for ex ante joint negotiations
- Bilateral negotiations between rights holders and potential licensees
- Ex ante bilateral negotiations with non-discrimination requirement

Ex Ante Joint Negotiation

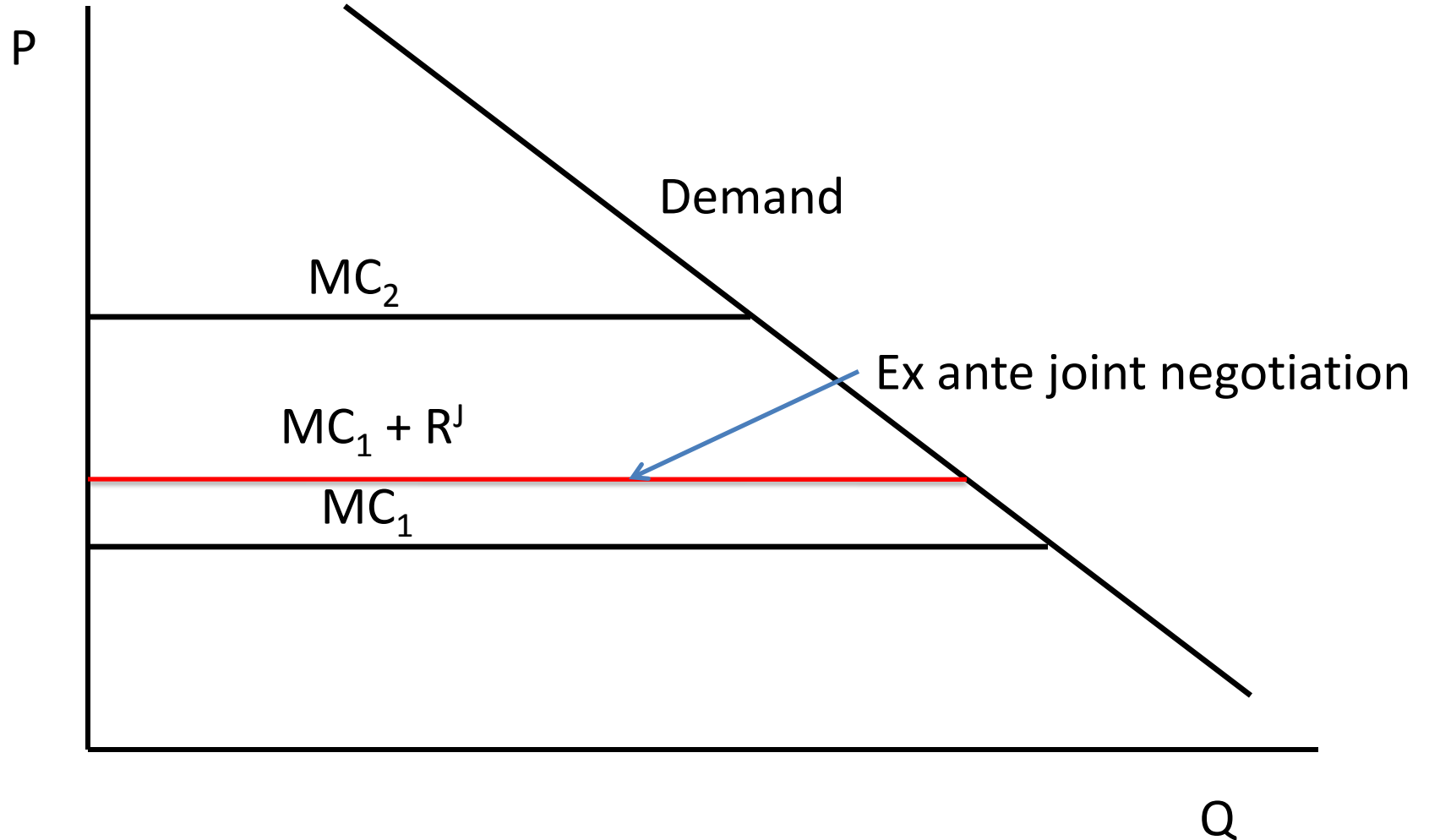
- SDO acts as agent for licensees
- Patented technology allows production at MC_1
- Next-best substitute: $MC_2 > MC_1$
- Opportunity cost of the licensor: R_0
 - The royalty that the licensor could earn by licensing the patent for use with an alternative technology
 - The royalty that the licensor could earn by licensing the patent for use by different licensee (or by setting a differential price for the licensee)
- Ex ante: zero costs to switch to next-best substitute
- Ex post: switching cost = S (per unit)

