Mergers, Entry, and Consumer Welfare

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The analysis and conclusions set forth are those of the authors and do not indicate concurrence by other members of the Board research staff or the Board of Governors.

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Horizontal Mergers

Increase market power

Create efficiencies

Spur entry

When does entry eliminate the adverse effects of an otherwise anti-competitive merger?

- More nuanced than: "when entry barriers are low."
- It depends on the capabilities of prospective entrants, the efficiencies of the merger, *and* entry barriers.
- We provide a unified framework.

Plan for the Talk

- Mostly graphical analysis. Convey intuition.
- Market with 4 incumbents and one prospective entrant. Bertrand competition and logit demand.
- Some generalization is possible.
- Some results have been proved, others in progress.

For the Theorists:

Agents: Incumbents ($f = 1, \ldots, F-1$) and an outsider ($f = F$).

Differentiated products (logit) and constant marginal costs.

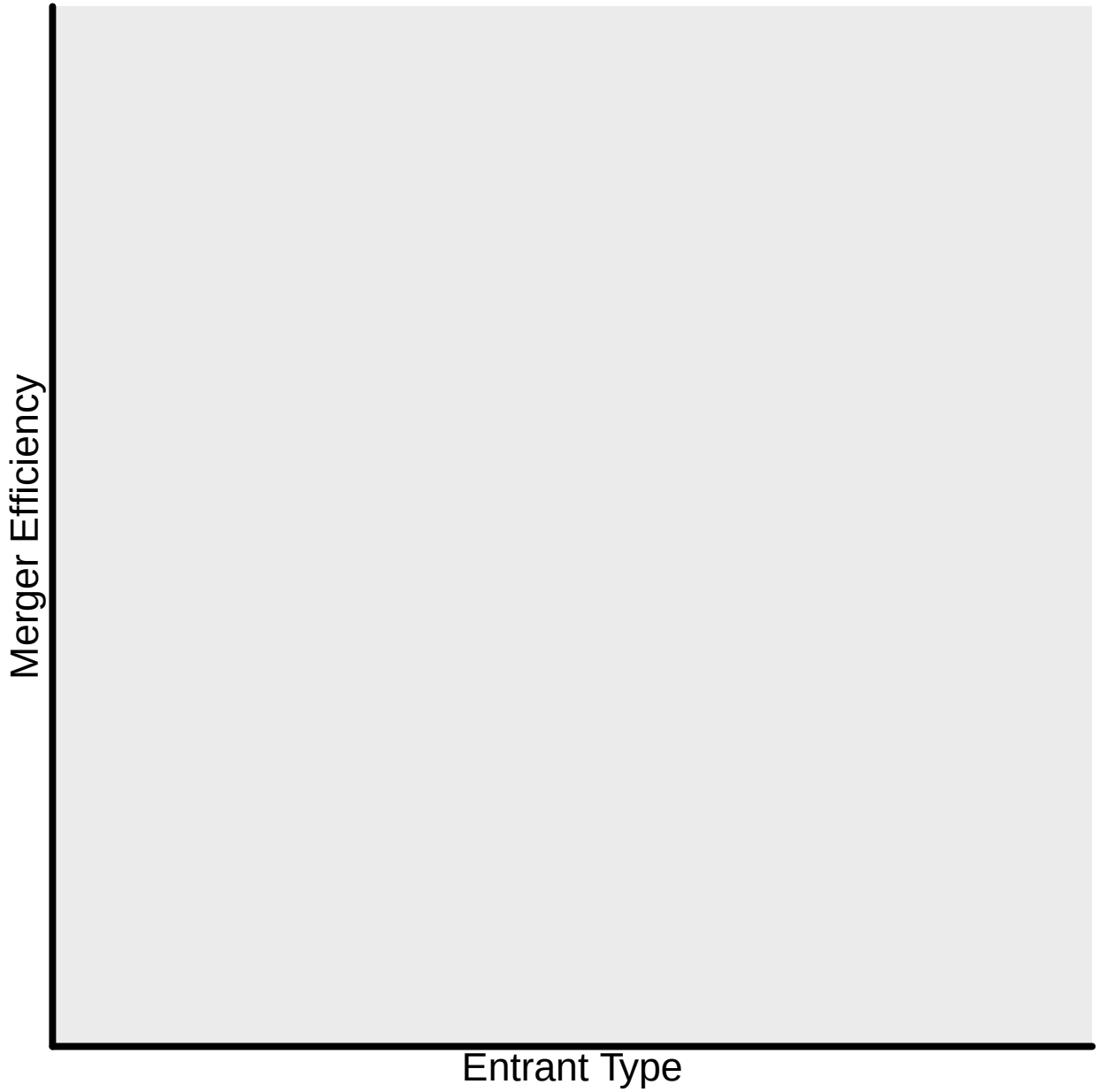
The agents play the following three-stage game:

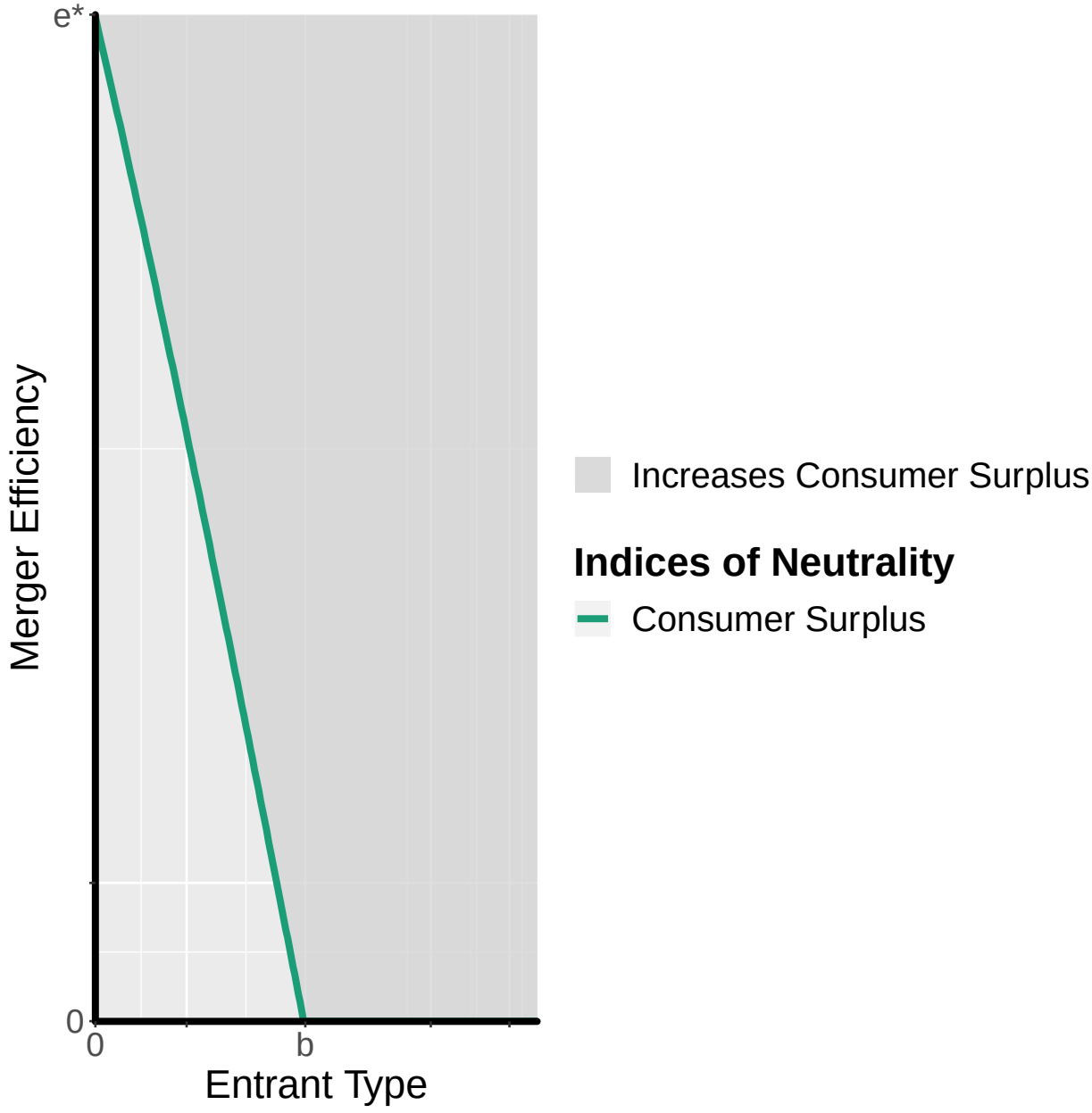
1. Two incumbents decide whether to merge (possibly with efficiencies).
2. An outsider decides whether to enter the market.
3. All firms in the market compete in prices à la Bertrand and earn profit.

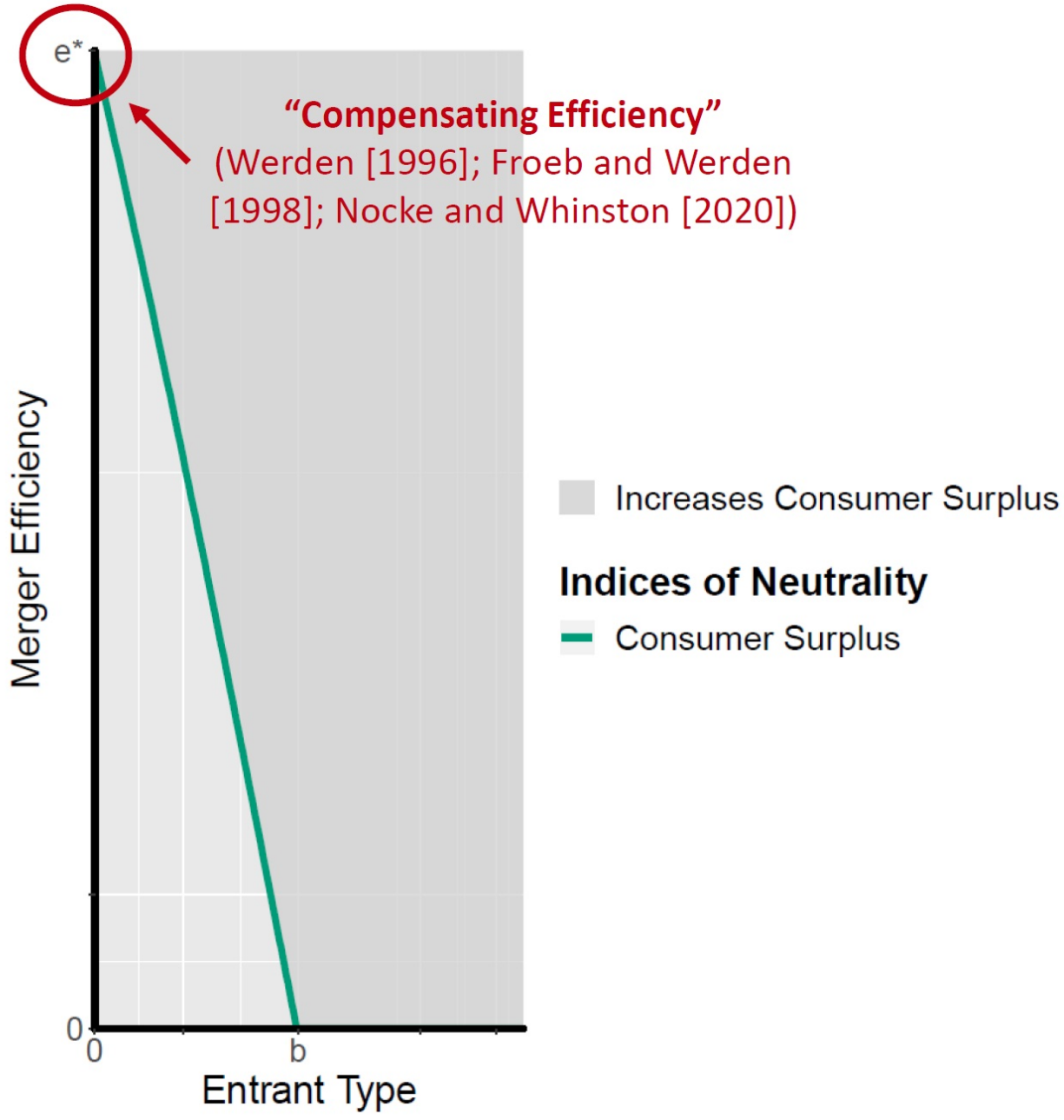
Examine SPE with merger-induced entry. Apply the Nocke-Schutz (2018 ECMA) *type-aggregation* representation of the model.

