Discussion of

"Quality Predictability and the Welfare Benefits from New Products: Evidence from the Digitization of Recorded Music"

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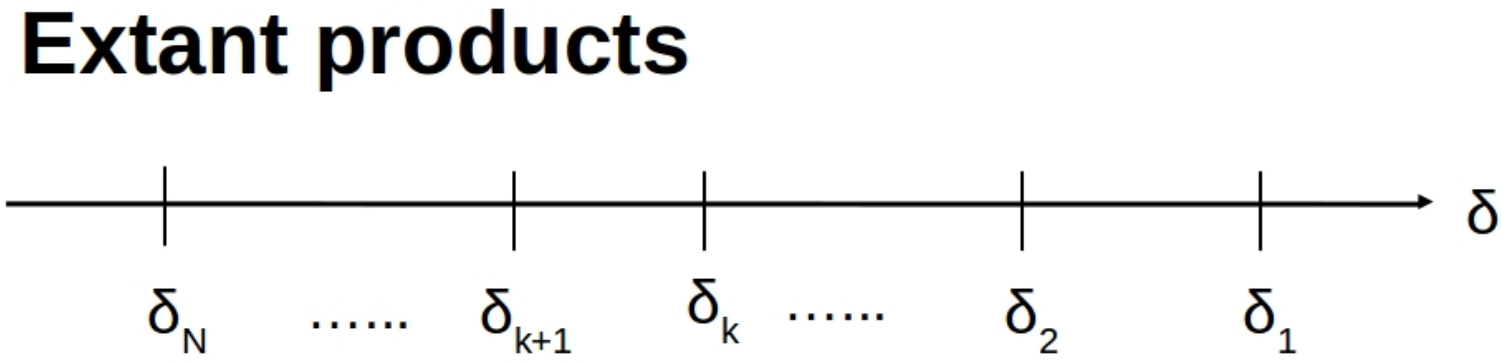
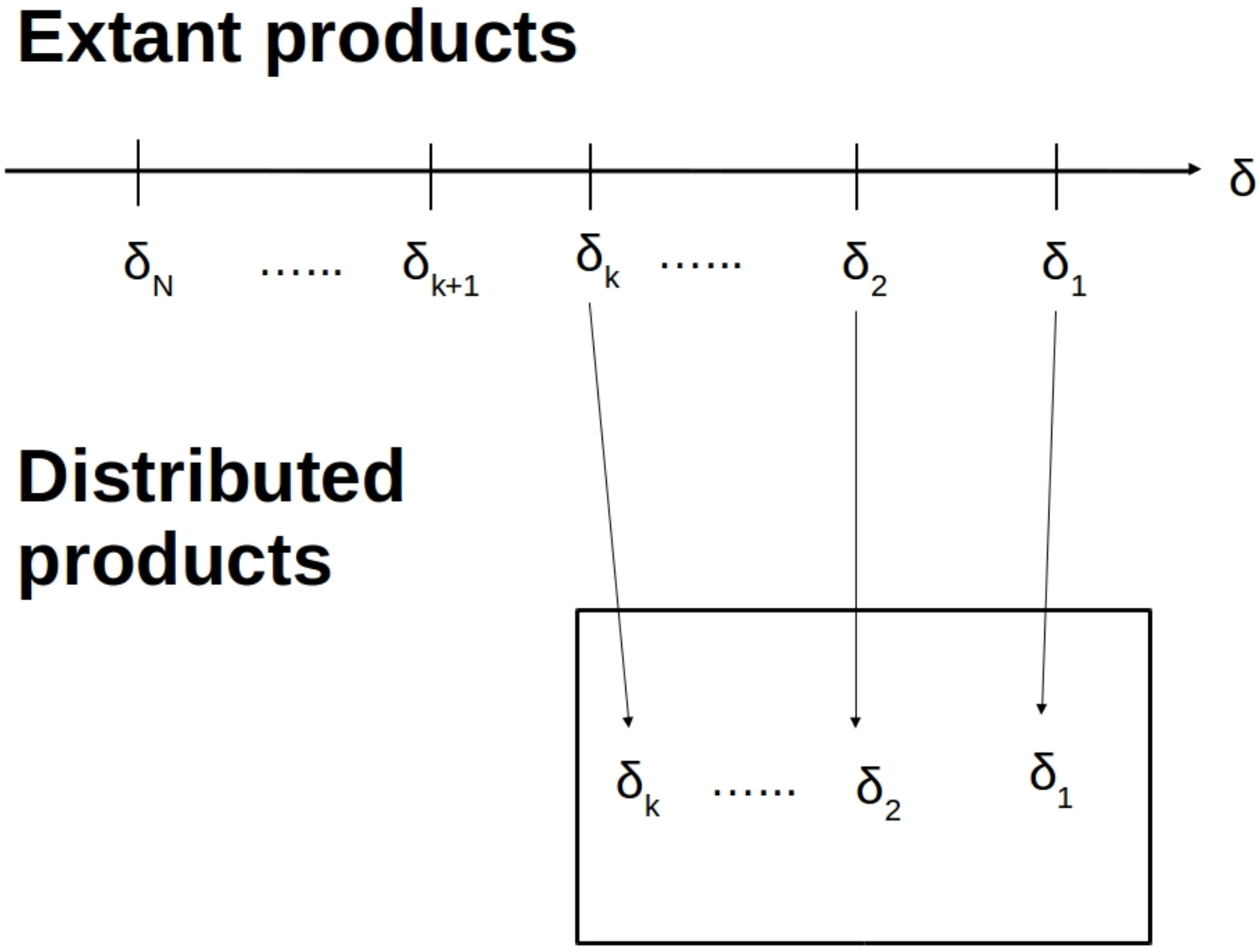
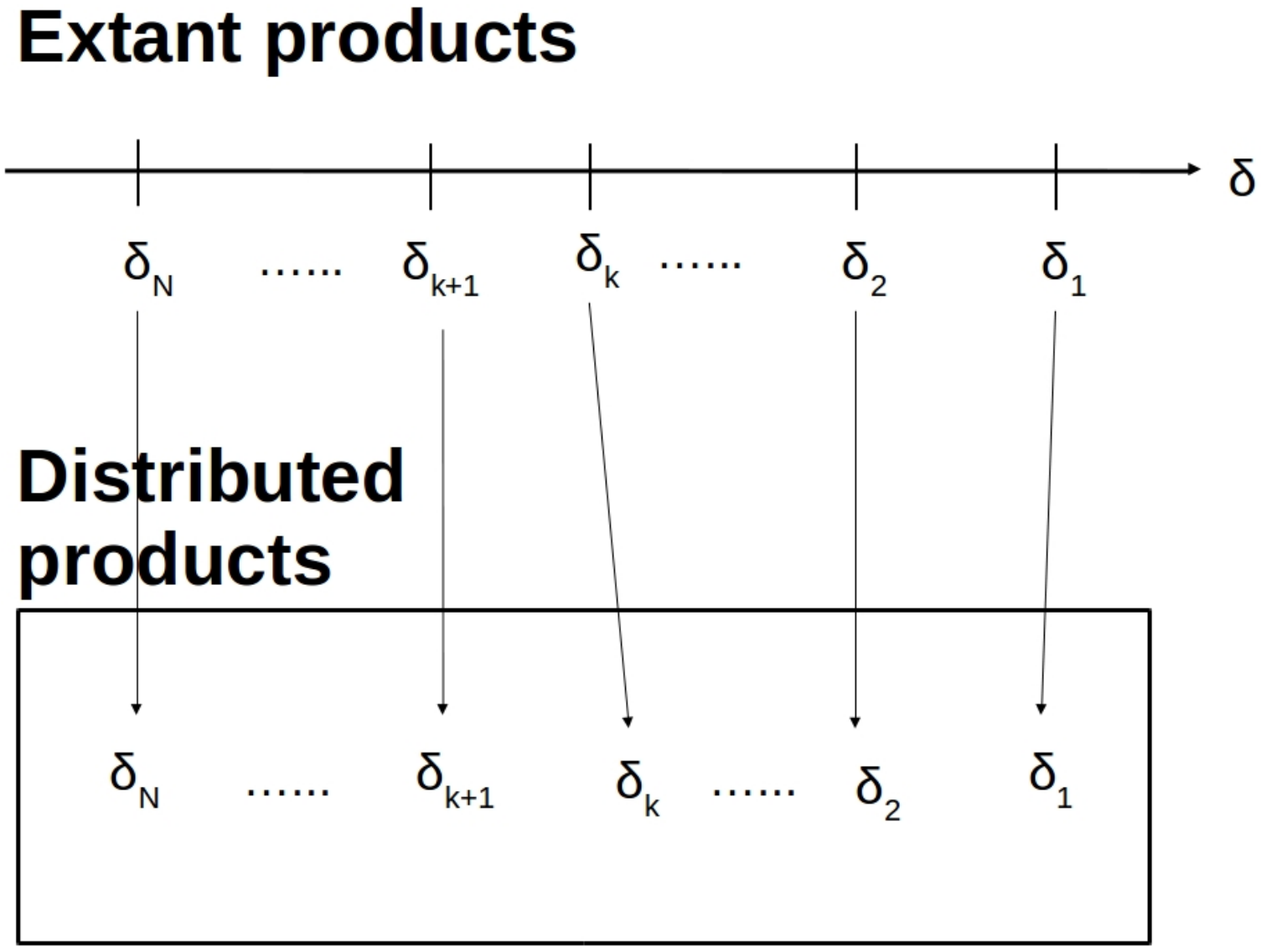
Long tail in consumption



