

# THE WELFARE CONSEQUENCES OF MERGERS WITH ENDOGENOUS PRODUCT SELECTION

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**Michael J. Mazzeo**, Kellogg School of Management, Northwestern University

**Katja Seim**, Wharton School, University of Pennsylvania

**Mauricio Varela**, University of Arizona and Bates White

# Motivation:

## Advancing Merger Simulations



- Merger simulation techniques in differentiated-product industries focus on price changes following a merger, and calculate the resulting welfare impacts.
- These “price-only” simulations abstract away from the possibility that industry participants will change their product offering decisions following a merger.
- This constraint underestimates the profit impact of mergers; consumer welfare effects may be enhanced or mitigated depending on post-merger product offerings.

## Research Question



- How are post-merger market structure and welfare simulations changed by allowing for changes in product offerings post-merger?
- To answer this question, we develop a merger simulation approach in which prices *and* (discrete) product offerings are endogenized.
- We perform a variety of simulations, in an effort to isolate impact of particular mechanisms through which post-merger product offering changes may operate.

## Literature / Background

- Nevo's (2000) approach "is not consistent with firms changing their strategies in other (than price) dimensions."
- Peters (2006) – finds a substantial difference between the price-only merger simulation results and the price effects of actual mergers.
- Theoretical (Gandhi et al, 2008) and empirical (Fan, 2012) simulations with continuous product characteristics.
- Examples of merger cases that cite potential issues related to product offerings (culling products, entry by rivals, synergies) with *ad hoc* analysis of impacts.

# Model and Simulations (1)

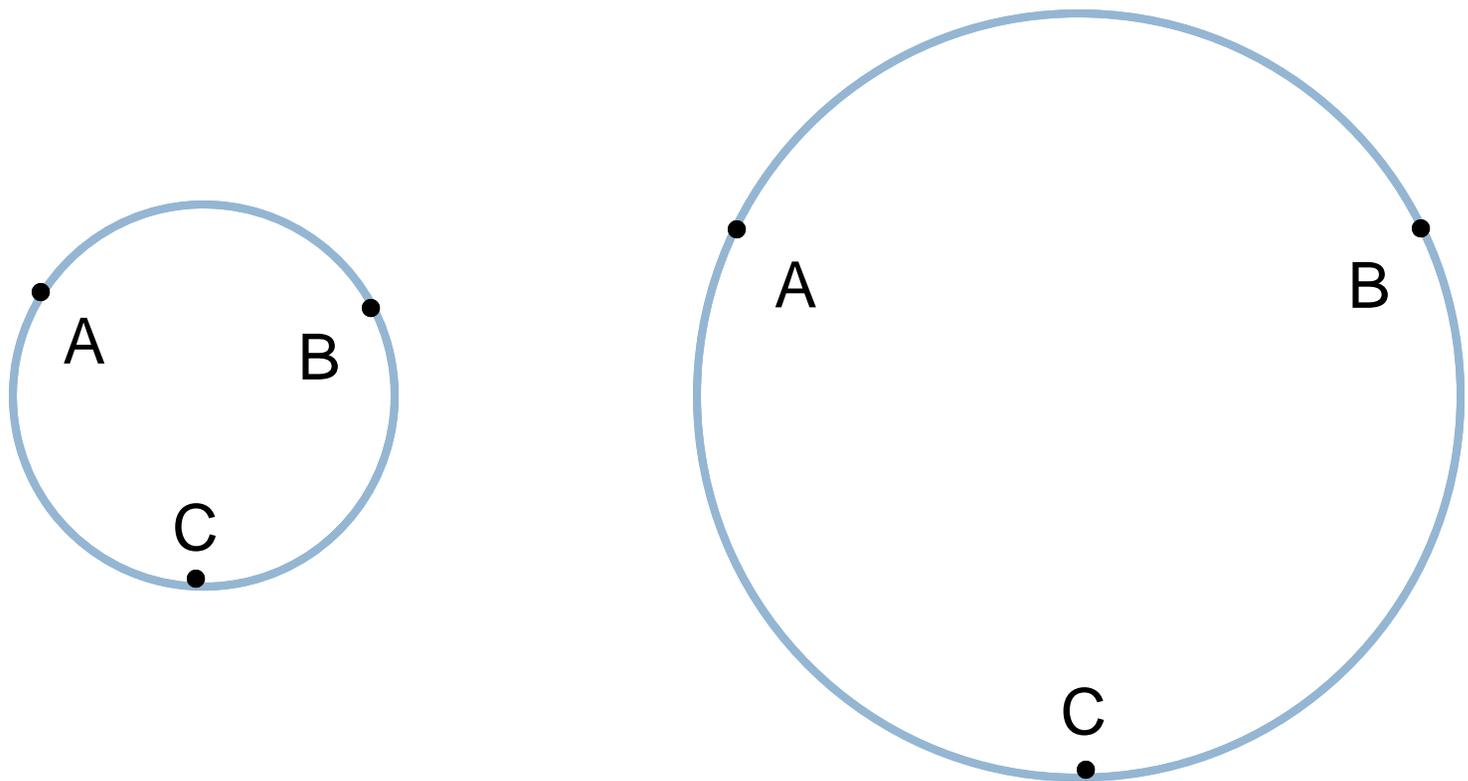
- Differentiated product competition with endogenous price and product offerings
  - Adaptation of Draganska, Mazzeo & Seim (2009)
  - Firms endowed with a set of potential products
  - Stage 1 - Choose whether or not to offer each potential product
  - Stage 2 - Choose prices
  