Ex Ante Joint Negotiation

- Reservation values
 - Licensors $R_0 \cong 0$
 - SDO $V - MC_2$
- Value of license = $V - MC_1$
- Gains from trade = $MC_2 - MC_1 - R_0$
- Payment to Licensor

$$\begin{aligned} R &= R_0 + \theta^J(MC_2 - MC_1 - R_0) \\ &\cong \theta^J(MC_2 - MC_1) \end{aligned}$$

Ex Ante Joint Negotiation



Ex Post Bilateral Bargaining

- Two identical potential licensees: A, B
- Licensors can sign exclusive license
- Reservation values
 - Licensors = R_0
 - Licensee = $\max [V_0 - MC_2 - S; 0]$
(assume $V_0 - MC_2 - S > 0$)
- Value of license to A = $V^A - MC_1 - R^A$
- Gains from trade = $V^A - V_0 + MC_2 - MC_1 + S - R_0$
- R_0 is the opportunity cost of a license to B

Ex Post Bilateral Bargaining

If potential licensees are identical

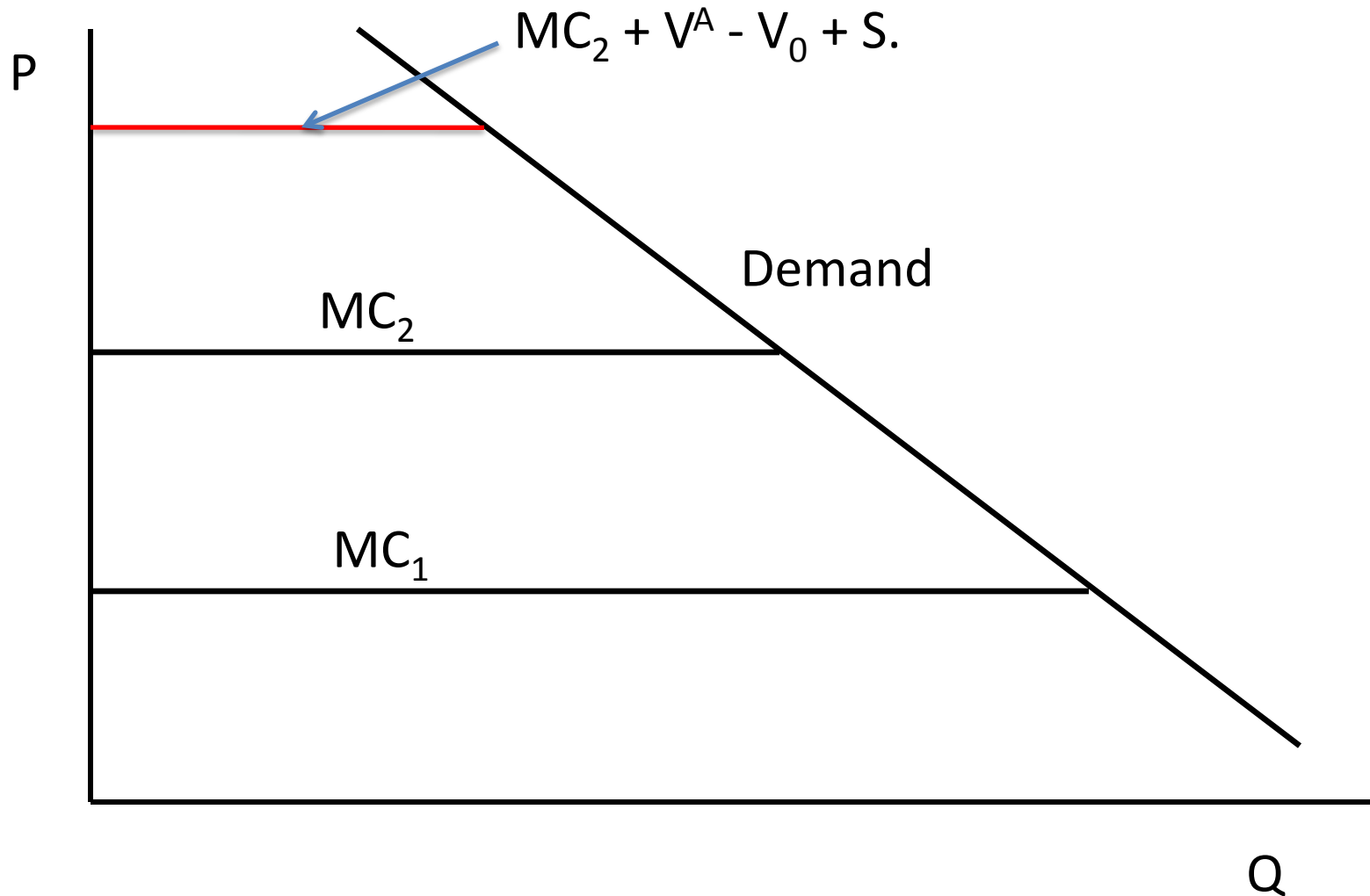
$$R_0 = (1-\theta)R_0 + \theta(V^A - V_0 + MC_2 - MC_1 + S).$$

