Supply and Demand on the Housing Market

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Markets

A *market* is a group of buyers and sellers with the potential to trade.
Markets

• Defining the Good or Service
• Buyers and Sellers
• Geography of the Market
Supply, Demand, and Market Definition

The supply and demand model is designed to explain how prices are determined.
Demand

• The Law of Demand
• The Demand Schedule and the Demand Curve
• Changes in Quantity Demanded
• Changes in Demand
Demand

An *individual’s quantity demanded* of any good is the total amount that individual would choose to buy at a particular price.
Demand

The *market quantity demanded* of any good is the total amount that all buyers in the market would decide to buy at a particular price.
The law of demand states that when the price of a good rises and everything else remains the same, the quantity of the good demanded will fall.
**Demand Schedule:** a list showing quantities of a good that consumers would choose to purchase at different prices, with all other variables held constant.

<table>
<thead>
<tr>
<th>Price (per new house)</th>
<th>Quantity Demanded (houses per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$80,000</td>
<td>10</td>
</tr>
<tr>
<td>100,000</td>
<td>8</td>
</tr>
<tr>
<td>120,000</td>
<td>6</td>
</tr>
<tr>
<td>140,000</td>
<td>4</td>
</tr>
<tr>
<td>160,000</td>
<td>2</td>
</tr>
</tbody>
</table>
Demand Curve: shows the relationship between the price of a good and the quantity demanded, holding constant all other variables that affect demand.

Each point on the curve shows the total quantity buyers would choose to buy at a specific price.
The Demand Curve

<table>
<thead>
<tr>
<th>Price per House</th>
<th>Number of Bottles</th>
</tr>
</thead>
<tbody>
<tr>
<td>$140th</td>
<td>4</td>
</tr>
<tr>
<td>$100th</td>
<td>8</td>
</tr>
</tbody>
</table>

When the price is $140th per house, 4 houses are demanded (point A).

At $100th per house, 8 houses are demanded (point B).
Changes in Quantity Demanded

**Change in quantity demanded:** change in a good’s price that causes a move along the demand curve

- A rise in price causes a **leftward** movement along the demand curve - a **decrease** in quantity demanded.

- A fall in price causes a **rightward** movement along the demand curve - an **increase** in quantity demanded.
Changes in Demand

*Change in demand:* change in any determinant of demand - *except* for the good’s price - that causes the demand curve to shift

- Buyers purchase more at any price: demand curve shifts rightward - *increase in demand*
- Buyers purchase less at any price: demand curve shifts leftward - *decrease in demand*
Demand vs. Quantity Demanded

\[ \text{Change in Quantity Demanded} = \text{movement along the demand curve} \]

\[ \text{Change in Demand} = \text{movement of the entire demand curve} \]
Changes in Demand

An increase in income causes the demand for housing to shift from \( D_1 \) to \( D_2 \). At each price, more houses are demanded after the shift.

<table>
<thead>
<tr>
<th>Price (per house)</th>
<th>Original Quantity Demanded (houses per year)</th>
<th>New Quantity Demanded After Increases in Income (houses per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$80,000</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>100,000</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>120,000</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>140,000</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>150,000</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>
Demand

A substitute is a good that can be used in place of some other good and that fulfills more or less the same purpose. When the price of a substitute rises, the demand for a good will increase, shifting the demand curve to the right.
A complement is a good that is used together with some other good. A rise in the price of a complement decreases the demand for a good, shifting the demand curve to the left.
Changes in Demand and Quantity Demanded

(a) Price increase moves us leftward along demand curve. Price decrease moves us rightward along demand curve.