- Solve through backward induction:
  - Given offering decisions, find equilibrium prices
    - Calculate consumer surplus and producer profits
  - Using these profits as an input, model the product offering decision and characterize its equilibrium (*a la* Seim, 2006).
  - We adapt the information assumption (on fixed costs of entry) to allow for a range from complete to incomplete information (Grieco, 2013).

## Model and Simulations (2)

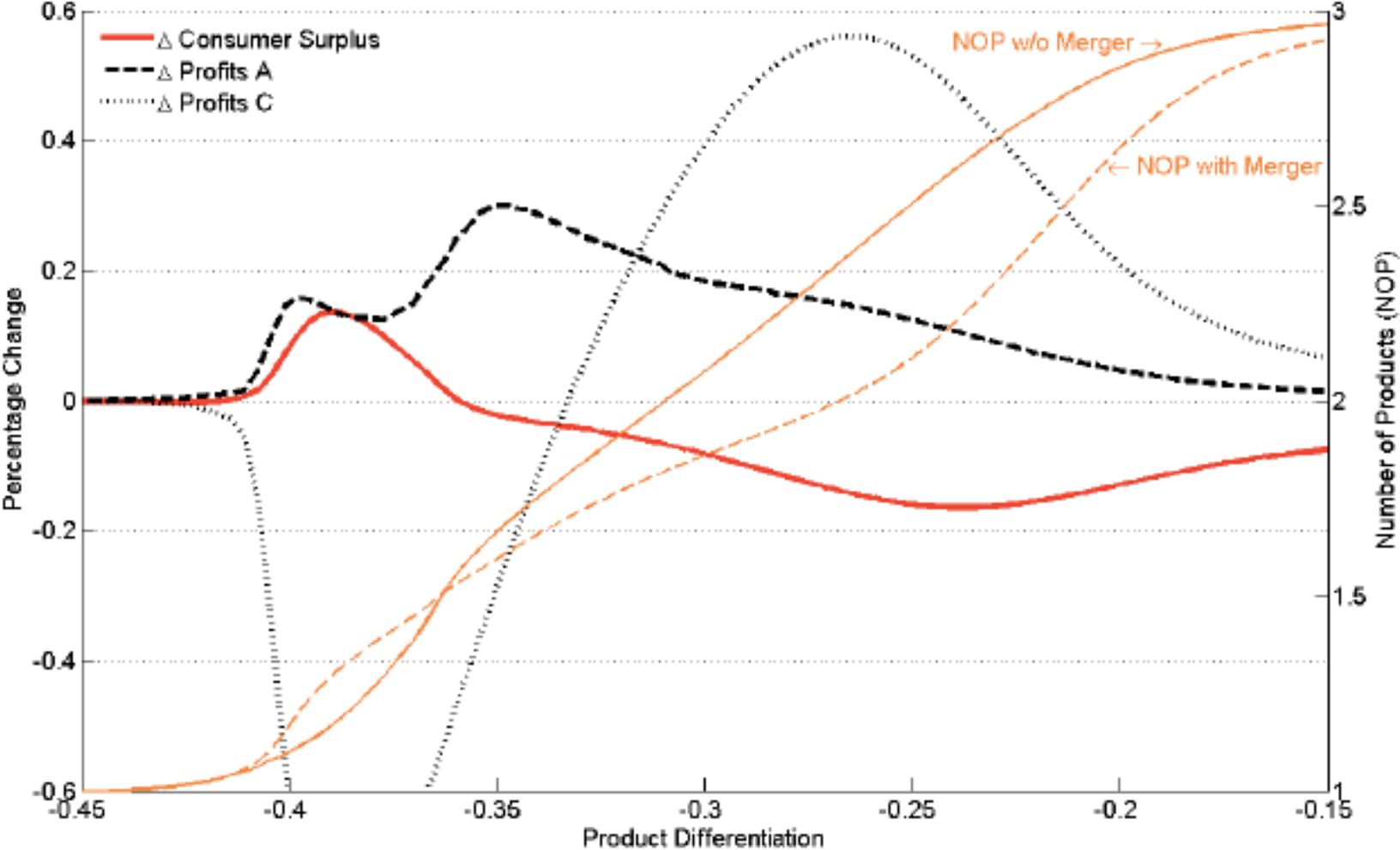
- Straightforward simulation approach using three symmetric market participants (A, B & C) offering at most one product
- We first do a pre-merger simulation – calculating “expected” products offered, profits and consumer surplus (primitives set to produce “reasonable” results).
- We allow A & B merge, we recalculate the equilibrium allowing for price and offering changes and compare the number of products offered, profits and consumer surplus.
- Across the simulations, we vary the extent of differentiation among the competing firms, pre-merger.