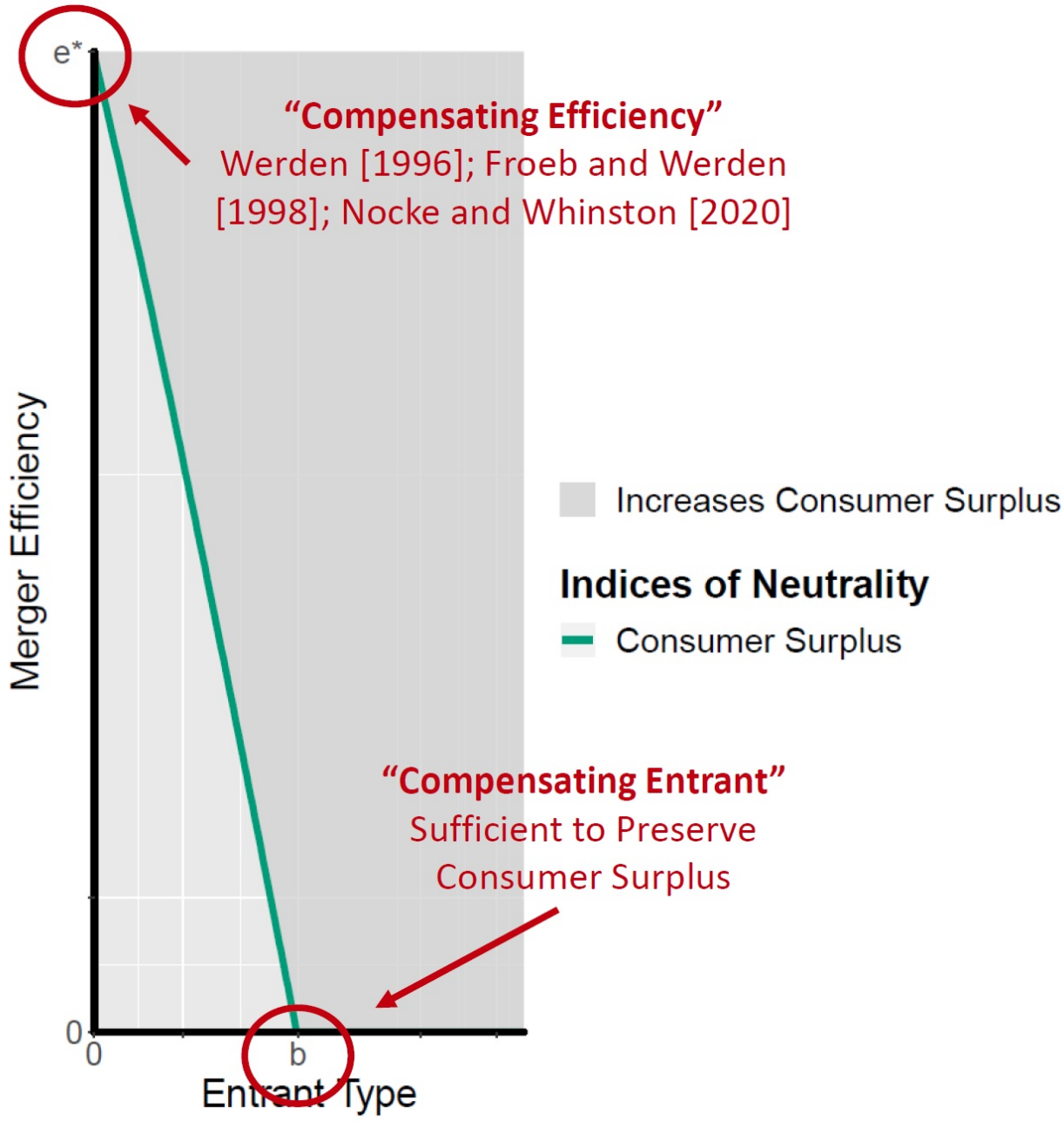
Five Main Results

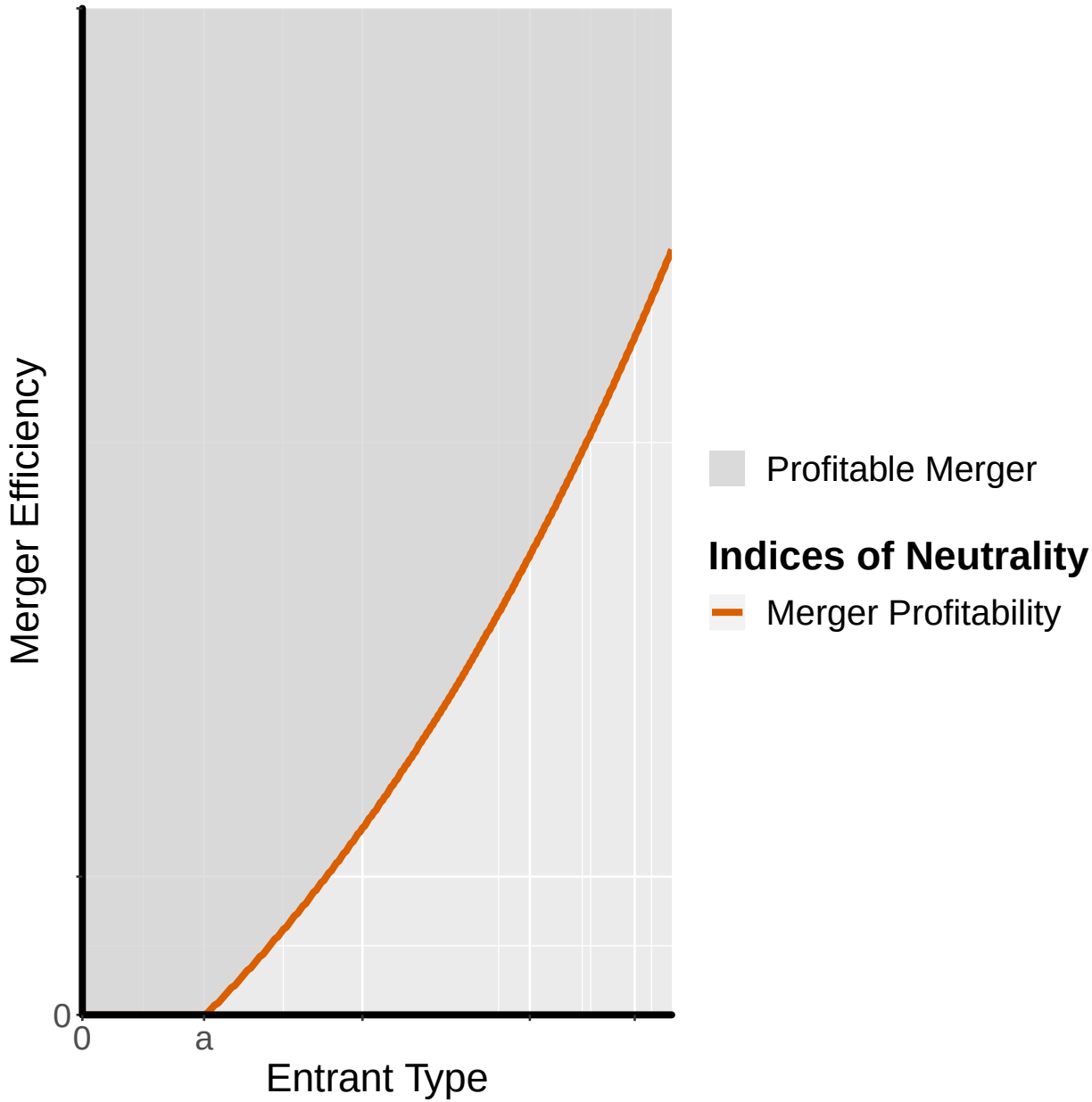
1. Entry alone does not mitigate adverse effects.
2. Mergers and efficiencies (together) can eliminate consumer surplus loss.
3. Requires particular combinations of efficiencies and entry.
4. The profit opportunity for entrants is small.
5. Difficult to determine whether entry will occur.

