

Fifth Lecture

Supply and Demand

Demand, Supply, Equilibrium

- Why?
- Dominant / influential
- Quantitative curse

Market

- Attributes: commodity, space, time
- Dimensions: quantity/price

Method

- Desire/wants
- Actual=desired
- Supply/Demand as basic tools

Demand

- What is Demand?
- Quantity Demanded vs. Demand
- Determinants
- Function/variables/coefficients
- Comparative statics and “ceteris paribus”
- Why is demand downward sloping?
- Bentham’s utilitarianism
- Emotionmetrics
- Neoclassicists: From offence to defense
- From principles to mathematics
- Jevon’s calculus of pleasure and pain
- Substitution and income effects
- An actual demand curve? Psychology and notional time
- Shifts in Demand

Supply

- What is Supply?
- Quantity Supplied vs. Supply
- Determinants
- Why does Supply slope upward?
- Static time scales: momentary, short, long
- Shifts in Supply

Equilibrium

- Excess demand, excess supply
- Equilibrium: desired vs. rest
- Laws of supply and demand
- Markets as allocation mechanisms
- Profit signals, or the “Will of God”

Theory and Praxis

- Anybody seen Demand? Supply?
- Equilibrium? What equilibrium?
- Stability?
- The “Despite” Word

Why equilibrium?

- Is equilibrium stable? Does it exist?
- What can static analysis tell us about a dynamic world?
- Can mathematics deal with novelty?

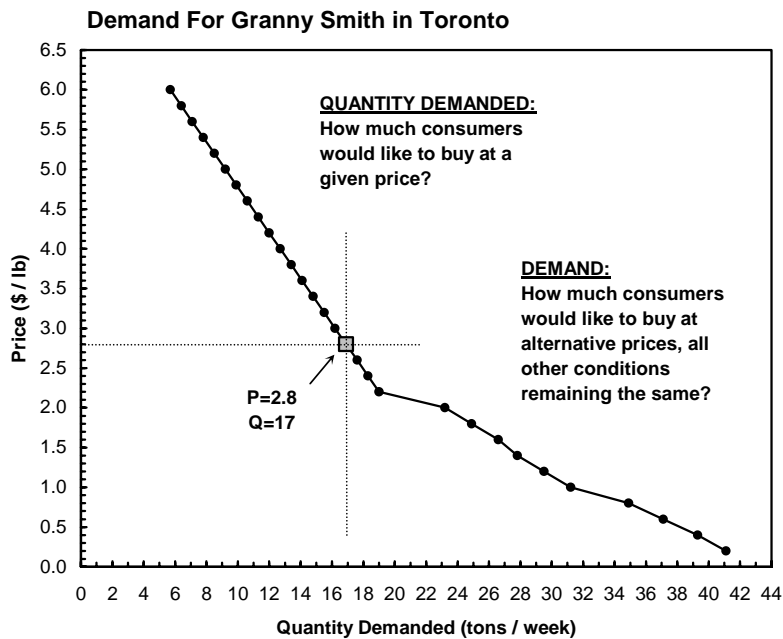
DEMAND

$$Q^d = F(P; Y, Y_{dis}, P_{sub}, P_{com}, \dots T)$$

$Q^d = F$ (price; average income, income distribution, price of substitutes, prices of complements ... tastes)

$$Q^d_{[tons/week]} = 500 / P_{[\$/lb]} + 0.1 \times Y_{[mn\$/week]} + 100 \times P_{pears[\$/lb]}$$