Long tail in consumption: brick-and-mortar



Long tail in consumption: online



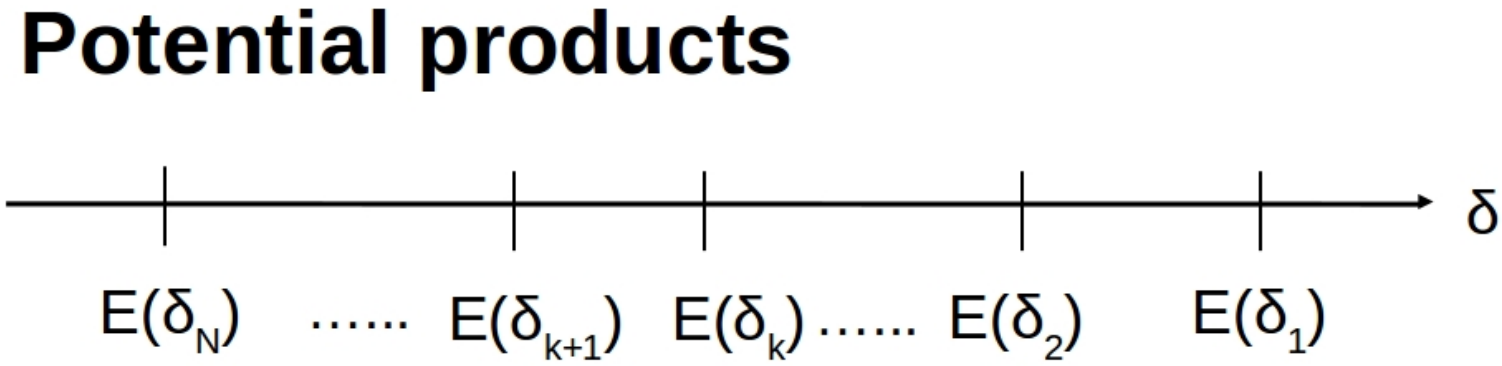
Long tail in consumption: How do we measure it?

- Estimate demand, e.g. $x(p, y) = Ap^{\alpha} y^{\delta}$
- Compute compensating variation (CV):