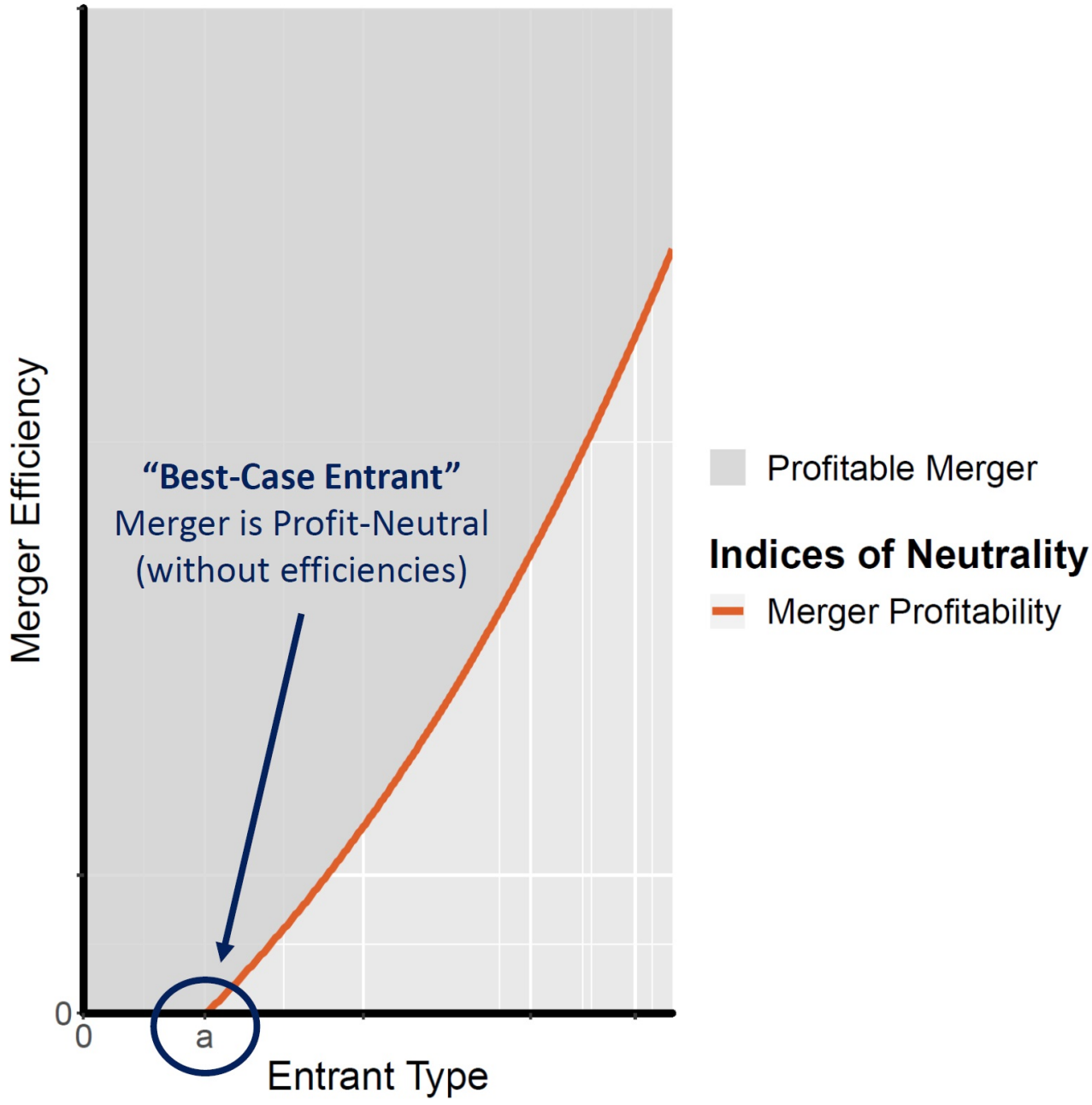

Merger Efficiency
Entrant Type

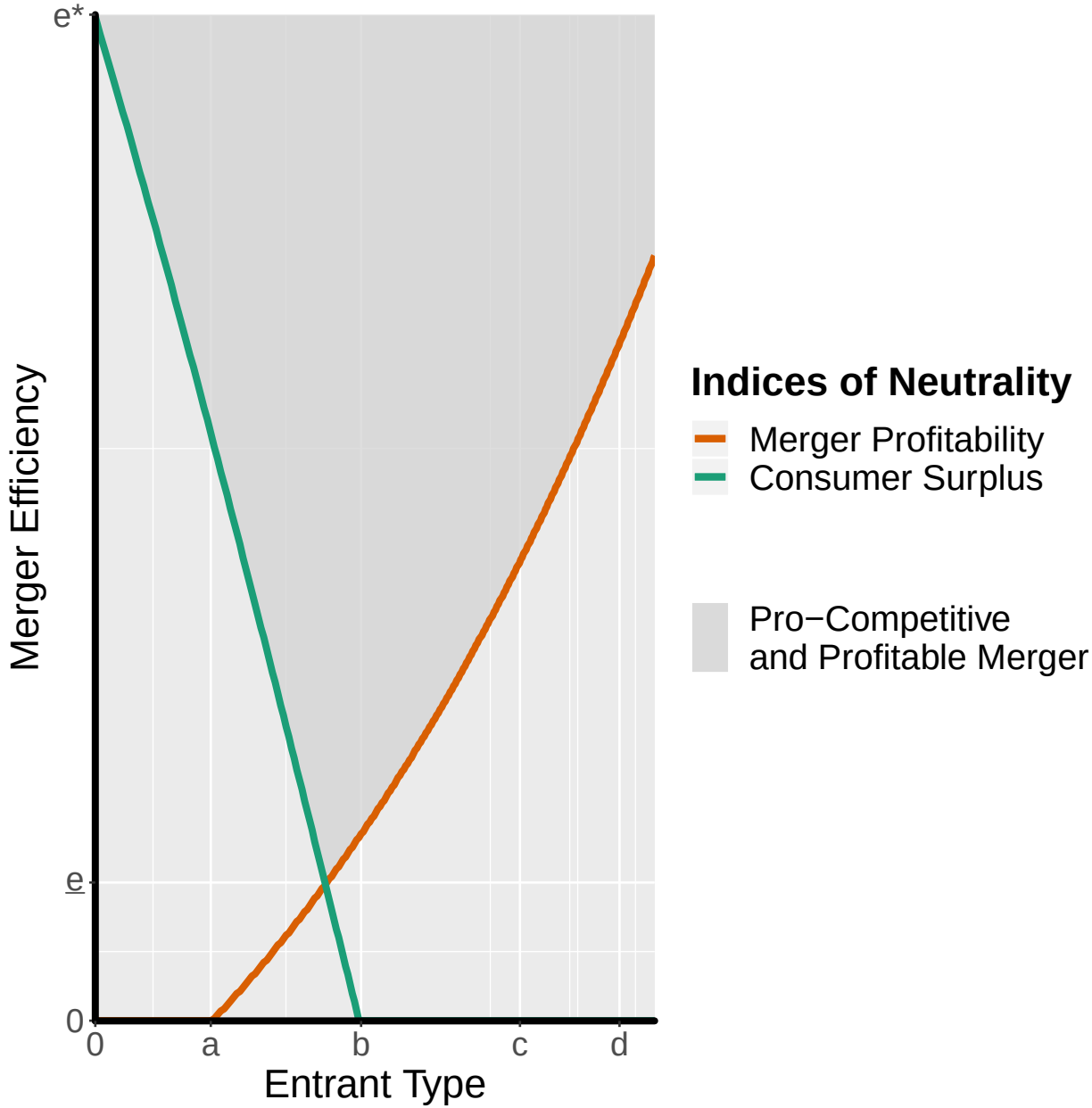

e*
Merger Efficiency
0
0
b
Entrant Type
Increases Consumer Surplus
Indices of Neutrality
Consumer Surplus

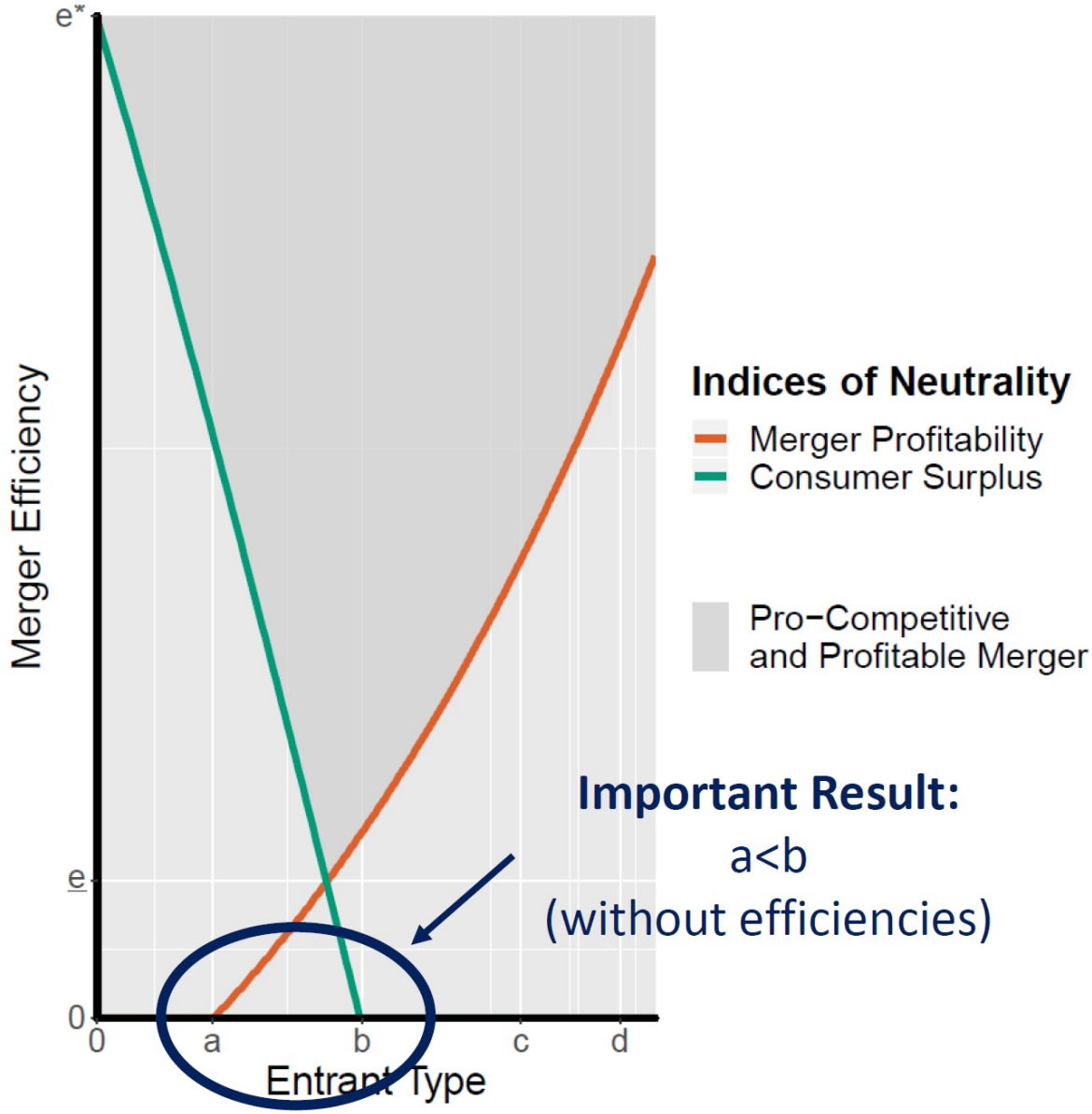

e*
"Compensating Efficiency"
(Werden [1996]; Froeb and Werden [1998]; Nocke and Whinston [2020])
Merger Efficiency
0
0
b
Entrant Type
Increases Consumer Surplus
Indices of Neutrality
Consumer Surplus


e*
"Compensating Efficiency"
Werden [1996]; Froeb and Werden [1998]; Nocke and Whinston [2020]
Merger Efficiency
Increases Consumer Surplus
Indices of Neutrality
Consumer Surplus
"Compensating Entrant"
Sufficient to Preserve Consumer Surplus
0
0
b
Entrant Type


Merger Efficiency
0
0
a
Entrant Type
Profitable Merger
Indices of Neutrality
Merger Profitability


Merger Efficiency
"Best-Case Entrant"
Merger is Profit-Neutral
(without efficiencies)
0
0
a
Entrant Type
Profitable Merger
Indices of Neutrality
Merger Profitability


e*
e
0
Merger Efficiency
0
a
b
c
d
Entrant Type
Indices of Neutrality
Merger Profitability
Consumer Surplus
Pro−Competitive
and Profitable Merger


e*
Merger Efficiency
e
0
0
a
b
c
d
Entrant Type
Indices of Neutrality
Merger Profitability
Consumer Surplus
Pro-Competitive
and Profitable Merger
Important Result:
a<b
(without efficiencies)

Best-Case Entry Is Insufficient

Theorem: In any SPE featuring merger without efficiencies, consumer surplus is lower than in a counterfactual without merger.

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- Holds with Bertrand nested logit if entry is in different nest, so long as nesting parameter not too large (proof in progress).

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- Holds with Cournot and arbitrary cost functions (Spector [2003]).
- (Aside: no post-merger entry in efficient procurement auction models.)

Best-Case Entry Mitigates Price Increases?

