

# IPR and Growth in the LR

Discussion: Lerner and Boldrin-Levine

Bronwyn H. Hall

UC Berkeley and U of Maastricht

# Outline

- Brief summary of evidence
- Boldrin-Levine model
- Two kinds of diminishing returns
- Does this model explain Lerner?

# Evidence

- Survey evidence – not important in most industries
- Contemporary returns to patenting (Bessen-Meurer, HJT, lots of others) – small, controlling for R&D
- Cross country panels (Qian, Park-Ginarte, Kanwar-Evenson) – lack of instruments, simultaneity
- Natural historical experiments – Lerner, Moser

# Boldrin-Levine

- Given diminishing returns to R&D, monopolists invest less because they want to be further up the demand curve.
- Therefore, patents (which increase monopoly power) may reduce innovation or leave it unchanged.
- However, firms will favor having patents, for the usual profit-maximizing reasons.
- Consistent with the stylized facts

# Query

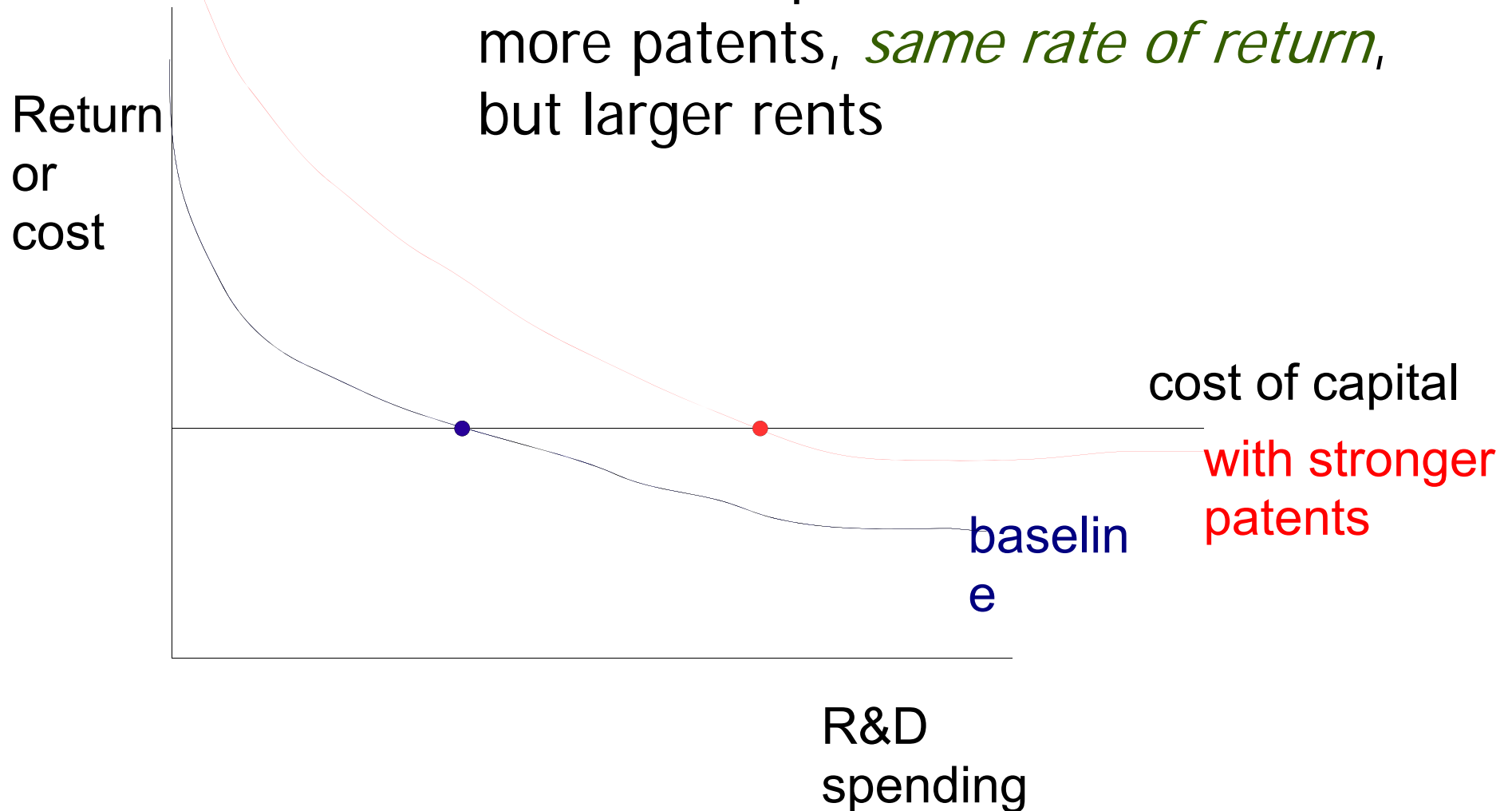
- Patents that increase monopoly power may reduce innovation or leave it unchanged.
- Question 1 - Is this true in general equilibrium?
  - What about induced entry?
- Question 2 - What about the evidence?
  - natural experiments (Lerner, Moser) - yes
  - marginal returns estimates (HJT, Bessen-Meurer)
    - no, cannot use this result

# Empirical firm-level analysis

- Assumptions:
  - Firm faces a menu of potential R&D projects and a cost of R&D capital
  - Chooses most profitable first, then next, etc.
  - Ignore uncertainty for simplicity
- Result:
  - Marginal revenue from R&D = marginal cost of capital
  - [Marginal patent value (above R&D) = marginal cost of obtaining a patent]

# Firm's R&D choice

Predicted equilibrium: more R&D,  
more patents, *same rate of return*,  
but larger rents



# Conclusion

- HJT and Bessen-Meurer estimate marginal value of an additional patent, which appears to be small, but that is consistent with  $MR=MC$
- Lerner and Moser look at regime shifts, which are expected to produce more innovative activity and find none.
  - Consistent with Boldrin-Levine model



# Lerner – missing references

- Lerner, J. (2002), “150 years of patent protection,” [AER P&P](#) 92(2): 221-225.
- Lerner, J. (2001), “Patent Policy and Innovation Over 150 Years,” Cambridge, MA: [NBER Working Paper](#) No. 8977.
- Moser, P. (2005), “How Do Patent Laws Influence Innovation? Evidence from Nineteenth-Century World Fairs,” [AER](#) 95(4): 1214-1236.