

Discussion of
“The Welfare Cost of Imperfect Consumer Information:
Evidence from a Differentiated Product Market”
Reimers, Riedl, Waldfogel (2025)

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Mistakes



This Paper

- ▶ How much welfare do consumers forgo because of imperfect information?
- ▶ Data: 50,000 Steam users, 100 games, purchase choices and cumulative playtime
- ▶ Empirical strategy:
 - ▶ Use playtime h_{ij} as a measure for ex post utility
 - ▶ Use collaborative filtering to predict playtime for games not owned
 - ▶ $u_i = U\left(\sum_{j \in J} h_{ij} \mathbb{1}_{ij}\right) - \sum_{j \in J} p_j \mathbb{1}_{ij} \rightarrow$ under full ($\kappa = 1$) information, consumers choose games in the p_j/h_{ij} order
 - ▶ Measure how well-informed consumers are (average $\hat{\kappa} = 0.2$) and solve for optimal bundle under full information or under recommendations that provide \hat{h}_{ij}
- ▶ Key findings:
 - ▶ Full information raises CS by 123% of status quo expenditure
 - ▶ 60% of gains from discovering missed opportunities
 - ▶ Sophisticated predictions achieve $\sim 40\%$ of potential gains

How Do Consumers Choose Wrong?

- ▶ Three possible channels
 1. Costly search (Stigler 1961; Weitzman 1979, Hortaçsu & Syverson 2004, Ursu 2018)
 2. Experience goods & learning (Nelson 1970; Erdem & Keane 1996; Akerberg 2003)
 3. Inattention/mistakes (Gabaix 2019; Chetty et al. 2009)
- ▶ Different implications for policy
 - ▶ Search → better recommendations, platform design
 - ▶ Experience → trials, demos, return policies, subscription models
 - ▶ Inattention → nudges, simplification, salient information display
- ▶ This paper: measures the *total* welfare cost across all three
 - ▶ The aim is to quantify how much is at stake
 - ▶ What is the main source of information friction here? Can we decompose?

Substitution Across Games

- ▶ Collaborative filtering predicts playtime from latent factors: $\hat{h}_{ij} = f(m_j^\top n_i)$
 - ▶ Similar games have similar latent vectors \rightarrow similar predicted playtime
 - ▶ Consider two games that are perfect substitutes and have high \hat{h}_{ij}
 - ▶ $U\left(\sum_{j \in J} h_{ij} \mathbb{1}_{ij}\right)$ implies consumer will purchase both if low p_j/h_{ij}
 - ▶ In practice, only need one
- \rightarrow The model overstates the incremental value of not purchased games
- ▶ Opposite prediction under variety seeking
 - ▶ Suggestion: extension with utility over product-type-hours (e.g. genre, $U = f(H_{\text{RPG}}, H_{\text{FPS}}, H_{\text{puzzle}}, \dots)$)

Playtime as Utility Proxy

- ▶ Central assumption: hours played \approx utility received
 - ▶ Rooted in the literature: e.g., Crawford & Yurukoglu (2012)
 - ▶ Games with low hours/\$ are “regretted”
 - ▶ Correlated with “not recommended” reviews (Table 3)
- ▶ Recent evidence that engagement can deviate from utility
 - ▶ Social media (Allcott et al. 2022; Beknazar-Yuzbashev et al. 2024; Brynjolfsson et al. 2025)
 - ▶ In games: WTP for new experience, short intense games, habit-forming mechanics
- ▶ Suggestion: other measures of regret?
 - ▶ From texts of Steam reviews
 - ▶ Survey gamers directly

The 2-Hour Return Window

- ▶ Steam allows returns within 2 weeks if played <120 minutes
 - ▶ Paper treats games played <23 min as returned (6.5% of purchases)
 - ▶ Robustness: results stable for thresholds 0–120 min
- What is the scope for mistakes beyond the return window?
- ▶ Are results driven by games that take >2 hours to evaluate properly?
 - ▶ Story games: reveal quality late
 - ▶ Multiplayer: network effects, need friends online
 - ▶ Learning curves: complex games need time to master
- ▶ Suggestion: heterogeneity analysis by game “reveal time”
 - ▶ Are high-regret games those where quality is revealed late?

Other Comments

- ▶ Selection into the sample
 - ▶ Users who own ≥ 20 of top 100 games are heavy users
 - ▶ May have better-than-average information already
 - ▶ Expect larger effects for casual/new users?
 - ▶ But: Also may value trying out new games/stronger variety seeking
 - ▶ Suggestion: Heterogeneity by the overall playtime?

- ▶ Role of sales/promotions
 - ▶ Analysis uses average prices, but Steam has frequent sales
 - ▶ Suggestion: Heterogeneity by games with/without sales promotions?

- ▶ Supply-side response
 - ▶ If consumers had full information, which games would lose the most? (Figure 5)
 - ▶ How much is at stake? How might entry/prices change?