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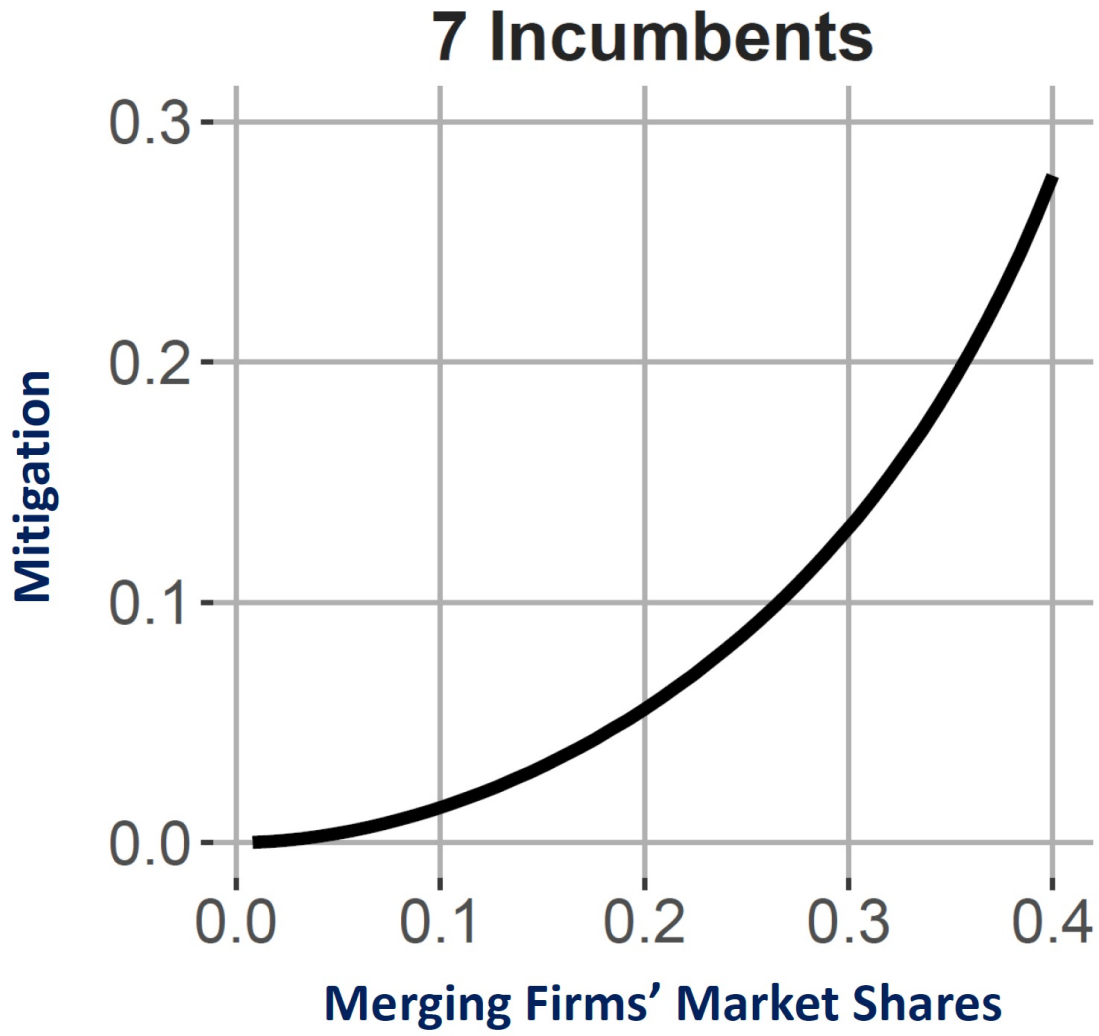
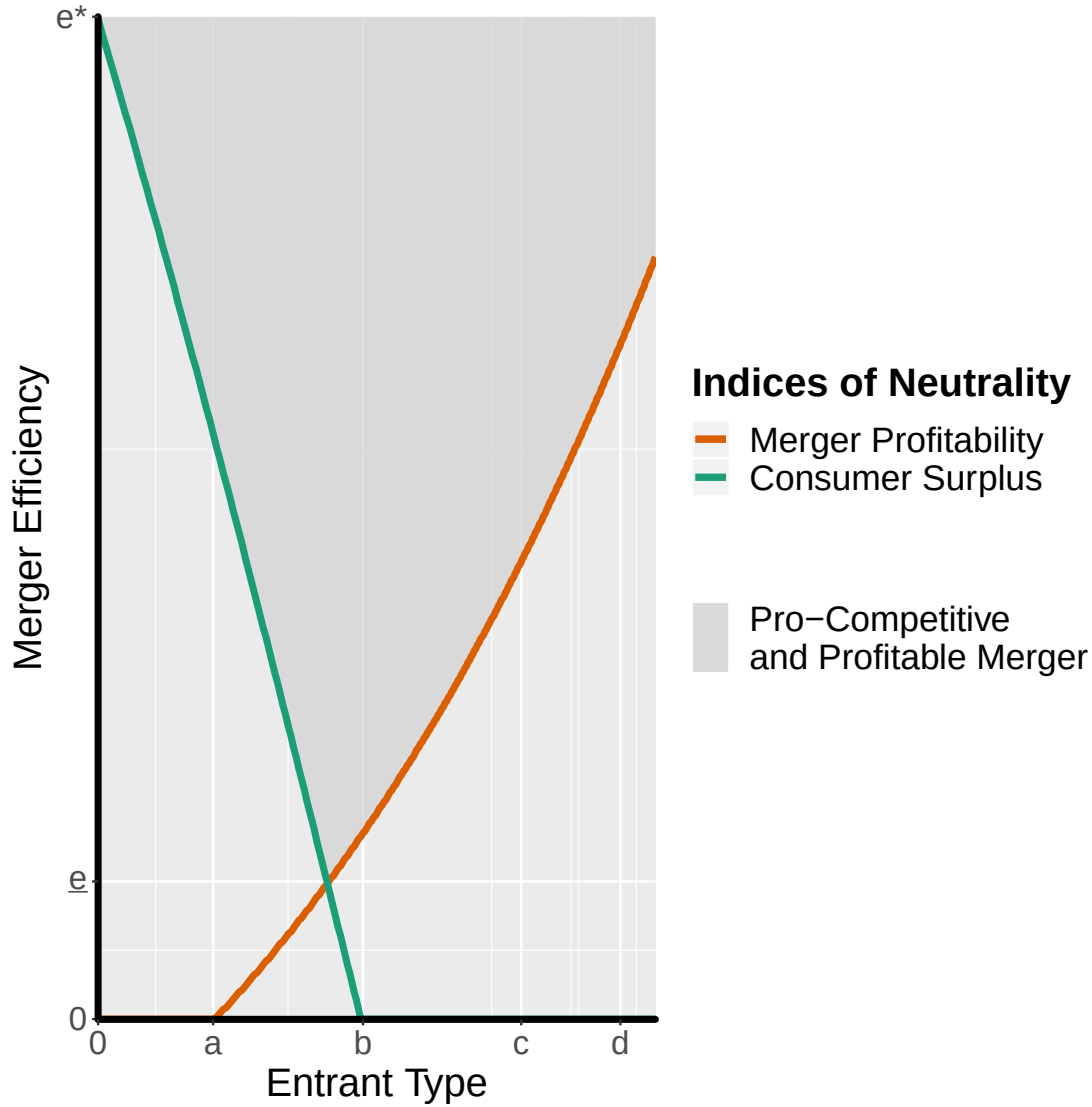
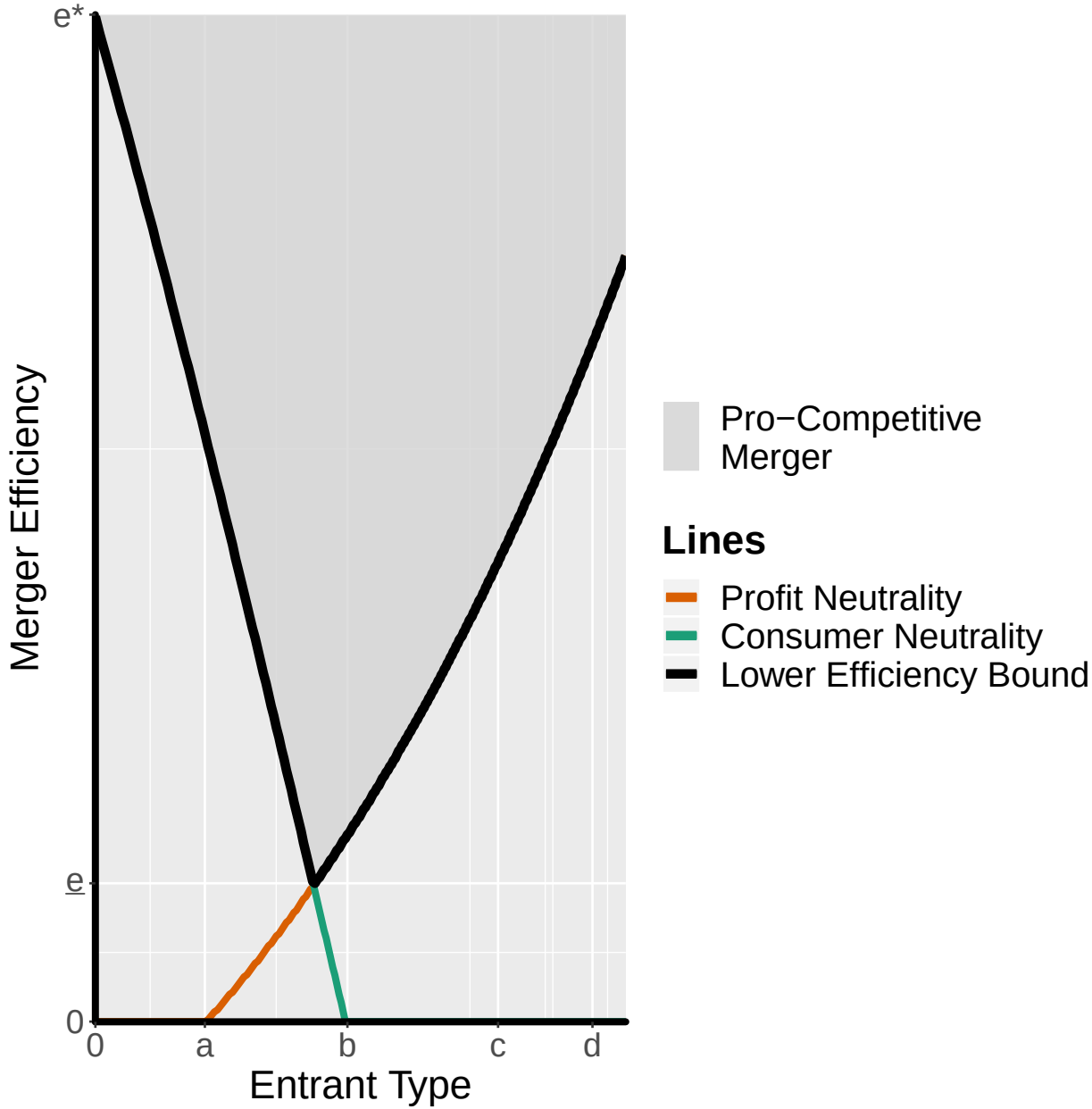
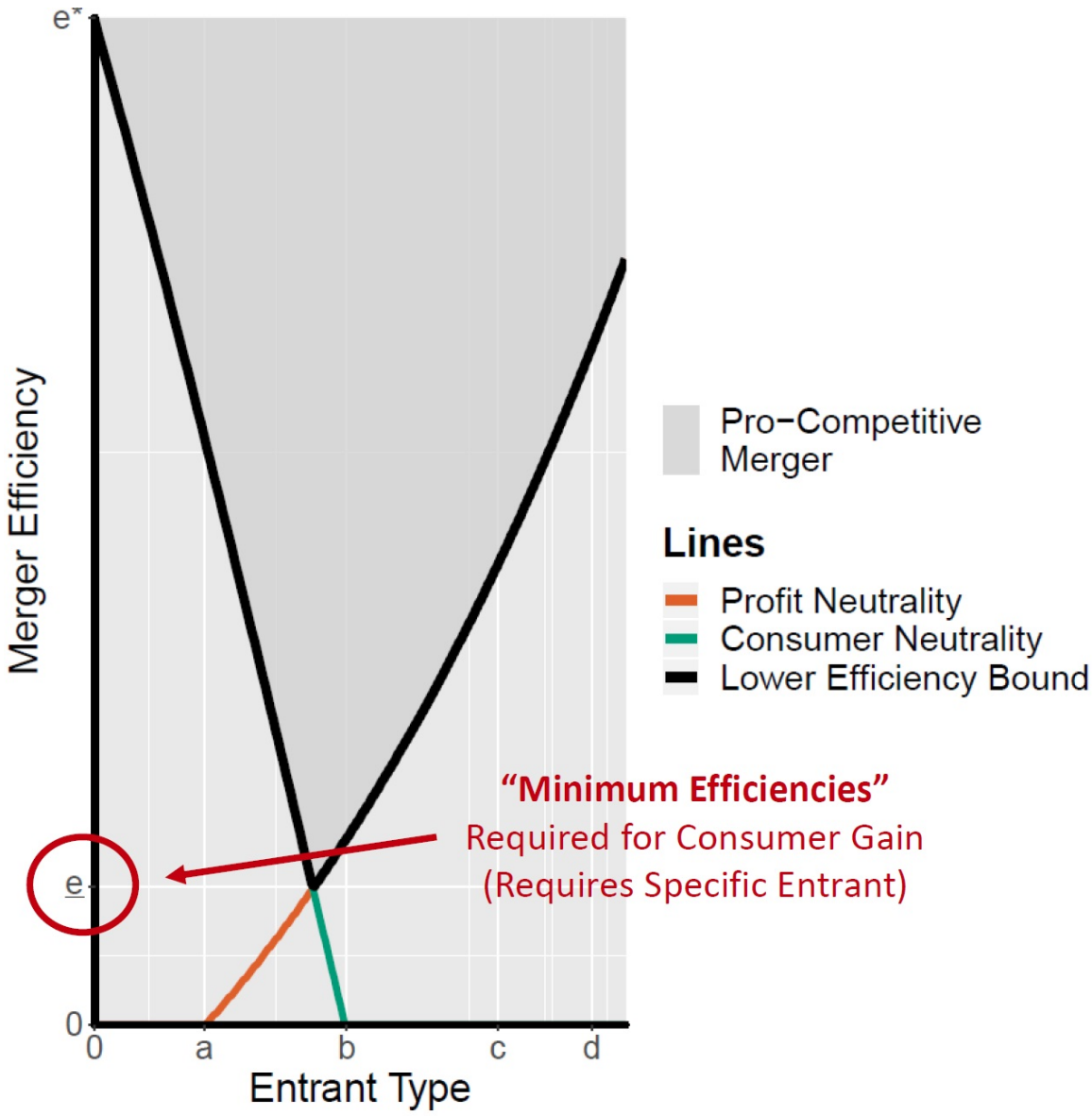


