Trade with Incomplete information: "The Lemons Problem"

Based on Akerlof (1970)

Players: Buyer, Seller, Nature

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Play: [Board – Sketch tree]

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2. Seller proposes a *tioli* price (could have buyer propose, or some bargaining process).

Technical note: an equilibrium must specify what price each type of Seller would propose, i.e., need to specify a function $p^*(x)$.

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Technical note: An equilibrium profile must specify a complete strategy for Buyer, i.e., a function $B^*(p) \in \{0,1\}$. It is wlog to assume that such a strategy will be "Buy if $p \leq \overline{p}$" for some maximum price $\overline{p}$.

Payoffs:

Buyer values the car at $\frac{3}{2}x$;

thus gets payoff $u_B = \begin{cases} \frac{3}{2}x - p \text{ if buy} \\ 0 \text{ otherwise} \end{cases}$ (we assume separable utility here)

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Efficient outcome: Buyer must buy the car.

Any price p s.t. $x \leq p \leq \frac{3}{2}x$ will yield trade and will be a Pareto-improvement over no trade.

Equilibrium outcome:
Buyer's equilibrium strategy must set $\bar{p} = \frac{3}{2}E(x|p)$. I.e., buy if the price is below $\frac{3}{2}$ of buyer's expectation over the quality of the car – where that expectation will depend on the price offered!

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What does this mean? For any price p offered, the Buyer values the product at $\frac{3}{4}p$. Thus, for any price offered, the Buyer will reject! Thus, the only equilibrium must involve no trade, and thus be inefficient!

Any profile $\{p(x) = \text{whatever;reject always}\}$ (paired with certain beliefs ... see next week) is an equilibrium.

We can allow $\{p(x) = \mathit{whatever}, p(0) = 0; \text{ accept only if } p = 0\}$, but who cares?