Competition Policy in Innovative Industries

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CRESSE – July 4, 2014
Introduction

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Prevailing view is that recognising the benefits of innovation leads to lower ‘harm’ and therefore more lenient policy

E.g. 1: Manne and Wright (2010) argue that benefits of innovation should be recognised in order to avoid costly type I errors

E.g. 2: In Jerrold (1961), US court judged alleged tying conduct under rule of reason approach rather than per se illegality

E.g. 3: Refusals to license in US (e.g. Xerox (2000))
Economic Literature & Contribution

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**Contribution:**

1. Separate a firm’s decision to innovate clearly from its decision to engage in secondary, potentially anti-competitive action.
   - Innovation should only be considered mitigating factor to the extent that firms would not have innovated *without* taking a/c action.

2. Application to optimal policy (in cost of decision error sense).
   - Optimal policy is in fact harsher when anti-competitive actions occur in combination with innovation rather than in isolation.
One firm, faces a choice over 2 general actions:

1. A generic, anti-competitive action:
   - scales up ratio of price to marginal cost by \((1 + \Delta m)\), \(\Delta m > 0\)
   - scales down marginal cost by \((1 + \Delta c_A)\), \(\Delta c_A \geq 0\)

2. Innovation:
   - scales down costs by \((1 + \Delta c_I)\), \(\Delta c_I \geq 0\)
   - entails a private cost \(z > 0\)

\(\Delta c_I\) and \(\Delta c_A\) are realised by the firm as random draws from suitably defined densities \(\phi_{c_A}(\Delta c_A)\) and \(\phi_{c_I}(\Delta c_I)\).
The Framework

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- \(\Delta_{ci}\) and \(\Delta_{cA}\) are realised by the firm as random draws from suitably defined densities \(\varphi_{cA}(\Delta_{cA})\) and \(\varphi_{ci}(\Delta_{ci})\)
Counterfactuals and Anti-competitive Strategies

- Firm’s innovation behaviour in absence of any anti-competitive action defines its *counterfactual* position, which in turn defines its *type*:
  - **High-tech** \( t = H \) if innovation is profitable \( \pi_I \geq \pi_0 \)
  - **Low-tech** \( t = L \) otherwise \( \pi_I < \pi_0 \)
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- From this counterfactual position, firm faces choice of 2 anti-competitive *strategies*
  - Anti-competitive action alone \( (s = A) \), if \( \pi_A \geq \pi_{I+A} \)
  - Innovation and anti-competitive action together \( (s = I + A) \), if \( \pi_A < \pi_{I+A} \)
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- Firm type and choice of preferred strategy depend on magnitudes of realised \(\Delta_{cI}\) and \(\Delta_{cA}\)
True Harm

- In general, consumer harm depends on the sign of the price change associated with any given strategy, relative to the appropriate counterfactual price.

\[ h_{HA} = (p_A - p_I) > (p_A - p_0) = h_{LA} + h_{IA} \]

Result 1: \( h_{HS} > h_{LS}, s = A, I + A \)

Result 2: Possible that \( h_{LA} > 0 \) while \( h_{LI + A} < 0 \), but

Result 2: \( h_{LA} > 0 \Rightarrow h_{HI + A} > 0 \)
In general, consumer harm depends on the sign of the price change associated with any given strategy, relative to the appropriate counterfactual price.

Taking the variation in firm types and anti-competitive strategies into account, gives 4 ‘true harm’ variables:

\[ h^H_A = (p_A - p_I) > (p_A - p_0) = h^L_A \]

\[ h^H_{I+A} = (p_{I+A} - p_I) > (p_{I+A} - p_0) = h^L_{I+A} \]
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\[
\begin{align*}
    h_H^A &= (p_A - p_I) > (p_A - p_0) = h_L^A \\
    h_H^{I+A} &= (p_{I+A} - p_I) > (p_{I+A} - p_0) = h_L^{I+A}
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**Result 1:** \( h_H^s > h_L^s, \ s = A, I + A \)
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\]

**Result 1:** \( h^H_s > h^L_s \), \( s = A, I + A \)

**Result 2:** Possible that \( h^L_A > 0 \) while \( h^L_{I+A} < 0 \), BUT

\[
h^L_A > 0 \implies h^H_{I+A} > 0
\]
Authority observes situation that prevails once strategy is implemented

Authority does not know counterfactual situation
Competition Policy

- Authority observes situation that prevails once strategy is implemented
- Authority does not know counterfactual situation
- Errors may arise for 2 reasons:
  - Conditional on having specified counterfactual correctly, measurement error (due to uncertainty about realised $\Delta_{cA}$ and $\Delta_{cI}$)
  - Mis-specified counterfactual (e.g. if firm is high-tech, mis-identify it as low-tech: underestimate harm)
Cost of Decision Errors

- Possible to show that, conditional on observed strategy being $I + A$, probability of firm being high-tech is greater than when observed strategy is $A$. Therefore bigger risk of type II errors arising from mis-identification when $s = I + A$ than when $s = A$.

Result 3: Irrespective of underlying attitude towards errors, optimal policy will be harsher when observed strategy is $I + A$, in the sense that it will be more focussed on reducing type II (acquittal errors). For example, treat firms identified as low-tech that are engaging in strategy $I + A$ as if they were high-tech (i.e. more harshly).
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Conclusion

- Paper investigates the role that innovation plays in competition cases
- Innovation should only be considered a mitigating factor to competition infringements if firm is ‘low-tech’
  - If high-tech, its decision to innovate is not conditional on its taking the anti-competitive action
- Investigated implications for errors that competition authority makes
- Showed that there is greater tendency towards type II (acquittal) errors when $s = I + A$ than when $s = A$
- Correcting for this makes optimal policy more stringent when $s = I + A$ than when $s = A$
  - Contradicts literature which effectively treats all firms as if they were low-tech
- Extension to deterrence
Thank you

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