Paws for Effect

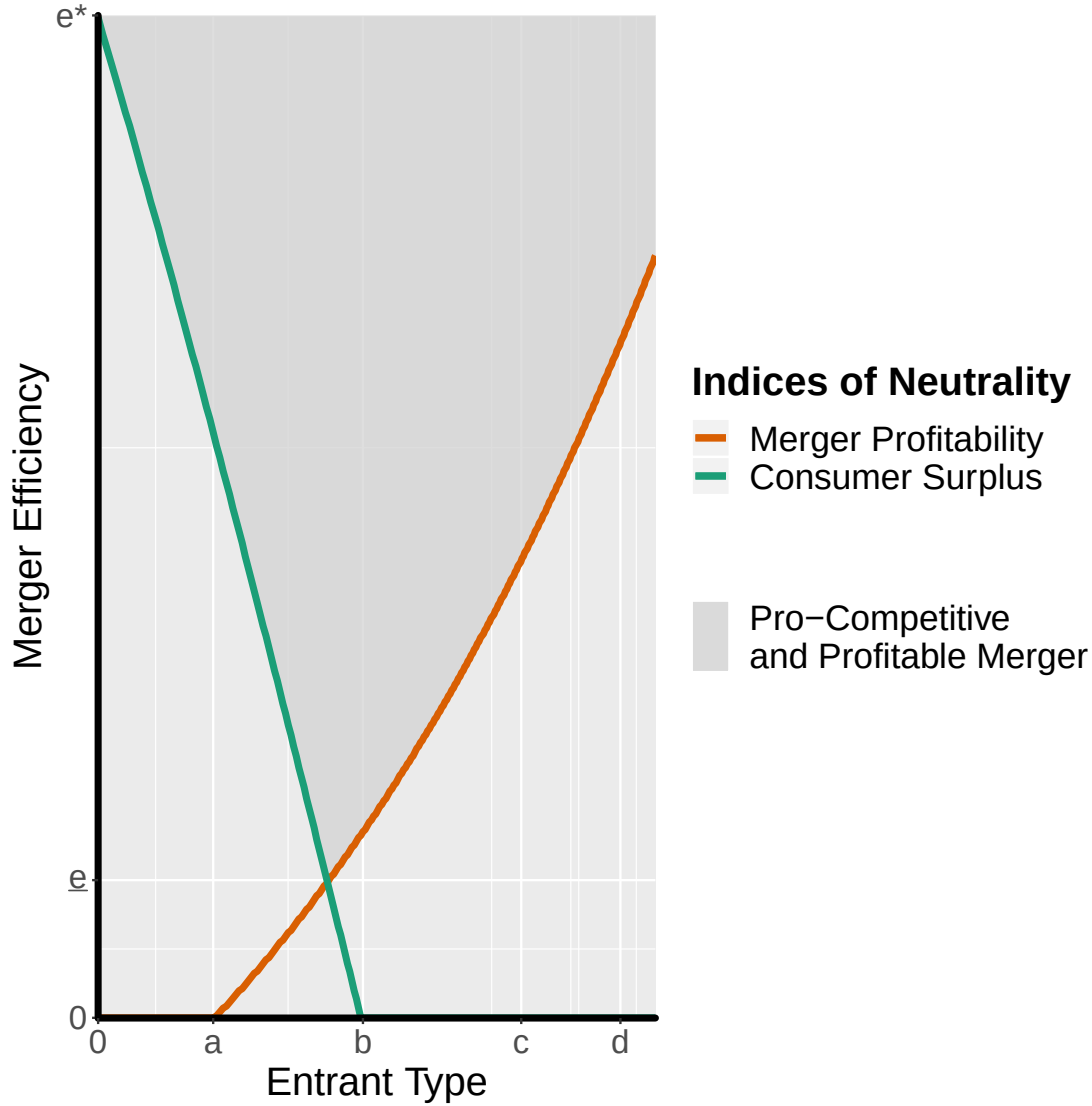
Back on Track: Entry and Efficiencies

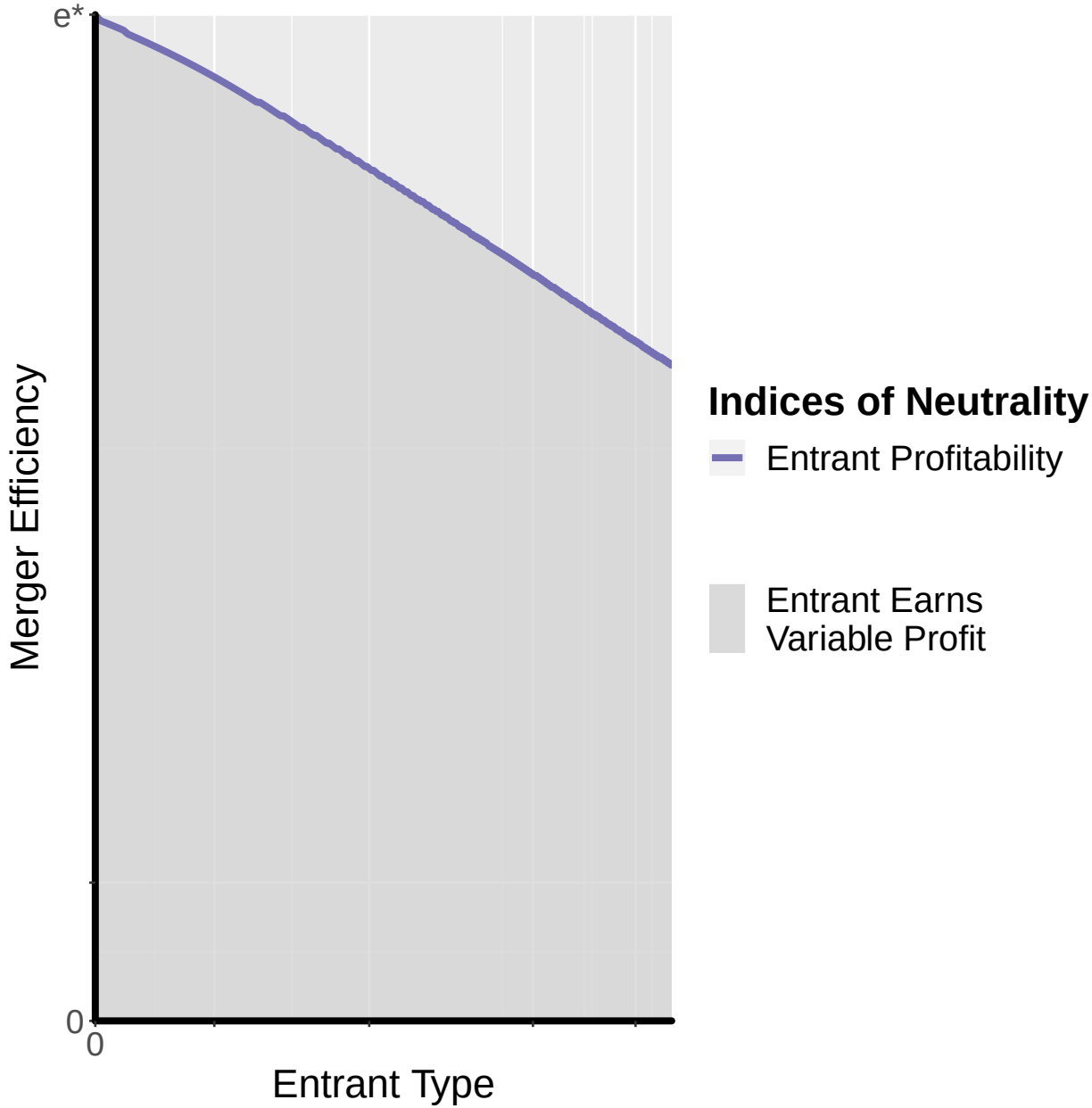


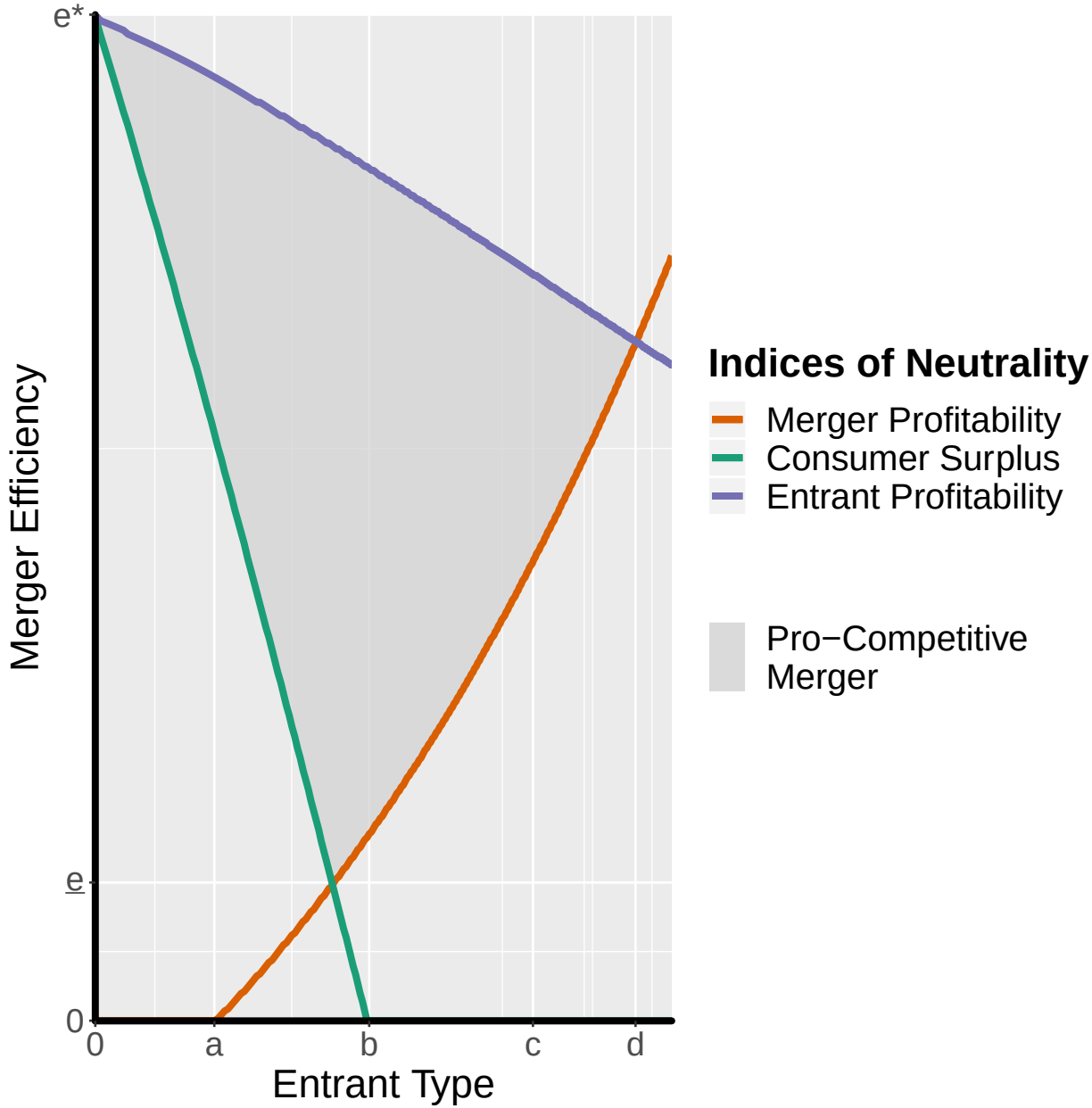

e*
e
0
0
a
b
c
d
Merger Efficiency
Entrant Type
Pro−Competitive Merger
Lines
Profit Neutrality
Consumer Neutrality
Lower Efficiency Bound

