

A Brief Introduction to Elliot Anenberg, and Edward Kung (2016) “Interest Rate and Housing Market Dynamics in a Housing Search Model”

1.1 What is the question?

討論利率是否會影響房市、當利率變動時房地產的賣價會如何變動以及當利率有負向衝擊時對房地產擁有者和建商的影響。

1.2 Why should we care about it?

房價的變動對總體經濟帶來顯著的影響，會影響消費決策、居民的投資與金融的穩定。因此探討什麼樣的經濟力量在影響房地產市場是一項重要的議題。而近年來越來越多的文獻透過實證研究討論利率在房地產市場所扮演的角色，因為一方面有許多的購屋者透過固定利率抵押貸款（fixed-rate loans）籌措資金，另一方面可以透過利率與房市的關係去了解貨幣政策的傳遞機制。但一部分研究結果指出利率在房產市場扮演重要的角色，另一部分則持反面意見。

Real World Example:

瑞普萊坊（REPro Knight Frank）市場研究部近期分析，台灣 2016 第 3 季房價不跌不代表有需求，反而凸顯市場停滯的危機。房市從前年囤房稅實行後，市場投資意願下跌，房價下跌，去年第 3 季房地合一稅定案後，出現大量避稅交易，價格下跌幅度增大，因此年跌幅居全球第 2。近期台灣房市，買方持觀望心態，加上房貸利率低，賣方降價意願不高，市場交易量低，房價的調節機制出現問題，市場出現流動性問題。

1.3 What is your answer?

利率對房地產市場有相當大的影響，利率變動時房地產的售價會受到巨大的影響。預測利率上升 100 個基點（basis points）時，對一般住宅的願付價格會下跌 13%，利率對願付價格的影響比賣價的影響高 4%。

賣家的異質性（Heterogeneous）使得次市場（Submarket）崛起，賣家偏好訂低價以較短的時間出售房地產，或賣高價但願意花較長的時間等待買家。另外部分營建商會買進已貶值的房子，根據現在及未來的利率去找出最佳的重建時點。但在房子建造完成後面臨與房地產賣家相似的問題。

當利率有負向衝擊時，賣家並不會輕易變動賣價。但新的營建活動對利率的變動相當敏感，因為營建商的預期利潤和銷售風險深受利率影響。

1.4 How did you get there?

使用動態一般均衡模型，推估利率對於房價的影響形式。進而透過 Estimated Housing Search Model 與 San Diego 房產市場的數據討論房地產市場與房屋抵押貸款 (mortgage) 的關係，並進行模型參數校調 (calibration)。

Notations Used

Notations	Meanings
$h = 1, 2$	Types of housing units (new and old)
$p = p_1, \dots, p_L$	Possible price levels
P_c	The price of land
$\theta = b/s$	The ratio of buyers to sellers in the submarket
$p_b(\theta)$	The probability that a buyer meets a seller
$p_s(\theta)$	The probability that a seller meets a buyer
$V^b(x)$	The value function of a buyer when the aggregate state is x
$V^o(x)$	The value function of an owner when the aggregate state is x
$V^s(x)$	The value function of a seller when the aggregate state is x
$V^1(C, x)$	The value function of a builder sitting on an undeveloped plot of land
$V^2(C, x)$	The value function of a builder in development
$V^3(C, x)$	The value function of a builder who is listing her property for sale.
$W^s(l, r, x, p)$	The value function for a seller currently listing at price p . W
k	The present value of the buyer's utility if he does not enter the housing market
$G_h(\varepsilon)$	After the buyer meets a seller, he discovers an idiosyncratic preference shock ε for that particular house
$r = r_1, \dots, r_N$	The interest rate
$u(y - \text{rent})$	The flow utility from consumption, where y is per-period income and rent is the rental rate

$U(p_c - l)$	The utility function used to evaluate net wealth at the time of a move.
$k(p, h, x)$	the probability that the seller meets a willing buyer in submarket (p, h)
l	The loan amount,
c_s	A per-period search cost
C	Heterogeneous construction costs C
E_c	the builders' opportunity cost
η	An additively separable, idiosyncratic cost to begin development each period
F_η	The cdf of η
β	The discount factor
λ	A moving shock
α	The probability of depreciation conditional on moving shock
$\phi = 1/6$	The average construction time from start to completion is 6 months
ρ	In subsequent periods, the seller can only change her list price with probability ρ . Calibrated equals to 0.37.
L	Builders
H	An estimate of the size of the housing stock in SanDiego from the 2000 census