GRANTBACKS, TERRITORIAL RESTRAINTS, AND THE TYPE OF FOLLOW-ON INNOVATION: THE “BUT FOR...” DEFENCE

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Discussion: Thibaud Vergé (CREST)
• Symmetric bargaining.
• **No licensing:** L gets $2-c$ and A gets $0$.

• **Non-severable innovation without grantback**
  
  – Stage 2 (assuming the innovation took place)
  
  • Royalties affect profit sharing not the joint-profit.
  
  • If firms agree, their joint profit is $2+2\theta$, otherwise it is $2+\theta$. **Surplus is thus $\theta$ (all coming from L using the new technology).**
  
  • Royalty rate $r_2=(1-\alpha)\theta$.
  
  • Remark: A will thus innovate as long as the cost of innovation ($\gamma$) is lower than $\theta +r_2=(2-\alpha)\theta$. 
• **No licensing:** L gets $2-c$ (*assuming* $c<1$) and A gets $0$.

• **Non-severable innovation without grantback**
  
  – Stage 3 (assuming the innovation took place)
    
    • Royalties affect profit sharing not the joint-profit.
    
    • If firms agree, their joint profit is $2+2\theta$, otherwise it is $2+\theta$. **Surplus is thus $\theta$ (all coming from L using the new technology).**
    
    • Royalty rate $r_2=(1-\alpha)\theta$.
    
    • Remark: A will thus innovate as long as the cost of innovation ($\gamma$) is lower than $\theta + r_2=(2-\alpha)\theta$. 
• **Non-severable innovation without grantback**
  – Stage 2 (assuming follow-on innovation will take place)
    • Surplus is $(2+2\theta)-(2-c)= 2\theta+c>0$, thus **L is always willing to license (without grantback)**.
    • Thus L’s profit will be $2-c+\alpha(2\theta+c)=2+2\alpha\theta-\alpha(1-c)$
• **Non-severable innovation with grantback**
  
  – Will A innovate? Only if $\gamma \leq \theta$
  
  – If A innovates, profits are the same as without grantback clause
    • The outcome of the negotiation does not affect A’s incentives to innovate.
  
  – The grantback clause affects the outcome only when the cost of innovation is such that $\theta < \gamma \leq (2-\alpha)\theta$.
    • In this case the grantback clause eliminates A’s incentives to innovate.
    • Note that this interval is smaller when $\alpha$ is large (i.e., the licensor’s bargaining power is very strong).
Severable innovation without grantback

- Competition on L’s market if follow-on innovation took place and \( \theta > c \):
  - L sells at \( \theta \) (or just below) and attract the whole demand. Thus profits are 0 for L and \( \theta - c + (1 + \theta) \) for A.
  - If they agree on a royalty rate, profits are \( 1 + \theta - r_2 \) for L and \( 1 + \theta + r_2 \) for A.
  - Surplus from licensing the follow-on innovation: \( 1 + c \).
  - Therefore \( r_2 = 1 + \theta - \alpha (1 + c) \) and A gets \( 2 + 2 \theta - \alpha (1 + c) \).

- Innovation thus takes place if
  \[
  \gamma \leq [2 + 2 \theta - \alpha (1 + c)] - [1 - r_1] = 1 + 2 \theta - \alpha (1 + c) + r_1 > \theta
  \]
• **Severable innovation without grantback**
  
  – L gets $\alpha(1+c)$.
  
  – Without licensing L can secure $2-c$ (assuming $c<1$).
  
  – Licensing (without grantback) occurs at stage 1 iff:
    
    $$2-c < \alpha(1+c) \iff c > (2-\alpha)/(1+\alpha)$$
    
    • Note that $(2-\alpha)/(1+\alpha)<1 \iff \alpha > 1/2$.

• **Licensing with grantback always occurs and L then gets $2+2\alpha \theta - \alpha (1-c) > \alpha(1+c)$**.
• Symmetric bargaining.

• Inelastic demand
  – Royalties do not allow for efficient bargaining.
  – What about non-linear royalty rates? Fixed payments?
  – **No impact on consumer surplus. Innovation only affects profits.**

• Only “one” consumer. No preference for quality.
  – Competition between L and A (on L’s home market) in the case the follow-on innovation is not licensed: L could still serve part of the market (with a low quality product).
• Follow-on innovation process
  – Only A can innovate.
  – What if both L and A can invest for the follow-on innovation (and innovation is a random process)?
    • How will grantback clauses affect the incentives to innovate not for the initial innovation but for the follow-on innovation?