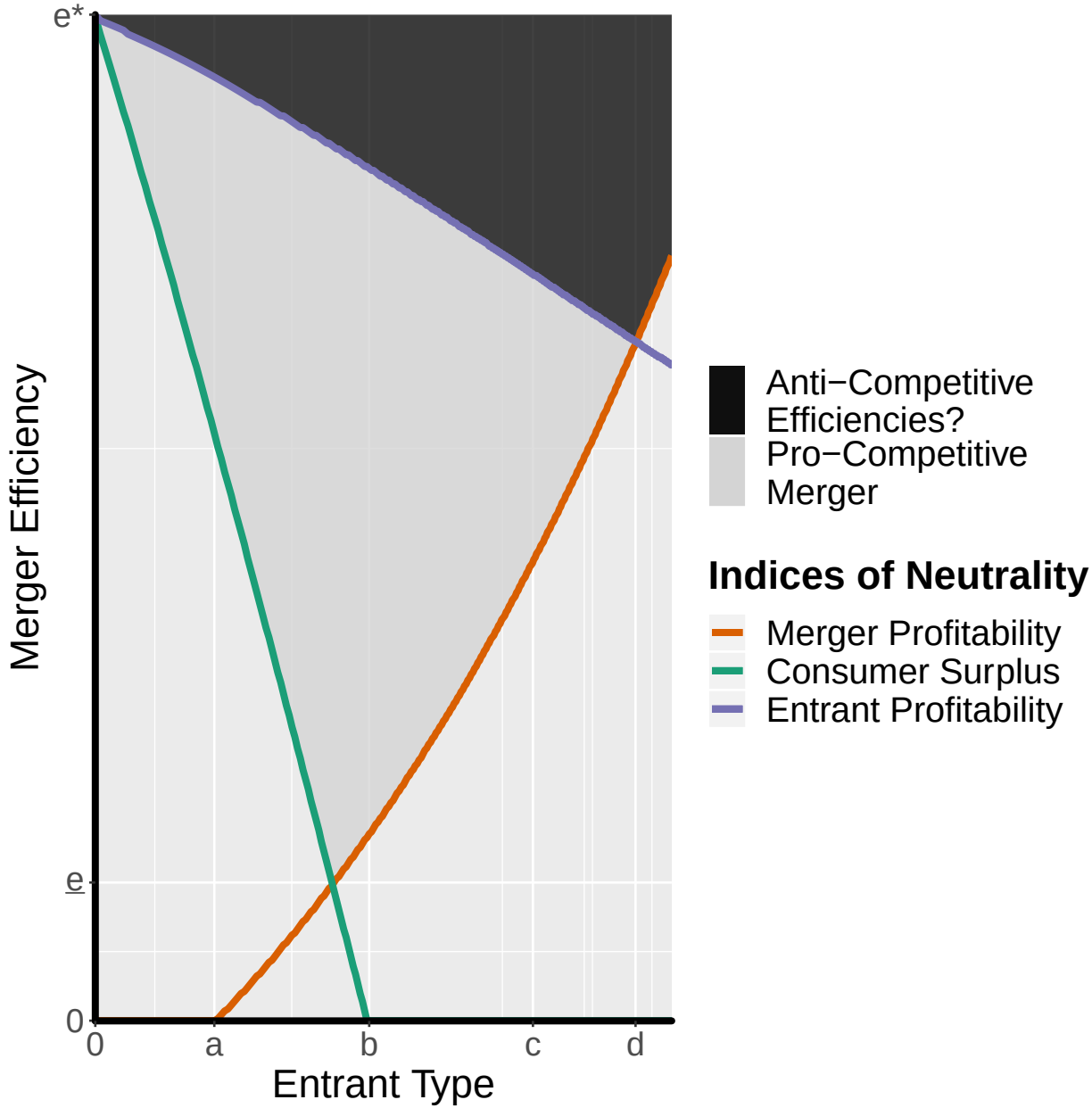

e*
Merger Efficiency
e
0
0
a
b
c
d
Entrant Type
Pro−Competitive Merger
Lines
Profit Neutrality
Consumer Neutrality
Lower Efficiency Bound
"Minimum Efficiencies"
Required for Consumer Gain
(Requires Specific Entrant)

What About the Entrant's Profit?




e*
Merger Efficiency
0
0
Entrant Type
Indices of Neutrality
Entrant Profitability
Entrant Earns
Variable Profit


e*
e
0
Merger Efficiency
0
a
b
c
d
Entrant Type
Indices of Neutrality
Merger Profitability
Consumer Surplus
Entrant Profitability
Pro−Competitive Merger


e*
e
0
Merger Efficiency
0
a
b
c
d
Entrant Type
Anti−Competitive Efficiencies?
Pro−Competitive Merger
Indices of Neutrality
Merger Profitability
Consumer Surplus
Entrant Profitability