Hence

$$R^A = V^A - V_0 + MC_2 - MC_1 + S.$$

Exclusivity allows the patentee to capture all of the net gain from an exclusive license when the potential licensees are identical. This is also the outcome of a hypothetical auction market in which licensees bid for an exclusive license.

Ex Post Bilateral Negotiation with Exclusive Dealing



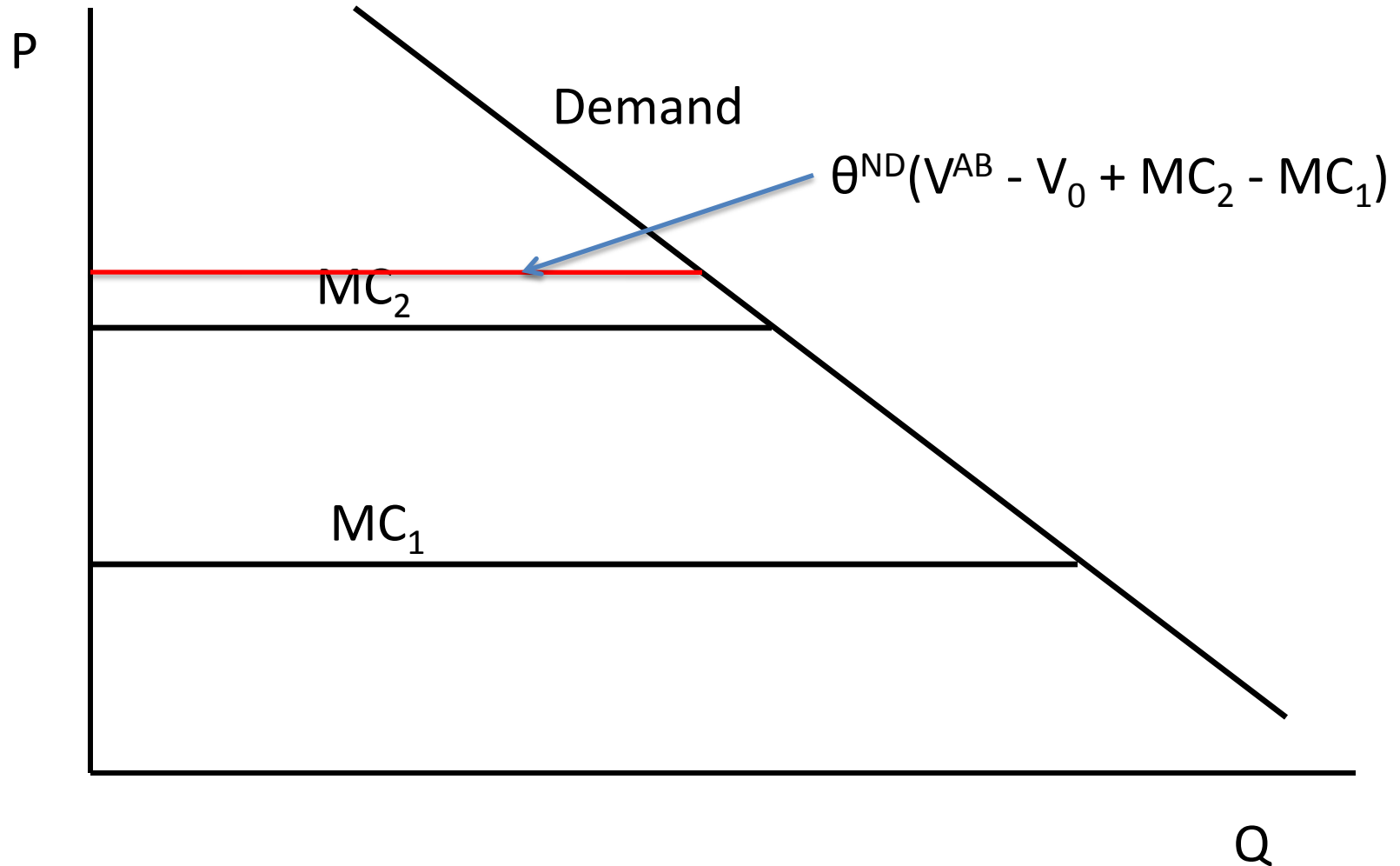
Ex Ante Bilateral Bargaining with Non-Discrimination

