

## Voluntary Transparency in Display Advertising: Signaling, Adoption, and Market Failure [Working Title]

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**Motivation:** To combat the opacity of the programmatic supply chain, industry bodies have introduced voluntary transparency standards like *ads.txt* and *sellers.json*. These tools are intended to allow honest publishers to declare their authorized sellers, theoretically reducing the purchase of unauthorized or counterfeit inventory.

Despite these efforts, adoption remains uneven, and “dark pools” of laundered inventory persist even among publishers who have adopted the standards. This suggests a market failure: the signal sent by *ads.txt* may be too cheap to produce, allowing bad actors to mimic good ones (a “pooling equilibrium”). If transparency tools are costless to adopt and lack enforcement, they fail to solve the “Lemons problem”, leaving advertisers unable to distinguish high-quality inventory from fraud.

**Goal:** The thesis should conduct a critical literature review on voluntary transparency frameworks. It must move beyond adoption statistics to evaluate *why* these signals often fail to clear the market, using economic theories of signaling and information asymmetry to explain the persistence of fraud in a “transparent” ecosystem.

### Guiding Questions:

- *Mechanism:* How are standards like *ads.txt* and *SupplyChain Object* designed to function as signals of quality?
- *Empirical Reality:* What does the data show regarding adoption rates and the continued trading of unauthorized impressions (dark pools)?
- *Economic Failure:* Why has widespread adoption not eliminated fraud? Is the *ads.txt* signal too “cheap” (in terms of Signaling Theory) to separate honest publishers from fraudsters?
- *Policy Implication:* Is self-regulation sufficient to correct this information asymmetry, or is the market structurally destined to be a “Market for Lemons” without centralized enforcement?

### Starting Literature:

- Ad-tech specific:
  - Bashir, M. A., Arshad, S., Kirda, E., Robertson, W., & Wilson, C. (2019, October). A Longitudinal Analysis of the *ads.txt* Standard. In *Proceedings of the Internet Measurement Conference* (pp. 294-307).
  - Papadogiannakis, E., Kourtellis, N., Papadopoulos, P., & Markatos, E. (2025, April). Welcome to the Dark Side: Analyzing the Revenue Flows of Fraud in the Online Ad Ecosystem. In *Proceedings of the ACM on Web Conference 2025* (pp. 1522-1535).
  - Vekaria, Y., Nithyanand, R., & Shafiq, Z. (2024). Turning the tide on dark pools? towards multi-stakeholder vulnerability notifications in the ad-tech supply chain. *arXiv preprint arXiv:2406.06958*.
- Theoretical foundations:
  - Akerlof, G. A. (1978). The market for “lemons”: Quality uncertainty and the market mechanism. In *Uncertainty in economics* (pp. 235-251). Academic Press.
  - Spence, M. (1978). Job market signaling. In *Uncertainty in Economics* (pp. 281-306). Academic Press. (*Hint:* focus on the signaling cost)