Five Main Results

1. Entry alone does not mitigate adverse effects.
2. Mergers and efficiencies (together) can eliminate adverse effects.
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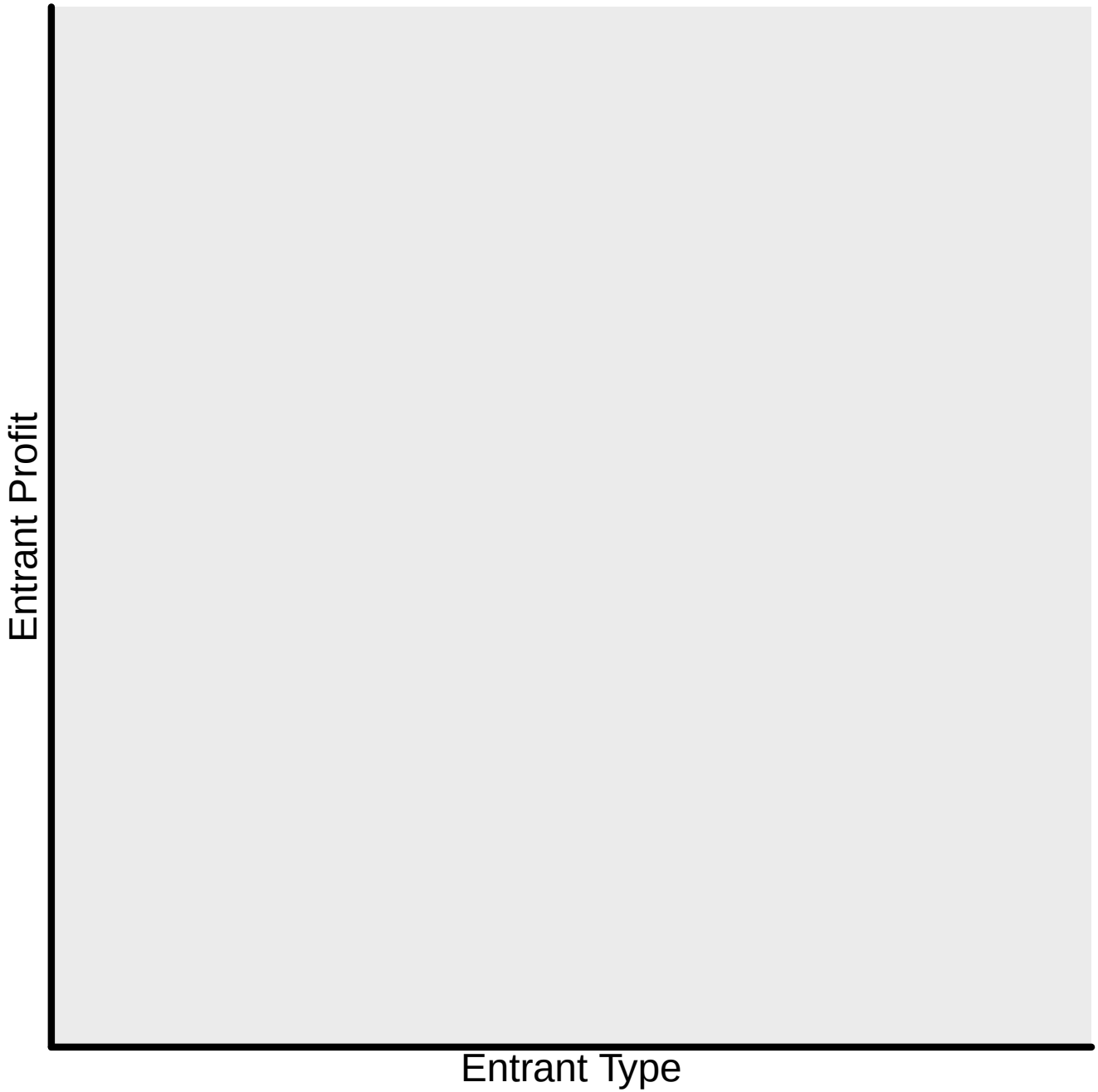
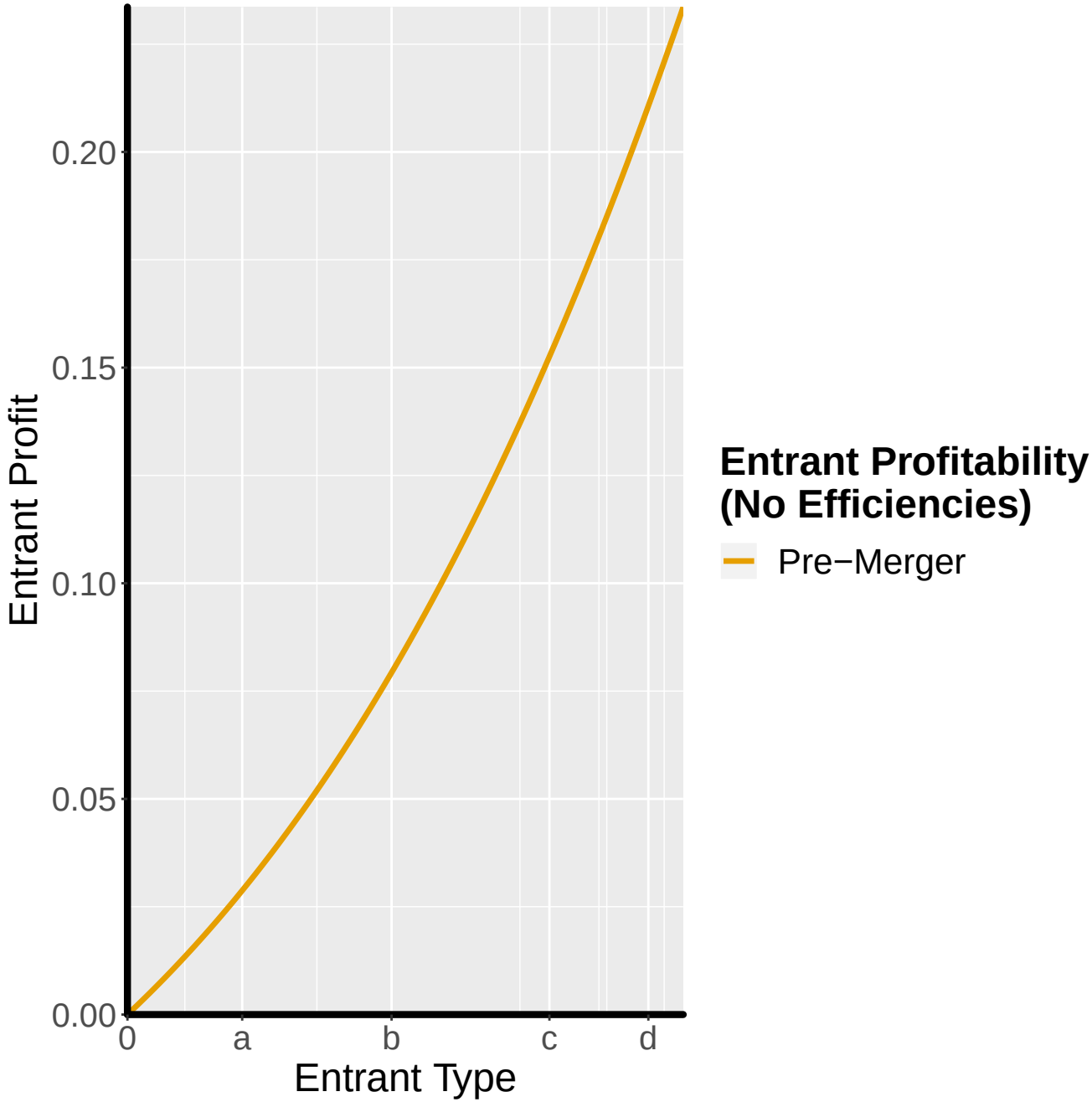
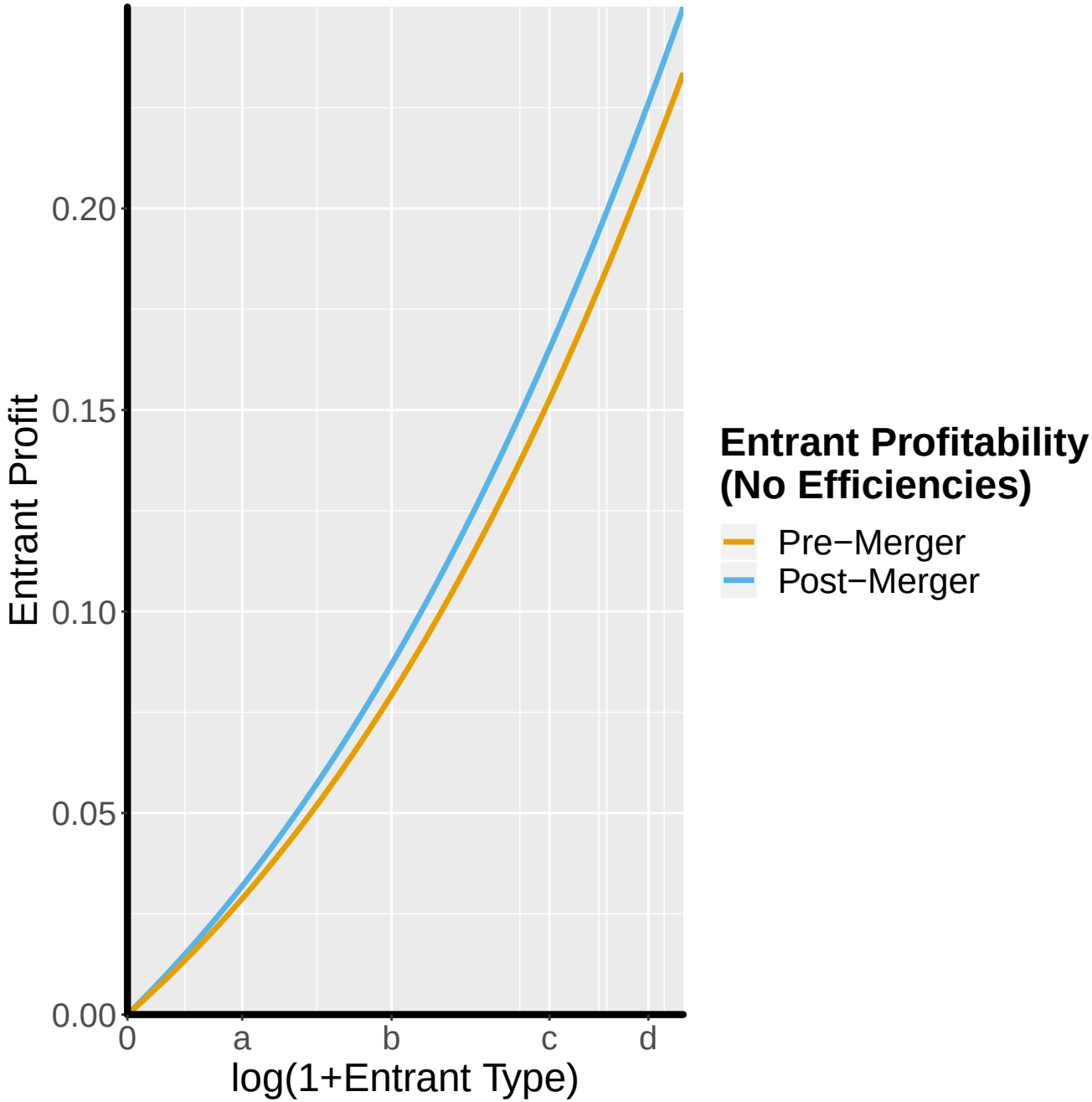
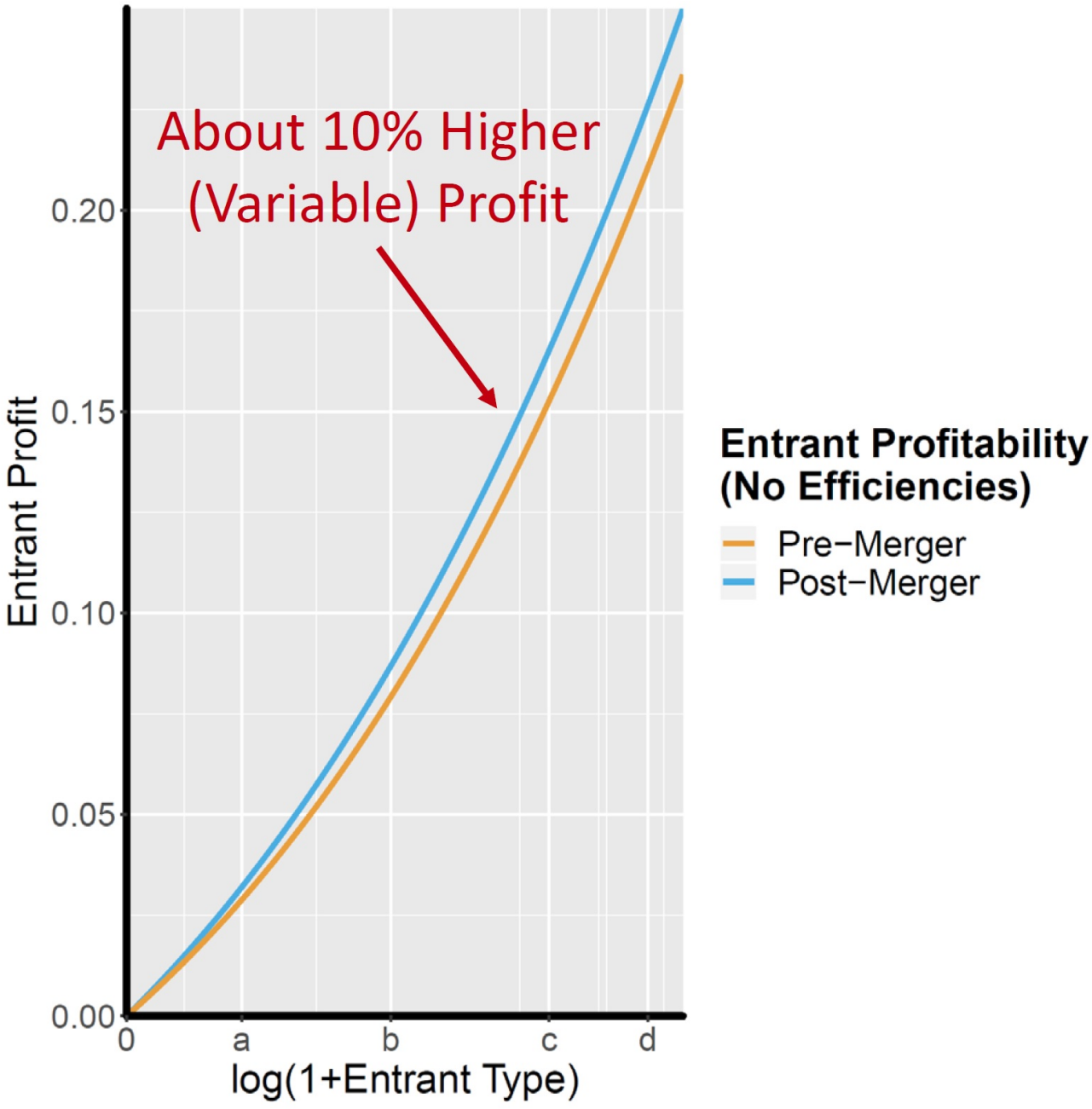
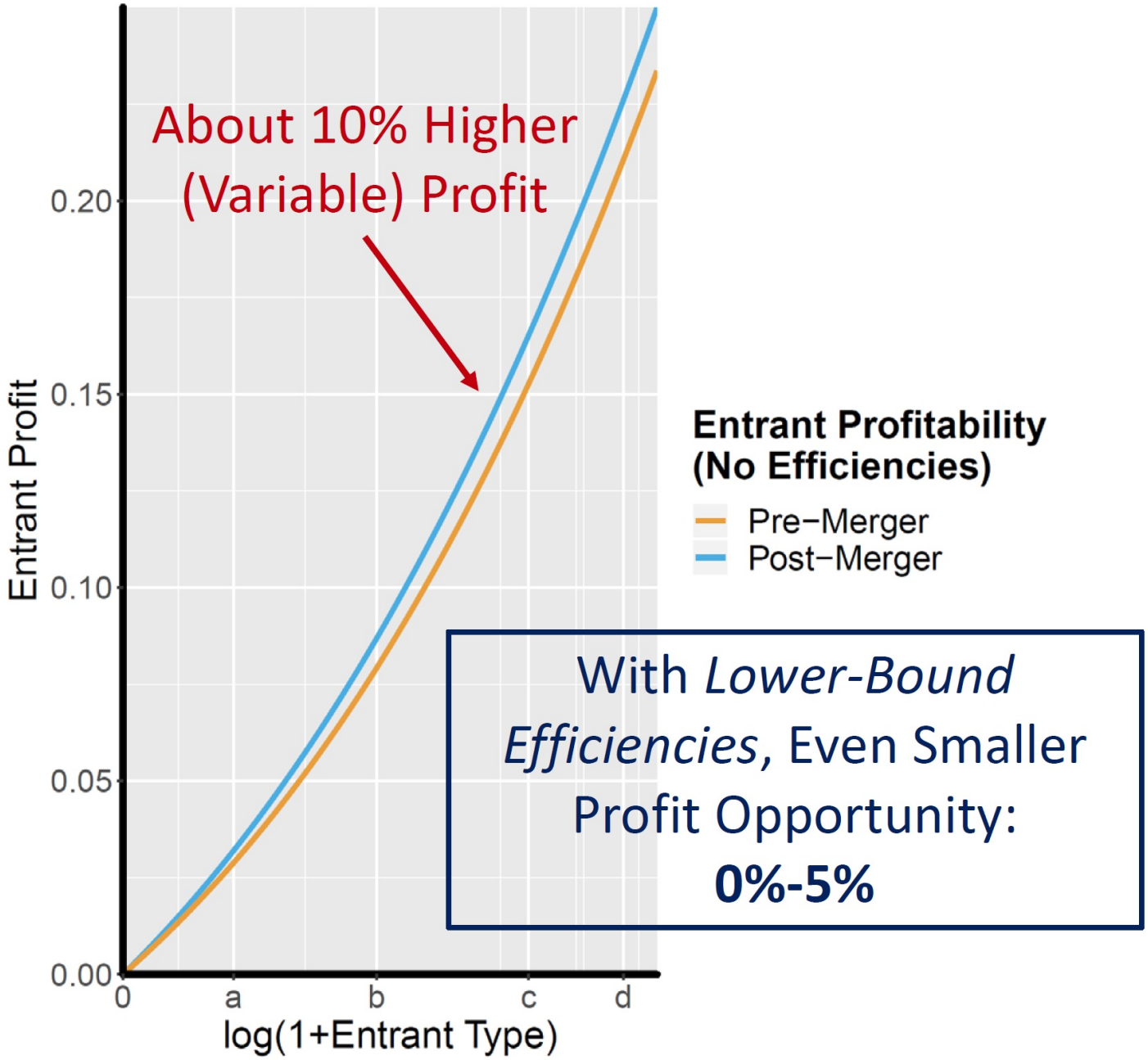
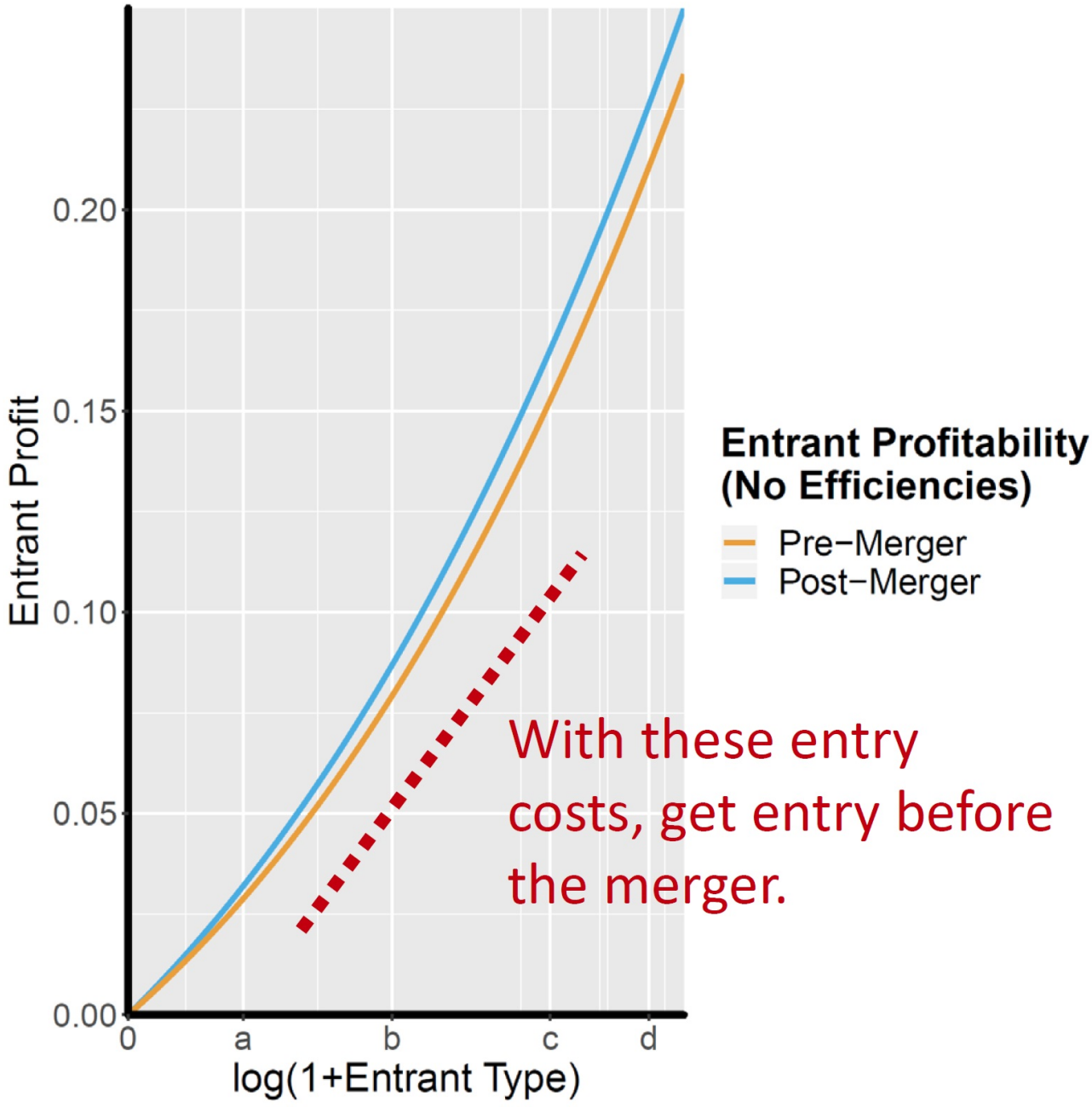