- Reservation values
 - Licensors $R_0 \cong 0$ (non-exclusive)
 - Licensee $\max [V_0 - MC_2; 0]$
Assume $V_0 - MC_2 > 0$
- Value of license = $V^{AB} - MC_1$
- V^{AB} = per-unit value when both A and B have license
- Gains from trade = $V^{AB} - V_0 + MC_2 - MC_1 - R_0$

Ex Ante Bilateral Bargaining with Non-Discrimination

- Royalty $R^B = (1-\theta^{ND})R_0 + \theta^{ND}(V^{AB} - V_0 + MC_2 - MC_1 - R_0)$
 $\cong \theta^{ND}(V^{AB} - V_0 + MC_2 - MC_1)$
- Generally $V^{AB} \geq V_0$
- A's average revenue is lower when B has license and A does not than when both have license
 - E.g., Nash-Cournot competition with different marginal costs
 - If $m_2 > m_1$
 $\pi^A(m_1, m_1) > \pi^A(m_2, m_1) + q^A(m_2, m_1)(m_2 - m_1)$

Ex Ante Bilateral Bargaining with Non-Discrimination



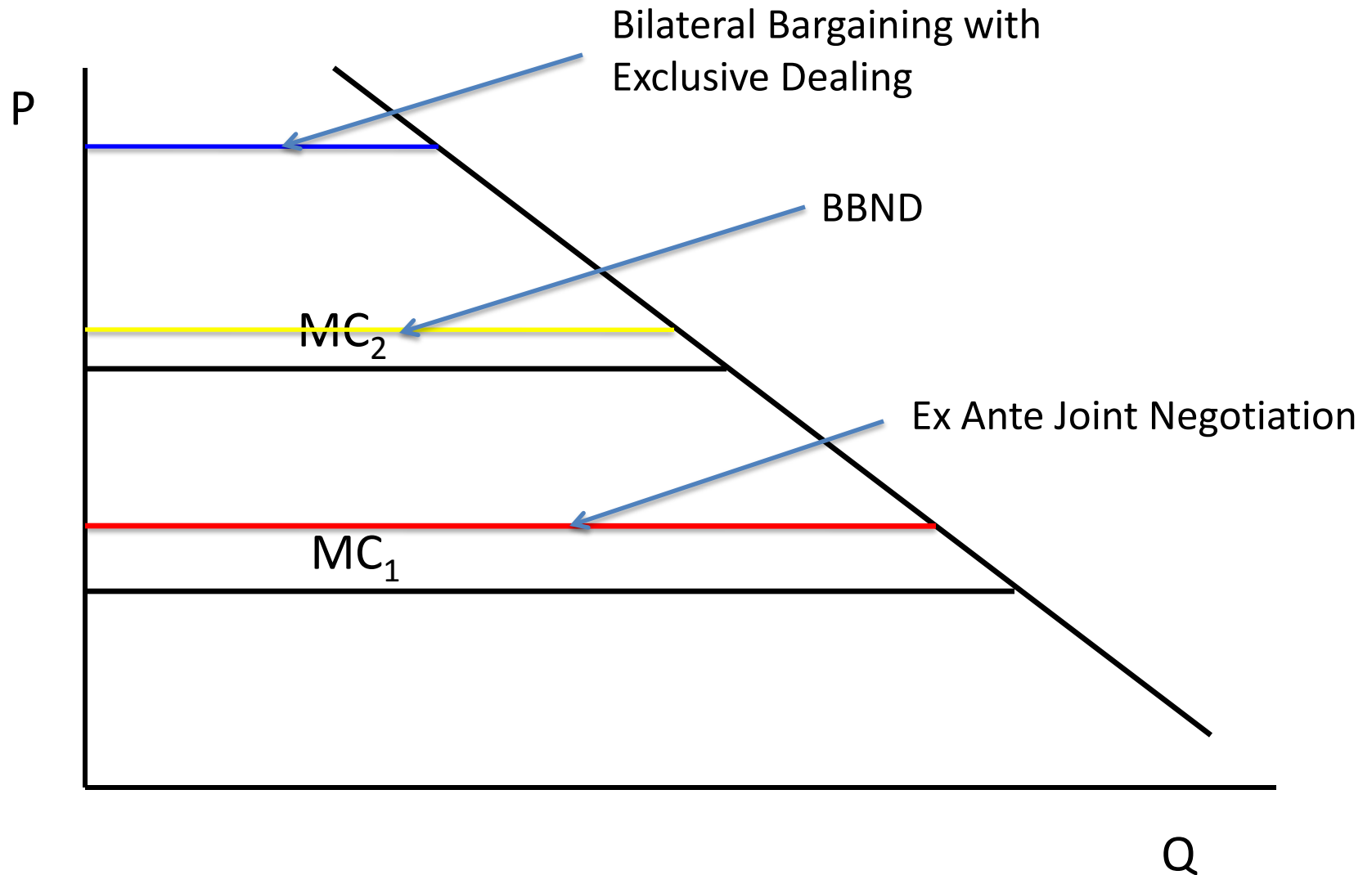
Ex Ante Bilateral Bargaining With Non-Discrimination (BBND)

- Is BBND more or less effective than ex ante joint negotiation in limiting ex post opportunism?
 - If pivotal licensee, expect $\theta^{\text{ND}} = \theta^{\text{J}}$. (Layne-Farrar, Llobet, & Padilla (2009) and Segal & Whinston (2000)).
 - But it is unlikely that a licensee will be pivotal or, if it is pivotal, that it will know its role with certainty
 - Furthermore, royalty with BBND includes the additional term $V^{\text{AB}} - V_0$

Some Comparisons

Conduct	Ex Ante BBND versus Ex Ante Joint Negotiation	Ex Ante BBND versus Ex Post Bilateral Bargaining
Threat by licensor to license exclusively within the technology	No effect (no exclusive licensing with joint negotiation or with BBND)	BBND lowers R_0 because cannot threaten to license exclusively
Threat by licensee to license an alternative technology	With BBND, more difficult to misrepresent alternatives => higher R	No switching costs with ex ante BBND => lower R
Effect on bargaining power	Depends on likelihood of pivotal licensee	BBND likely increases bargaining power as with most-favored customer provision => higher R
Effect on potential holdup	Holdup is unlikely with ex ante joint negotiation	May depend on ability to commit to licensing terms over time with BBND
OVERALL EFFECT ON R	Likely higher R with BBND	Likely lower R with BBND

