Hedonic Housing Model
Lecture 20

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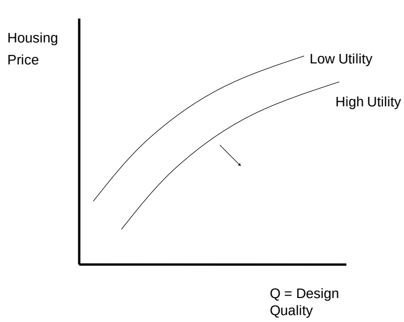
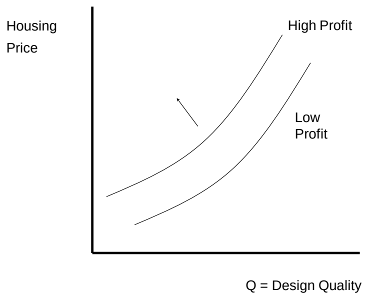
Chapter 10
The Hedonic Housing Model

- Implicit price of multi-faceted good
  - Housing, wages, cars
  - Price is a function of multiple characteristics:
    - $P_H(h_1, h_2, \dots, h_n)$
  - Marginal Price is simply the partial derivative:
    - $P_j = \partial P_H(h_1, h_2, \dots, h_n) / \partial h_j$
- Consumers get utility from numeraire good and various housing characteristics
  - Utility function: $U(G, H(h_1, h_2, \dots, h_n))$
  - Budget constraint: $W = G + P_H(h_1, h_2, \dots, h_n)$
- Producers vary mix of housing characteristics

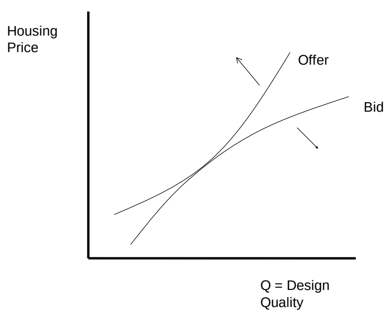
Household Bid Curves



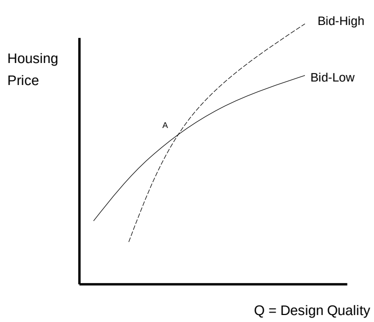
Producer Offer Curves



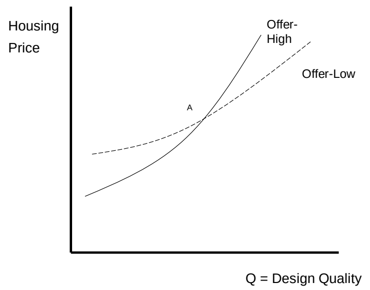
Hedonic Equilibrium



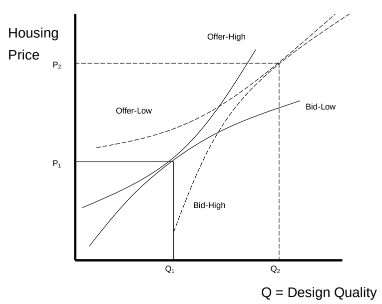
Heterogeneous Consumers: High versus Low Demand



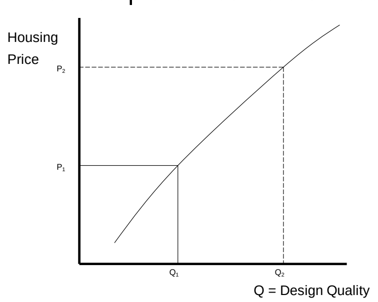
Heterogeneous Producers: High versus Low Cost



Hedonic Equilibrium



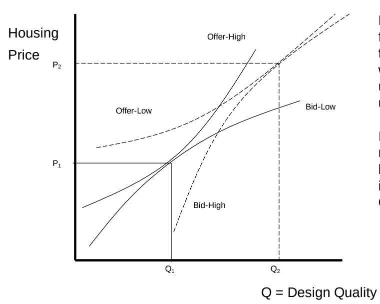
Hedonic Price Function – Set of Tangencies for Multiple Consumers & Producers



Implications of the Model

- $P = P_H(h_1, h_2, \ldots, h_n)$ "Hedonic Price Function"
- $P_j = \partial P_H(h_1, h_2, \ldots, h_n)/\partial h_j$ Marginal price of good of good j
- Marginal Price = Marginal willingness to pay by consumer
- Marginal Price = Marginal cost to producer
- Matching of high-demand consumers to low-cost firms

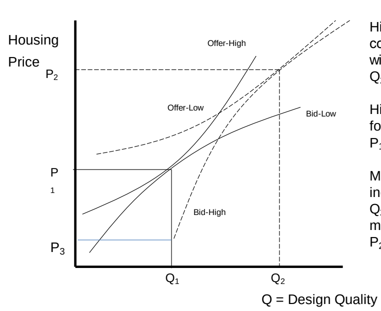
Marginal Willingness to Pay for an Increase from Q_1 to Q_2



Hedonic price function implies that "consumers" will pay P_1 for Q_1 units and P_2 for Q_2 units.

Is $P_2 – P_1$ a measure of the benefit of increasing Q from Q_1 to Q_2? NO!

Marginal Willingness to Pay by High-Demand Consumer

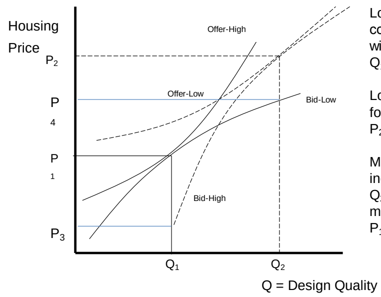


High-demand consumer's marginal willingness to pay for Q_2 units is P_2.

High-demand's MWP for Q_1 units is NOT P_1, it is P_3.

Marginal benefit of increase from Q_1 to Q_2 is P_2- P_3, which is much greater than P_2- P_1.

Marginal Willingness to Pay by Low-Demand Consumer

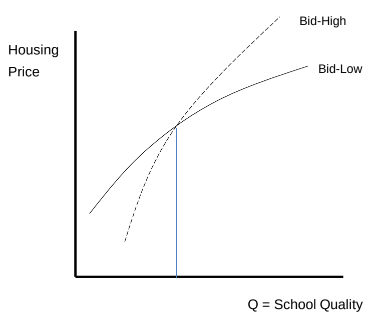


Low-demand consumer's marginal willingness to pay for Q_1 units is P_1.

Low-demand's MWP for Q_2 units is NOT P_2, it is P_4.

Marginal benefit of increase from Q_1 to Q_2 is P_4- P_1, which is much less than P_2- P_1.

Exogenous Supply – Higher Bid Wins



Exogenous Supply and Multiple Household Types – Hedonic Price Function is the Upper Envelope of Individual Curves