## Model and Simulations (3)

- Across the simulations, we vary the extent of differentiation among the competing firms' products
- The extent of product differentiation is help fixed when comparing pre-merger to post-merger outcomes



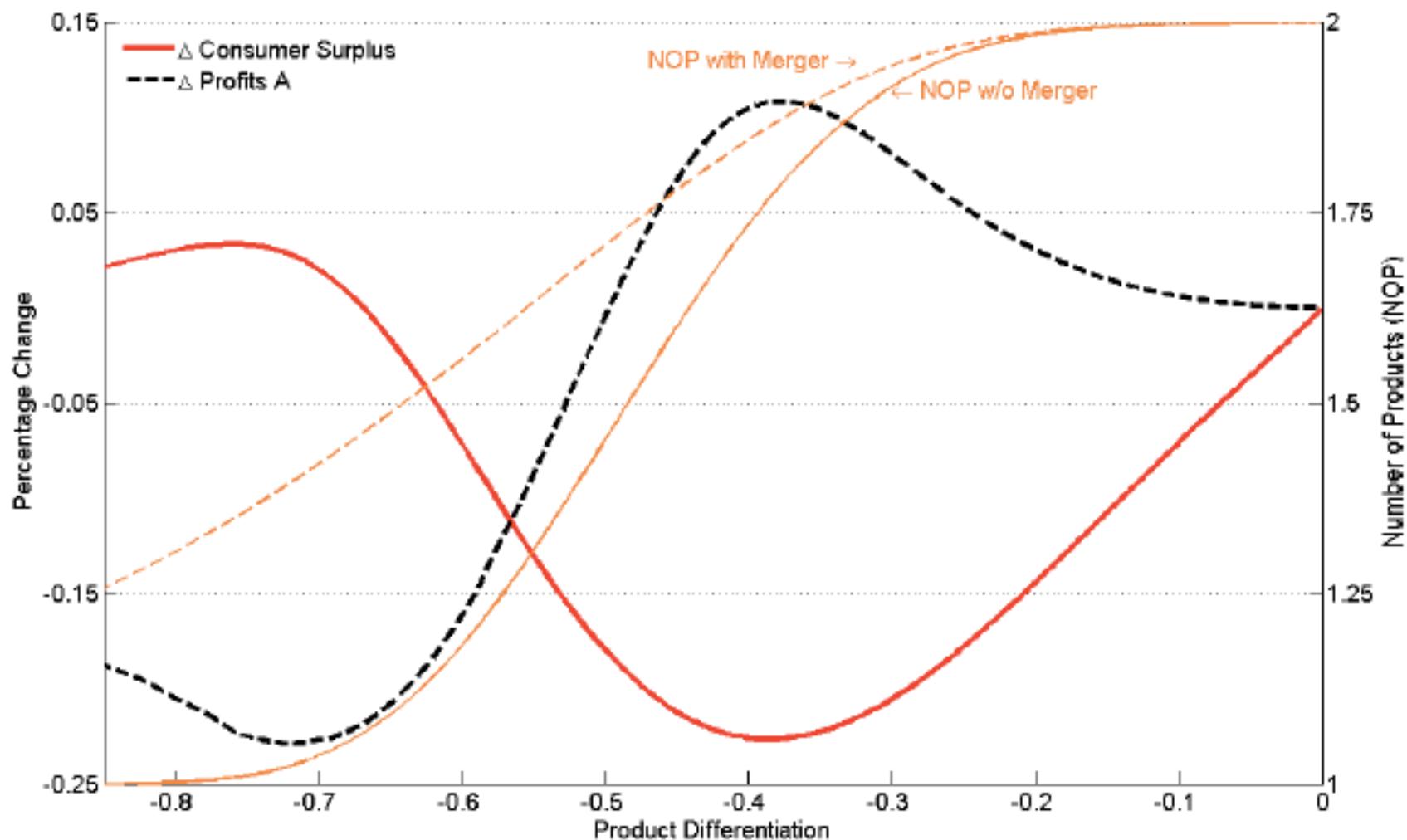
# “Results”