(b) Entire demand curve shifts leftward when:
- income
- wealth
- price of substitute
- price of complement
- population
- expected price
- tastes shift away from good

(c) Entire demand curve shifts rightward when:
- income
- wealth
- price of substitute
- price of complement
- population
- expected price
- tastes shift toward good
Supply

• Law of Supply
• The Supply Schedule and the Supply Curve
• Changes in Quantity Supplied
• Changes in Supply
Supply

A firm’s *production technology* is the set of methods it can use to turn inputs (resources and raw materials) into outputs (goods or services).
Supply

When a competitive firm comes to a market as a seller, it wants to make the highest possible profit. Firms can choose the level of output they want to produce, but face three constraints:

- Their production technology
- The prices they must pay for their inputs
- The market price of their output
Supply

A firm’s *quantity supplied* of any good (# of houses) is the amount it would choose to produce and sell at a particular price.
Market Quantity Supplied

Total amount of a good or service that all producers in a market would choose to produce and sell at a given price
Law of Supply

As the price of a good increases, the quantity supplied increases.
The Supply Schedule and the Supply Curve

*Supply schedule:* a list showing the quantities of a good or service that firms would choose to produce and sell at different prices, with all other variable held constant.

*Supply curve:* a graphical depiction of a supply schedule.
The Supply Schedule and the Supply Curve

<table>
<thead>
<tr>
<th>Price (per house)</th>
<th>Quantity Supplied (houses per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$80,000</td>
<td>2</td>
</tr>
<tr>
<td>100,000</td>
<td>4</td>
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<td>120,000</td>
<td>6</td>
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<td>140,000</td>
<td>8</td>
</tr>
<tr>
<td>160,000</td>
<td>10</td>
</tr>
</tbody>
</table>

When the price is $100,000 per house, 4 houses are supplied (point F).

At $140,000 per house, quantity supplied is 8 houses (point G).
Changes in Quantity Supplied and Supply

*Change in quantity supplied*: movement along a supply curve in response to a change in price

*Change in supply*: shift of a supply curve in response to some variable other than price
A decrease in labor costs causes the supply curve for houses to shift from $S_1$ to $S_2$. At each price, more houses are supplied after the shift.

<table>
<thead>
<tr>
<th>Price (per house)</th>
<th>Original Quantity Supplied (houses per year)</th>
<th>New Quantity Supplied After decrease in labor costs (houses per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$80,000$</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>$100,000$</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>$120,000$</td>
<td>6</td>
<td>8</td>
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<tr>
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<td>8</td>
<td>10</td>
</tr>
<tr>
<td>$160,000$</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>
Prices of Inputs

• A rise in price of an input causes a decrease in supply that shifts the supply curve to the *left*

• A fall in price of an input causes an increase in supply that shifts the supply curve to the *right*
**Profitability of Alternate Goods**

*Alternate goods:* other goods a firm could produce using some of the same kinds of inputs as the original good

*When an alternate good becomes more profitable to produce because*

- its price rises
- the cost of producing it falls
- the supply curve for the original good will shift leftward
Cost-saving technological advances increase the supply of a good, shifting the supply curve to the right.
Productive Capacity

• An *increase* in productive capacity shifts the supply curve *rightward*.  

• A *decrease* in productive capacity shifts the supply curve *leftward*. 
A rise in the expected price of a good will decrease the supply, shifting the supply curve leftward.
Expectation of Future Prices

Entire supply curve shifts rightward when:
- price of input
- profitability of alternate good
- productive capacity
- expected price
- technology improves

Price increase moves us rightward along supply curve
Price decrease moves us leftward along supply curve

Entire supply curve shifts leftward when:
- price of input
- profitability of alternate good
- productive capacity
- expected price

Quantity

(b) (c)
Putting Supply and Demand Together

*Equilibrium*

state of rest - a situation that, once achieved, will not change unless there is a change in something we have been assuming constant
Putting Supply and Demand Together

To find the equilibrium price and quantity in a competitive market, draw the supply and demand curves. The equilibrium is the point where the two curves intersect.
Putting Supply and Demand Together

<table>
<thead>
<tr>
<th>Number of houses</th>
<th>Price per house</th>
</tr>
</thead>
<tbody>
<tr>
<td>100th</td>
<td>$120th</td>
</tr>
</tbody>
</table>

Excess Demand
*Excess Demand*

At a given price, the excess of quantity demanded over quantity supplied
Putting Supply and Demand Together

**Excess Supply**

At a given price, the excess of quantity supplied over quantity demanded
Fig. 8, animated

Number of houses

Excess Supply at $140th

Excess Supply and Price Adjustment

Price per house

$140th

120th

Number of houses

4  6  8

D

S

K

L

E
A Shift of Supply and a New Equilibrium

The graph illustrates the shift in supply from $S_1$ to $S_2$, leading to a new equilibrium at $E'$.