Entrant Profit
Entrant Type

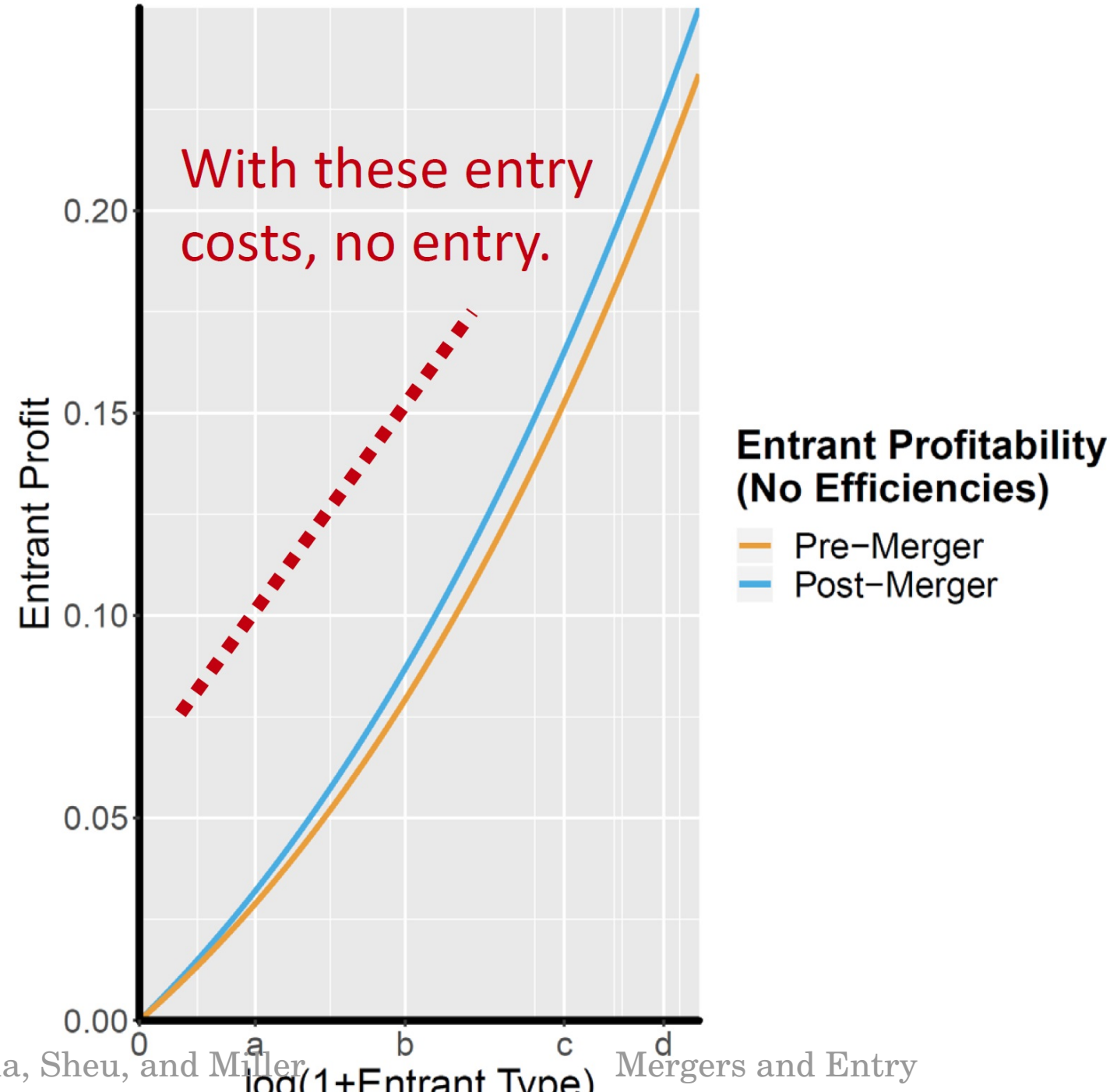

Entrant Profit
0.20
0.15
0.10
0.05
0.00
0
a
b
c
d
Entrant Type
Entrant Profitability
(No Efficiencies)
Pre−Merger

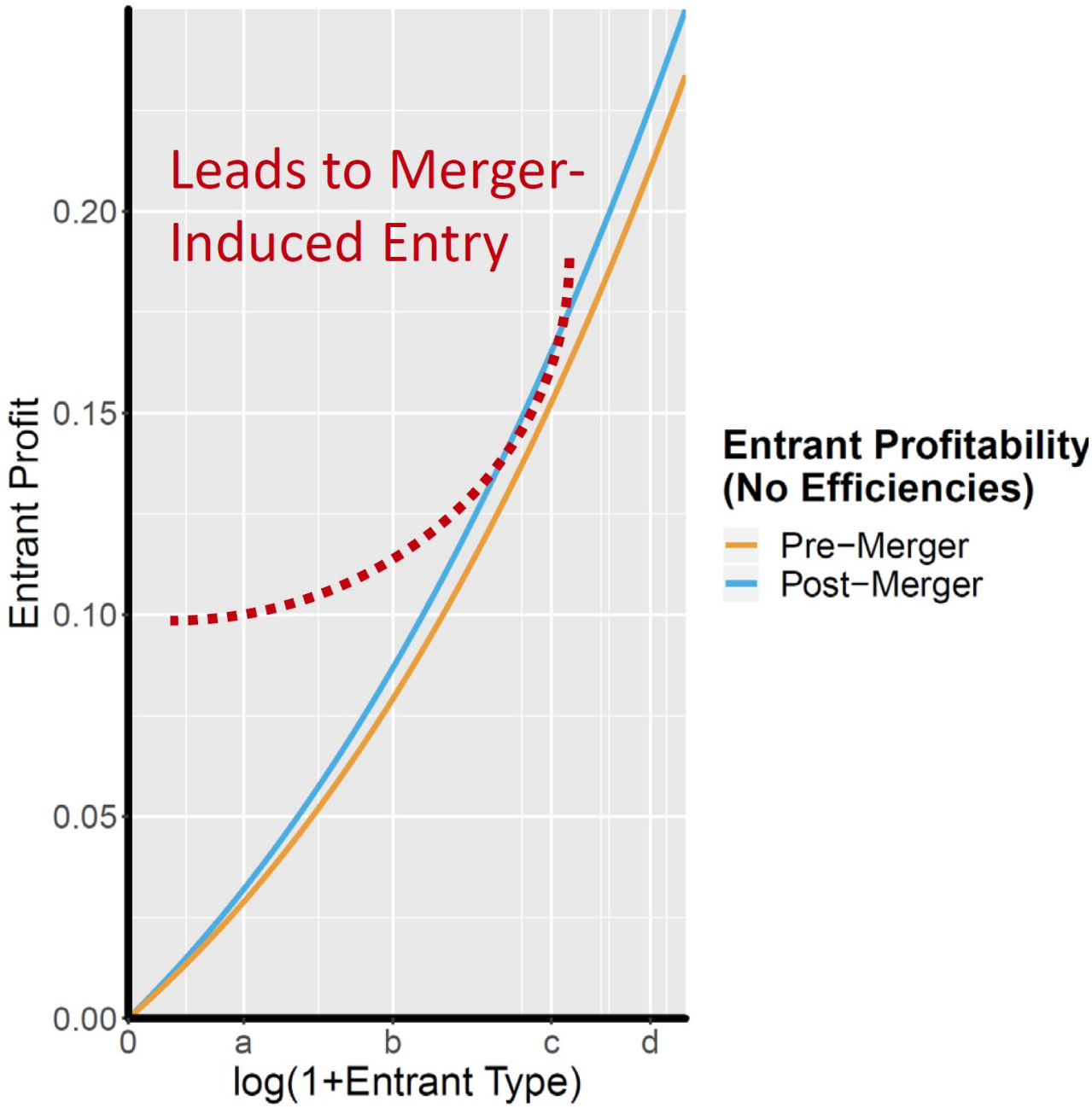

Entrant Profit
0.20
0.15
0.10
0.05
0.00
0
a
b
c
d
log(1+Entrant Type)
Entrant Profitability
(No Efficiencies)
Pre−Merger
Post−Merger


About 10% Higher
(Variable) Profit
Entrant Profit
0.20
0.15
0.10
0.05
0.00
0
a
b
c
d
log(1+Entrant Type)
Entrant Profitability
(No Efficiencies)
Pre−Merger
Post−Merger


About 10% Higher
(Variable) Profit
Entrant Profit
0.20
0.15
0.10
0.05
0.00
0
a
b
c
d
log(1+Entrant Type)
Entrant Profitability
(No Efficiencies)
Pre−Merger
Post−Merger
With *Lower-Bound Efficiencies*, Even Smaller Profit Opportunity:
0%-5%


Entrant Profit
0.20
0.15
0.10
0.05
0.00
0
a
b
c
d
log(1+Entrant Type)
Entrant Profitability
(No Efficiencies)
Pre−Merger
Post−Merger
With these entry costs, get entry before the merger.


With these entry costs, no entry.
Entrant Profit
0.20
0.15
0.10
0.05
0.00
0
a
b
c
d
log(1+Entrant Type)
Entrant Profitability (No Efficiencies)
Pre−Merger
Post−Merger


Leads to Merger-Induced Entry
Entrant Profit
0.20
0.15
0.10
0.05
0.00
0
a
b
c
d
log(1+Entrant Type)
Entrant Profitability (No Efficiencies)
Pre−Merger
Post−Merger

Precision in Forecasting

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1. Suppose entrant's (variable) profit increases from \$100 to \$103.

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2. Let entry cost (EC) be \$500, fixed cost (FC) be \$51, $\delta = 0.90$.

$$\Psi(T^F) = (1-\delta)EC(T^F) + FC(T^F) = \$101.$$

Merger-induced entry is profitable. With efficiencies might be sufficient.

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3. But if $\delta = 0.85$ then $\Psi(T^F)$ =\$126, and entry does not occur.

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   Merger-induced entry is profitable. With efficiencies might be sufficient.

3. But if $\delta = 0.85$ then $\Psi(T^F)$ =\$126, and entry does not occur.

Even if entry seems feasible, the "confidence interval" for predictions will probably incorporate the possibility (or probability?) of no merger-induced entry.

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Implications for Merger Review?

Thank You!

More Considerations

1. Perfect vs. imperfect information (fog of uncertainty).
2. Static Nash equilibrium vs. coordination.
3. Timing of entry: immediate vs. delayed.
4. Fixed cost efficiencies.
5. No divestitures.
6. Implication of long run equilibrium for likelihood.

Related Literature

1. Cabral (2003 IJIO), Erkal and Piccinin (2010 ER): efficiencies & likelihood.
2. Werden (1996), Froeb and Werden (1998), Nocke and Whinston (2020): CMCR.
3. Werden and Froeb (1998): logit/Bertrand entry; sufficiency.
4. Spector (2003): Cournot and entrant sufficiency
5. Anderson, Erkal, and Piccinin (2018): long run with free entry