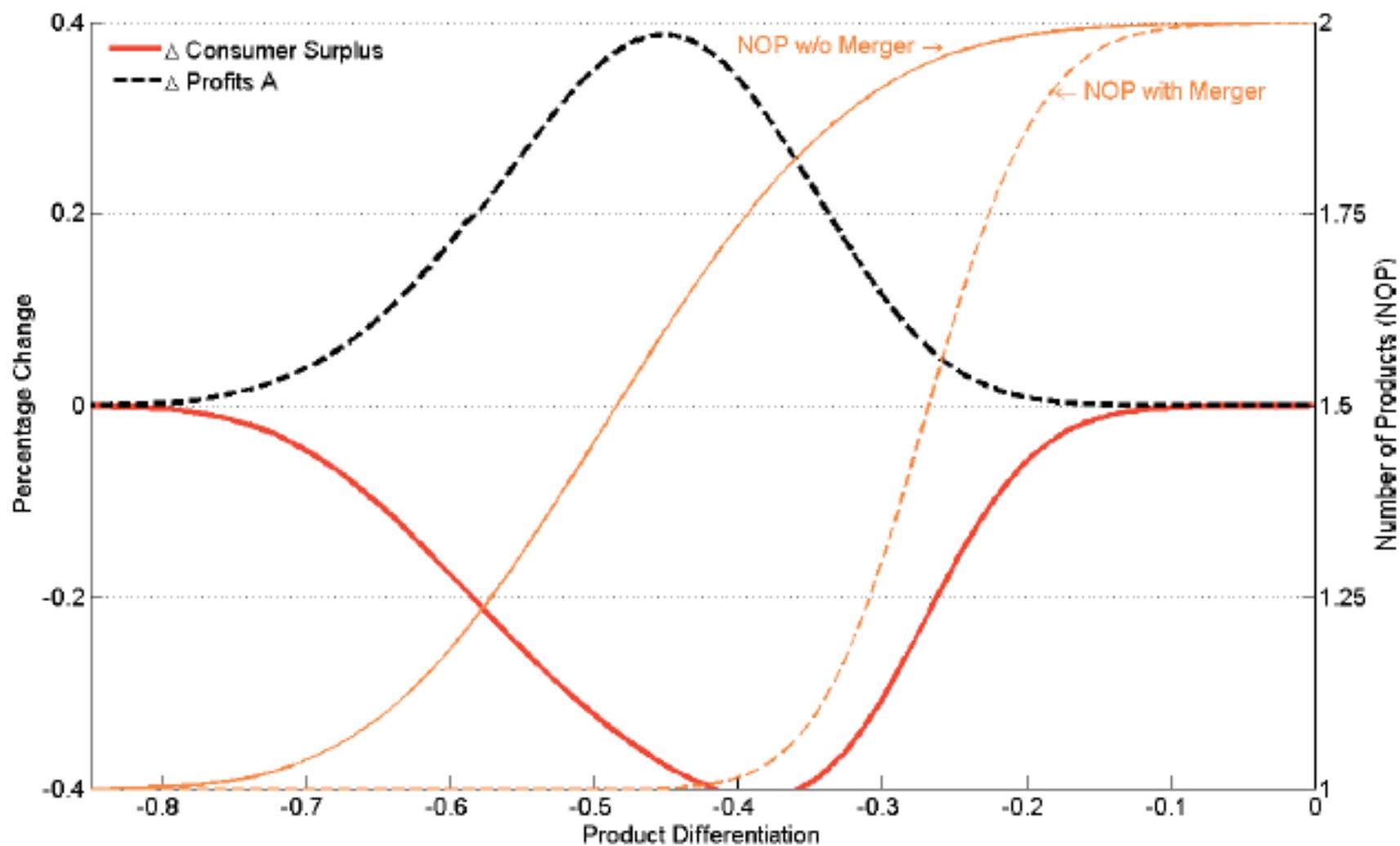
# Summary of “Results”