- **Price per house**
  - $140th$
  - $120th$

- **Number of houses**
  - 4
  - 6

The shift in supply causes the equilibrium point to move from $E$ to $E'$, indicating a change in market conditions.
## Effect of Supply and Demand Shifts on Equilibrium Price and Quantity

<table>
<thead>
<tr>
<th>Increase in Demand (Rightward Shift)</th>
<th>No Change in Demand</th>
<th>Decrease in Demand (Leftward Shift)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in Supply (Rightward Shift)</td>
<td>$P\uparrow Q\uparrow$</td>
<td>$P\downarrow Q\uparrow$</td>
</tr>
<tr>
<td>No Change in Supply</td>
<td>$P\uparrow Q\uparrow$</td>
<td>No change in $P$ or $Q$</td>
</tr>
<tr>
<td>Decrease in Supply (Leftward Shift)</td>
<td>$P\uparrow Q\downarrow$</td>
<td>$P\uparrow Q\downarrow$</td>
</tr>
</tbody>
</table>
The Four Step Procedure

• *Key Step 1* - Characterize the Market
• *Key Step 2* - Identify the Goals and Constraints
• *Key Step 3* - Find the Equilibrium
• *Key Step 4* - What Happens When Things Change
Government Intervention in Markets

Price Ceiling
A government-imposed maximum price in a market
Price Ceiling – Rent Control

<table>
<thead>
<tr>
<th>Number of apartments to rent</th>
<th>Rent per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>$800</td>
</tr>
<tr>
<td>120</td>
<td>$600</td>
</tr>
<tr>
<td>140</td>
<td>$400</td>
</tr>
</tbody>
</table>
A price ceiling creates a shortage, increasing the time and trouble required to buy the good.

While the price decreases, the opportunity cost may rise.
Shilling, Ch.19: Real Estate Markets

- Characteristics
- Factors of supply and demand
- Competitive markets?
Market characteristics

- Local character
- Not a standardized commodity
- Fluctuations in value, # of transactions
- Poor adjustment of supply and demand
- Absence of stabilizing factors
- Private transactions
Factors of supply and demand

- Population: size, age/sex mix, family composition: D
- Employment, wage levels, income: D
- Personal savings, mortgage funds, interest rates: D
- Building quality: D
- Availability and costs of land, labor, construction materials, construction technology: S
- Rent levels & rent control: S&D
- Taxation, land control: S&D
Competitive real estate market?

- No government control
- Perfect information
- Large number of participants
- Homogeneous commodity
- Mobility

=> Not competitive locally, more competitive nationally
Shilling, Ch 2
Investment environment

- The decision making cycle: purchase, management & administration, sale
- Market participants
- Determinants of real estate inv. Spending
- Micro demand for real estate
The decision making cycle: purchase

- Objectives & constraints: type of property desired
- Ownership rights: limitations of the rights
- Contract: investor-broker-seller
- Financing: cash, mortgage, income
- Market analysis: supply and demand
- Property as investment: present value, risk, required rate of return
The decision making cycle:

- Management & administration
- Sale: asking price, market value, provide title evidence and deed, seller-broker relationship
Market participants

- Real estate brokers & syndicators: Lexxus
- Equity investors and lenders: financing
- Property developers: ICKM
- Other: appraisers, architects, community planners, real estate consultant, real estate attorneys (title search and examination): register of real estate (‘katastr nemovitosti’)