Informal Bids

i: auction; j: bidder

Decision: A/R

Start → Bidders sign NDA, get access to limited info $(\mathcal{E}^I_{i,j})$ → Informal bids $b^I_{i,j}$ → Formal bids $(\mathcal{E}^F_{i,j})$ → Deal announcement

$b^I_{i,1} = 18$

20 (18-22) →

22 → $j=3$.

Threshold $[18, \min\{20, 22\}]$.

(1). (simplest)

$A_i : [0, 1]$.

$A_i = \beta^I X_i + \gamma^I_i$. ("Probit") → target characteristics moments of bids: mean, var, max (auction level)

Alternative:

$b^{I*}_i = \beta^I X_i + \gamma^I_i \Rightarrow \gamma^I_i \in [18 - \beta^I X_i, 20 - \beta^I X_i]$.

$[18, 26]$

ML or MCMC.

MCMC: (1) start w/ β^I_0.

(2) simulate $\gamma^I_{i,0}$ s.t. satisfied; calculate $b^I_{i,0}$

(3) Estimate $\hat{\beta}^I$ given calculated $b^{I*}_{i,0}$.

(4) simulate β^I_1

(5) Repeat N times.

(2). (highest informal bids do not always make it to formal stage).

$b^I_{i,1} = 18$ →

$= 20$

$= 22$ →

bidder type: S or F.

"seriousness": # bids, variance of bid...

$b^{I*}_{i,j} = (b^{I*}_i) + \gamma^I Y_{i,j} + \Omega_{i,j}$.

$b^{I*}_{i,j} = \beta^I X_i + \gamma^I Y_{i,j} + \gamma^I_i + \Omega_{i,j}$. (individual level)

(3). (target's A/R decisions depend on its inference about bidders' valuations).

$$b_i^{I*} = \rho^I X_c + \gamma_c^I$$

target chars.

moments of bidder valuations

$$v_{i,j} = \delta X_c + \zeta_{i,j}$$

$$b_{i,j}^I \rightarrow \left[v_{i,j} \in [\underline{v}(b_{i,j}^I), \bar{v}(b_{i,j}^I)] \right].$$

given X_c, I can calculate moments of bidder vals. cond'l on bids.

MCMC: (1) Assume δ_0, β_0^I.

(2) Simulate $\gamma_{c,0}^I$, $\zeta_{i,j,0}$.

(3) Given δ_0, calculate moments of $v_{i,j}$.

(4) Estimate $\hat{\beta}^I$ and $\hat{\delta}$ using moments of $v_{i,j}$ as controls.

(5) Draw β_1^I, δ_1

(6) Repeat.

Simulate N auctions.

a. Each auction: 3 bidders.

b. Bidders have valuations at beg. stage

$v_{i,j} = 1.3 + N(0, 0.2^2)$. Case (1).

c. Bidders submit their valuations.

d. Target sets threshold $b_i^{I^*} = \text{const} = 1.4$

[This will mean that some auctions are never completed ⇒ drop incomplete auctions for now].

e. Goal: to estimate $b_i^{I^*}$ when we only observe A/R decisions.

f (More realistic). Case (2).

b! Bidders are of 2 types (S & F).

$v_{i,j} = 1.3 + N(0, 0.2^2)$ (of course these could be Bidder-specific).

d! T sets threshold of 1.45 for S, 1.35 for F.

e! estimate b^{I^*} that are type-specific.

I have ~20 auctions with hand-collected data.

Matvos and Seru (2014, RFS).

Conglomerates.