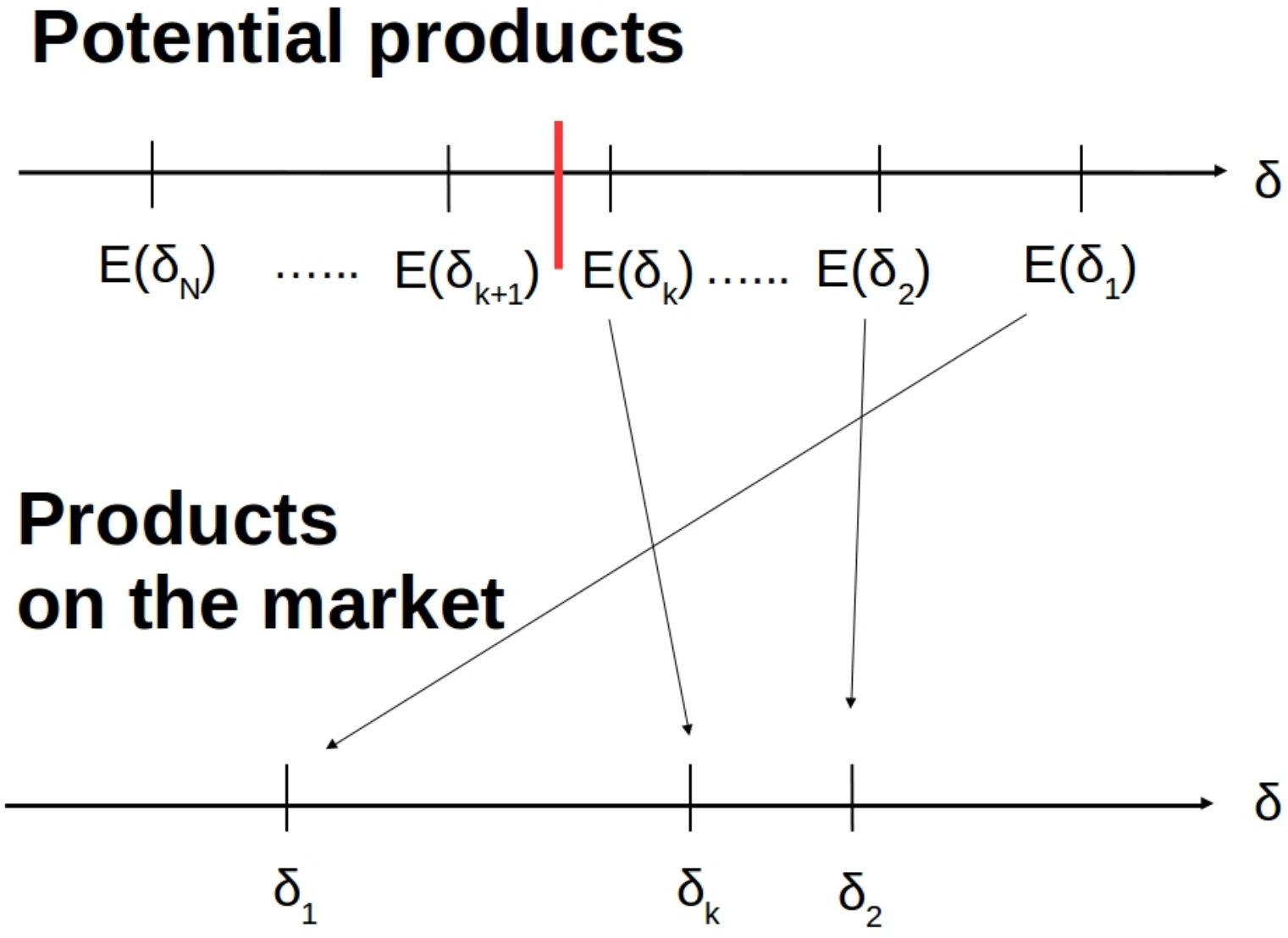
$$CV = e(p_{e0}, p_{n0}, u_1) - e(p_{e1}, p_{n1}, u_1)$$