- “Overall” effects range from relatively large to null
  - ▣ Depending on the extent of product differentiation; which determine pre-merger equilibrium offerings
- We investigate possible mechanisms – reasons why firms might have an incentive to change post-merger offerings:
  - ▣ Higher prices induce additional offerings.
  - ▣ Fixed cost-savings from culling “similar” products.
  - ▣ Coordination (offer most-profitable product, excluding rivals, information – reducing *ex post* regret).
  - ▣ Fixed cost synergies allow more products to overcome the threshold to be offered.
- Simulations are designed to isolate each of these

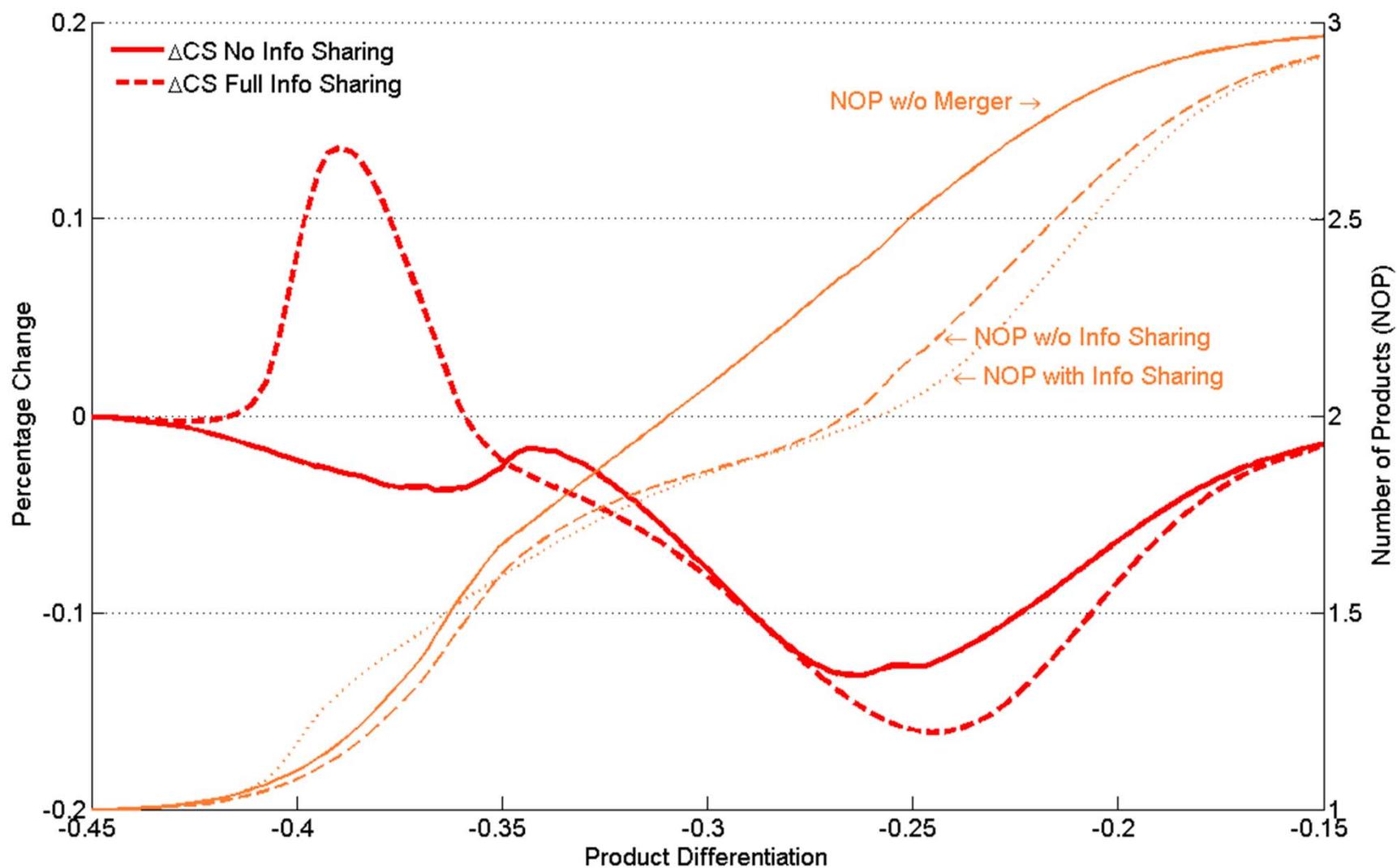
# Additional Entry From Higher Post-Merger Prices