Illustrative Bargaining Outcomes

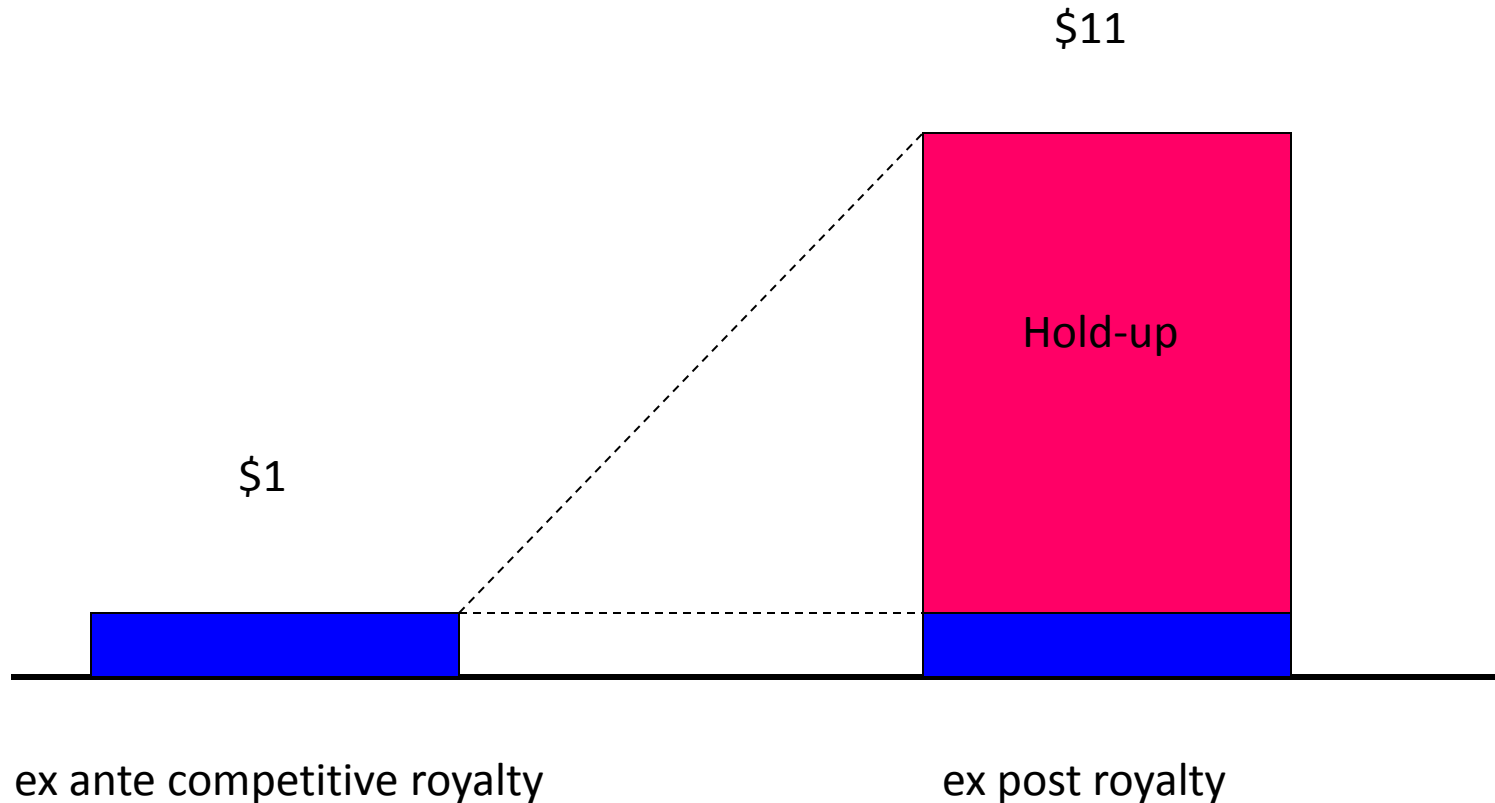


Some Concluding Remarks

- Ex ante BBND has benefits v. FRAND
 - ND component of FRAND already exists but is sometimes overlooked
 - FR component of FRAND is unworkable
 - BBND drops the FR component of FRAND, but relies on ex ante v. ex post bargaining
- Some rather obvious complications with BBND
 - E.g., economics change over time
- Ex ante bargaining may be appropriate in some circumstances
 - But rule of reason analysis must consider potential benefits and potential costs

Royalties Ex Ante and Ex Post

Net Benefits Likely from Ex Ante Joint Negotiation



Royalties Ex Ante and Ex Post

Net Costs Likely from Ex Ante Joint Negotiation