- Simpler if we can assume no effect on prices

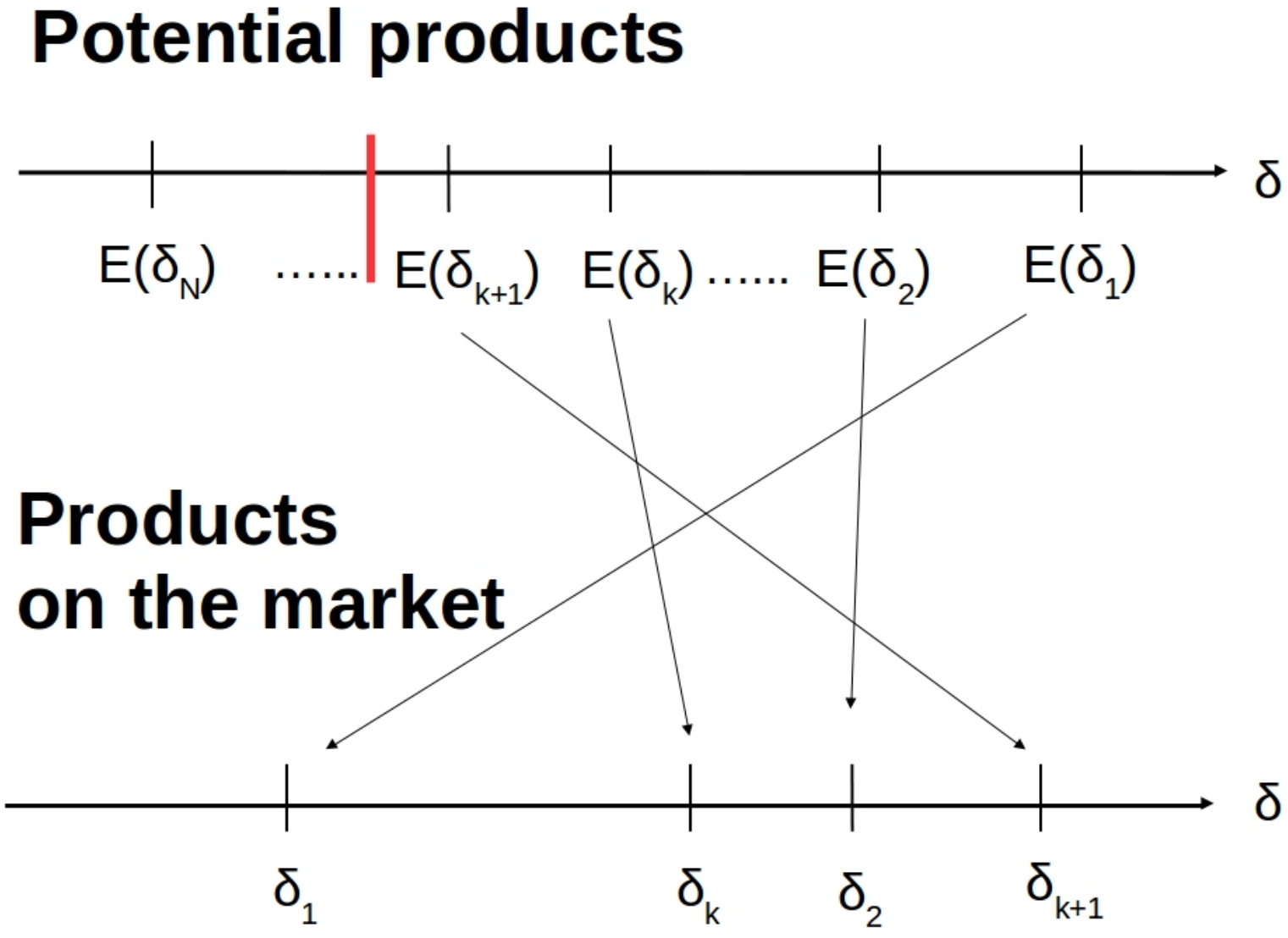
Long tail in production



Long tail in production: pre-digitization



Long tail in production: post-digitization



Long tail in production: How do we measure it?

- Estimate demand: $u_{ij} = \delta_{jc} + \zeta_i + (1-\sigma)\varepsilon_{ij}$
- Estimate supply
  - Model of entry: Sequential, with fixed cost
  - Model of quality forecast: $\delta_{ja} = \gamma_0 + \gamma_1 Z_a + \mu_{ja}$
- How large are the gains? It depends:
  - Perfect Foresight (PF) $\approx$ Long tail in consumption
  - No predictability (NP) $\gg$ Long tail in consumption
  - Imperfect Prediction (IP)
- Estimated gains: $\Delta CS = \frac{CS^{IP}_{post} - CS^{IP}_{pre}}{CS^{PF}_{post} - CS^{PF}_{pre}}$