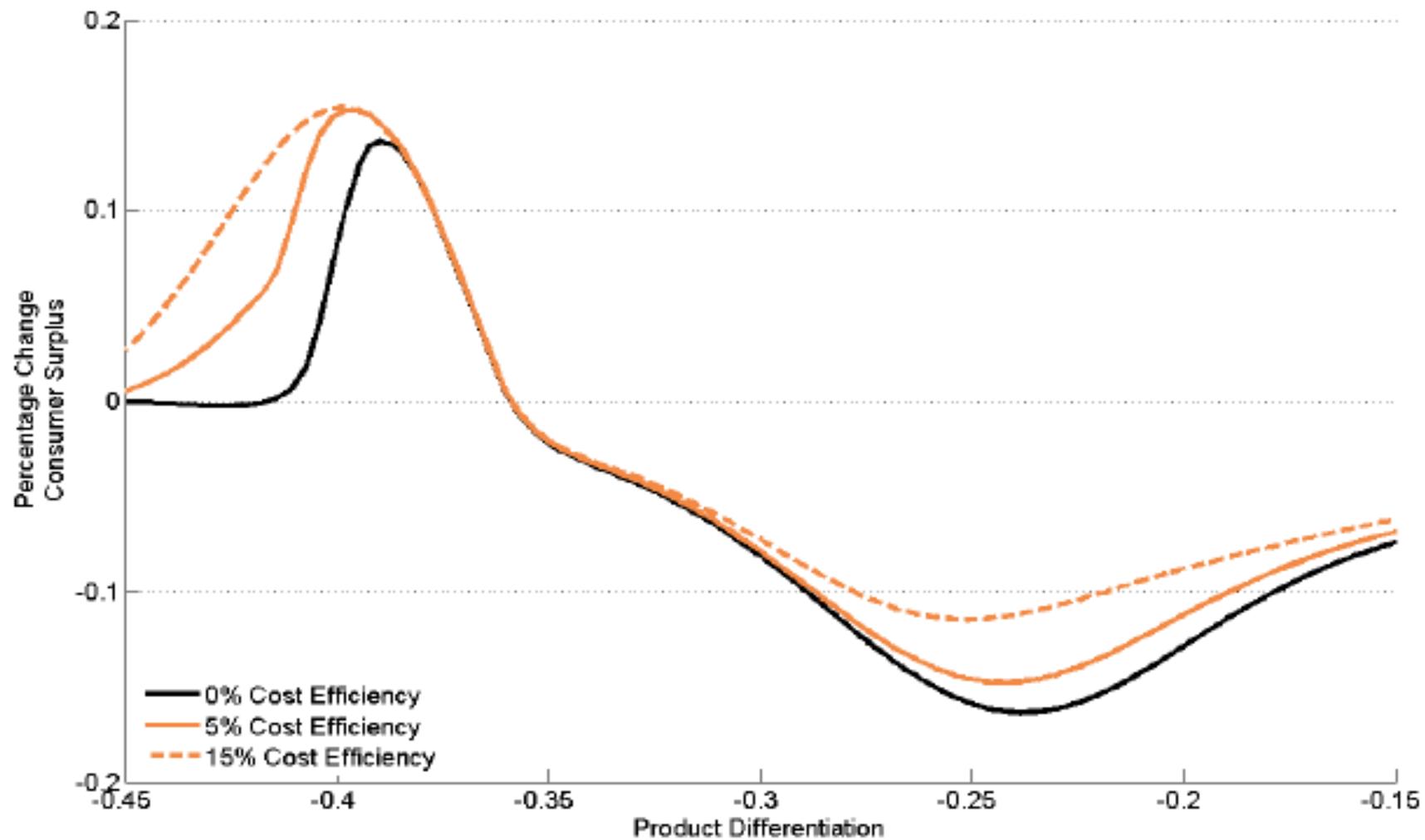
# Cost Savings from Reducing Offerings



# Coordination Allows for More Aggressive Play



# Fixed-Cost Synergies Induce Entry



# Summary of Findings

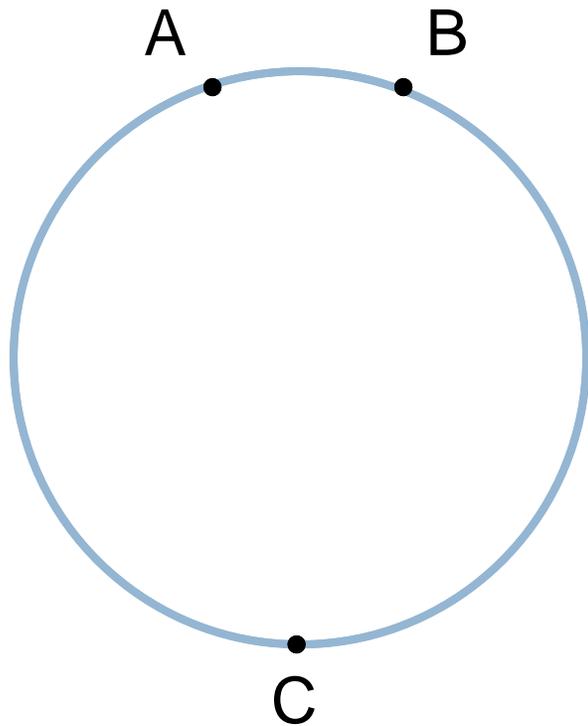
- “Anything can happen” of course, but the simulations give an idea of the scope of the effect and what it depends on
  - ▣ Particularly, the extent of pre-merger differentiation.
  
- The two main mechanisms (price increases and cost savings) offset in terms of endogenous offerings and their impact on consumer welfare