Strengths

- Compelling and relevant question
- Sensible approach
- Careful implementation
- “Right” welfare measure

Comment 1: Prediction stage

- This has direct impact on ΔCS
- Current approach: $\nu = \delta_{ja} - \widehat{\delta_{ja}}$
  - How does ν look like?
  - Shape of the distribution may matter more than R^2
- Possible alternatives
  1. Prediction based on song characteristics:
     $\delta_{jag} = \gamma_0 + \gamma_1 Z_a + \gamma_2 Z_g + \mu_{jag}$
  2. Calibrate the noise: $\delta_j = E(\delta_j) + \nu_j, \quad \nu \sim G(0, \sigma_\nu)$
     - BoxOfficeMojo releases forecasts on movies

Comment 2: “Nobody knows anything”

- If predicting is hard, model suggests increase of sleeper hits post-digitization
- Yet success seems to concentrate on items “born to be hits”

The same team writes songs for Rihanna, Britney Spears, Katy Perry, Miley Cyrus, etc.

Fifty top-40 hits in the past ten years

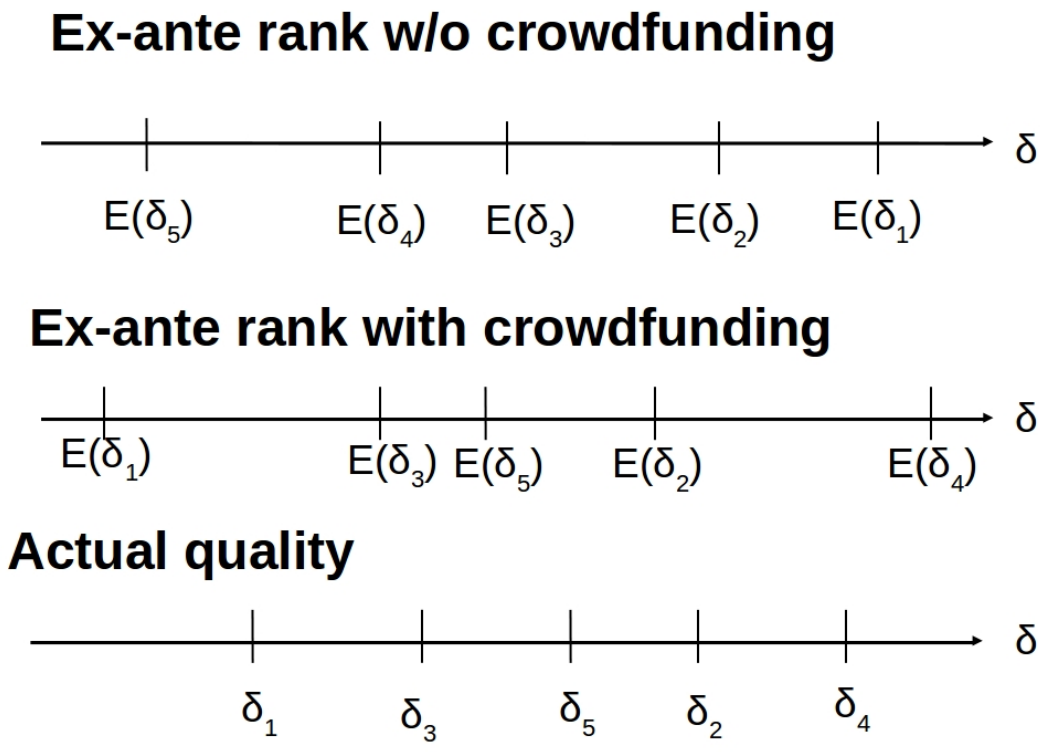
Box office is dominated by like-themed movies (e.g. comic book heroes) and sequels

Comment 3: Are X's exogenous?

- Implicit assumption: "artists write the music they write"
- But artists (and labels) may be looking a step ahead
- This affects demand estimates and CS calculations
  - Ackerberg, Crawford and Hahn (WP 2011)
  - Crawford, Shcherbakov and Shum (WP 2014)

Comment 4: The role of crowdfunding

- Digital platforms now allow consumers to fund artists
- This may be a way to resolve uncertainty



- Distortions from selection in participation to crowfunding