  - ▣ Regulators/courts: beware arguments emphasizing one and ignoring the other.
  
- Future research: we are trying to find a suitable setting to estimate rather than simulate the model and see what the repositioning effects are with real data (challenges).

# APPENDIX

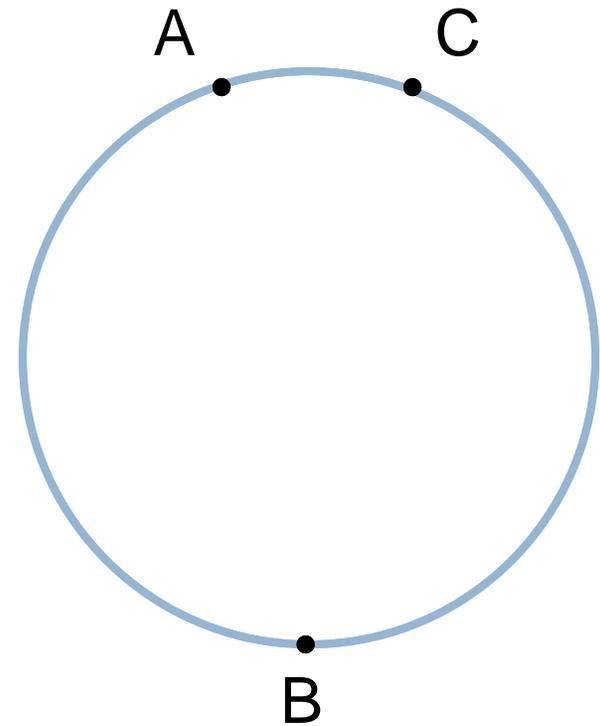


# Alternative Product Space Configurations

- We relax the assumption that A, B & C are equi-distant and consider a couple of alternatives.

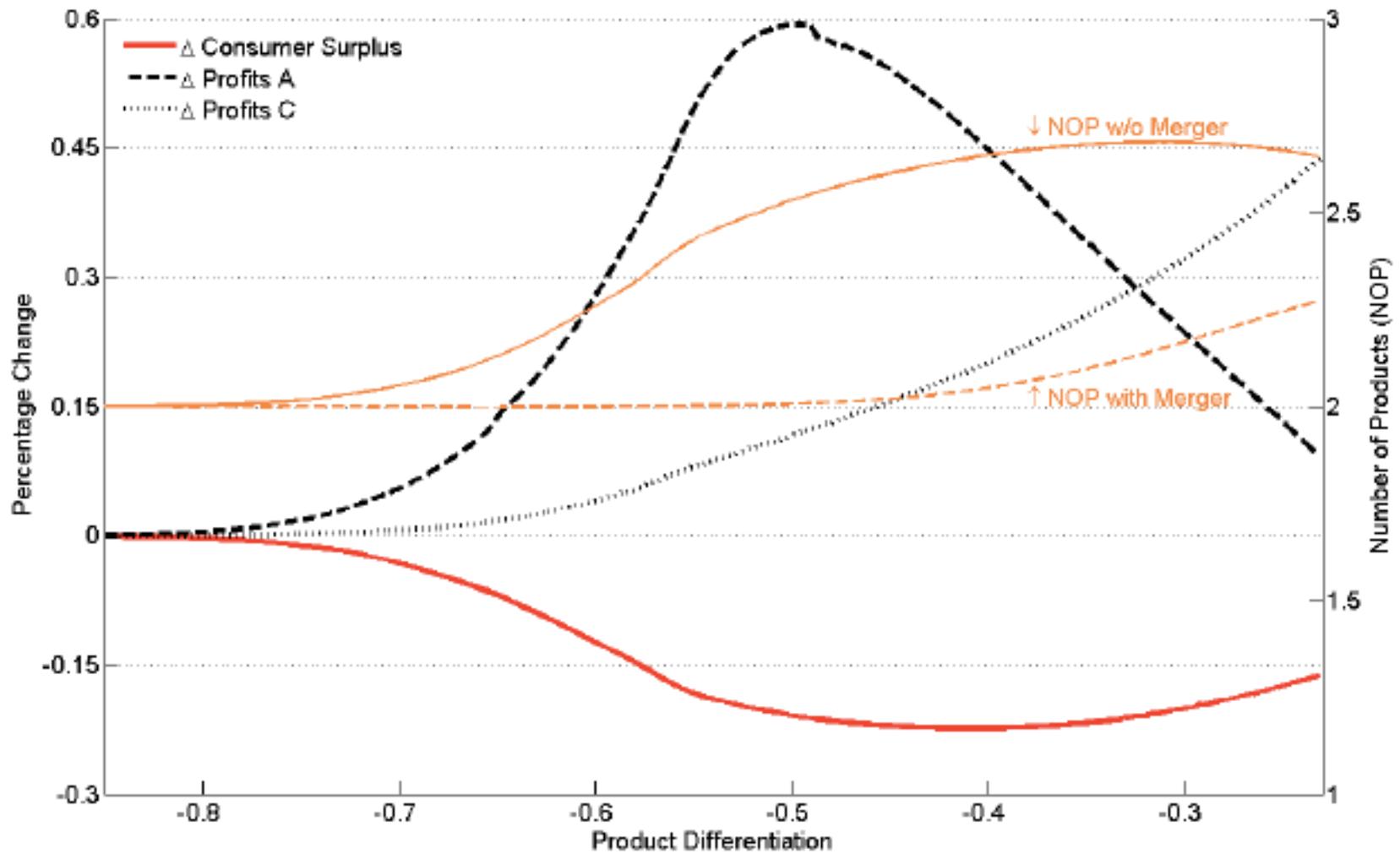


*versus*



Biggest effect from culling products, not joi

# Merging Parties are Closer Substitutes



Don't talk about this slide

# Merging Parties are Differentiated (but one is closer to rival)