$$Q^d = F(P; Y, Y_{dis}, P_{sub}, P_{com}, \dots T)$$



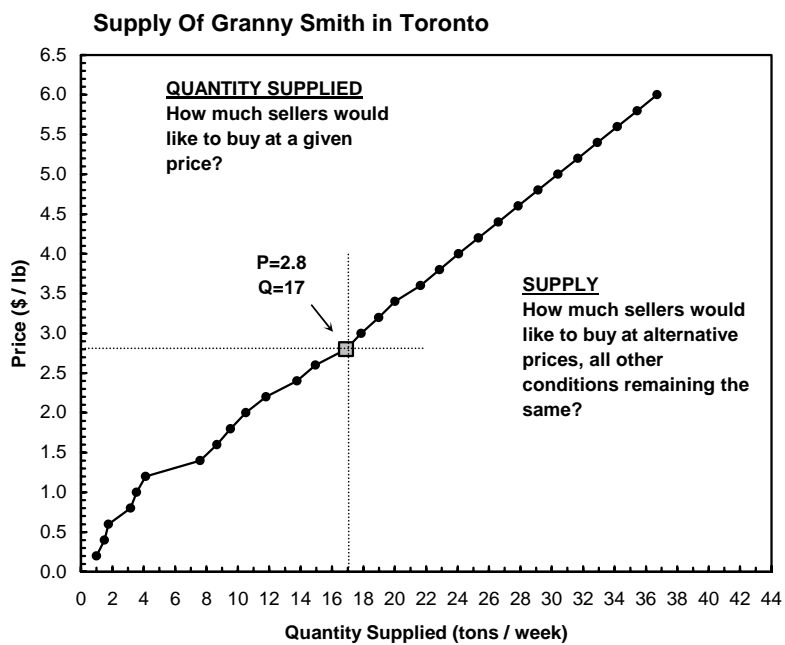
Horizontal Summation

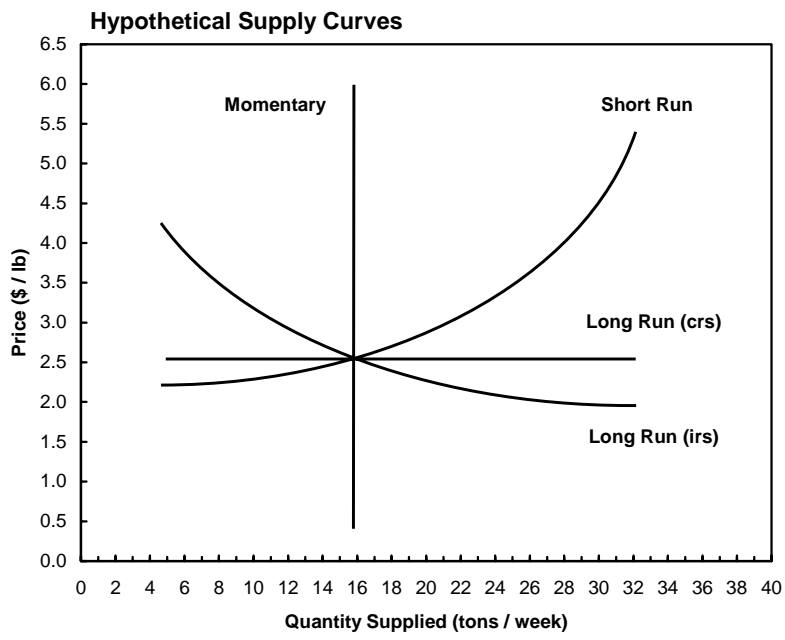
P (\$/lb)	Q Demanded (lb/week)					Q Supplied (lb/week)				
	A	B	C	D	Market	A	B	C	D	Market
0.2	6.0	3.1	12.0	20.0	41.1	0.0	0.0	0.0	1.0	1.0
0.4	5.8	3.0	11.0	19.5	39.3	0.0	0.0	0.0	1.5	1.5
0.6	5.6	2.5	10.0	19.0	37.1	0.0	0.0	0.0	1.8	1.8
0.8	5.4	2.0	9.0	18.5	34.9	1.0	0.0	0.0	2.2	3.2
1.0	5.2	0.0	8.0	18.0	31.2	1.0	0.0	0.0	2.5	3.5
1.2	5.0	0.0	7.0	17.5	29.5	1.2	0.0	0.0	2.9	4.1
1.4	4.8	0.0	6.0	17.0	27.8	1.3	3.0	0.0	3.3	7.6
1.6	4.6	0.0	5.5	16.5	26.6	1.5	3.5	0.0	3.7	8.7
1.8	4.4	0.0	4.5	16.0	24.9	1.5	4.0	0.0	4.0	9.5
2.0	4.2	0.0	3.5	15.5	23.2	1.6	4.5	0.0	4.4	10.5
2.2	4.0	0.0	0.0	15.0	19.0	2.0	5.0	0.0	4.8	11.8
2.4	3.8	0.0	0.0	14.5	18.3	2.1	5.5	1.0	5.2	13.8
2.6	3.6	0.0	0.0	14.0	17.6	2.2	6.0	1.2	5.5	14.9
2.8	3.4	0.0	0.0	13.5	16.9	3.0	6.5	1.3	6.1	16.9
3.0	3.2	0.0	0.0	13.0	16.2	3.1	7.0	1.5	6.3	17.9
3.2	3.0	0.0	0.0	12.5	15.5	3.2	7.5	1.6	6.7	19.0
3.4	2.8	0.0	0.0	12.0	14.8	3.2	8.0	1.8	7.0	20.0
3.6	2.6	0.0	0.0	11.5	14.1	3.8	8.5	1.9	7.4	21.6
3.8	2.4	0.0	0.0	11.0	13.4	4.0	9.0	2.1	7.8	22.9
4.0	2.2	0.0	0.0	10.5	12.7	4.2	9.5	2.2	8.2	24.1
4.2	2.0	0.0	0.0	10.0	12.0	4.4	10.0	2.4	8.5	25.3
4.4	1.8	0.0	0.0	9.5	11.3	4.7	10.5	2.5	8.9	26.6
4.6	1.6	0.0	0.0	9.0	10.6	4.9	11.0	2.7	9.3	27.9
4.8	1.4	0.0	0.0	8.5	9.9	5.1	11.5	2.8	9.7	29.1
5.0	1.2	0.0	0.0	8.0	9.2	5.4	12.0	3.0	10.0	30.4
5.2	1.0	0.0	0.0	7.5	8.5	5.6	12.5	3.1	10.4	31.7
5.4	0.8	0.0	0.0	7.0	7.8	5.9	13.0	3.3	10.8	32.9
5.6	0.6	0.0	0.0	6.5	7.1	6.1	13.5	3.4	11.2	34.2
5.8	0.4	0.0	0.0	6.0	6.4	6.3	14.0	3.6	11.5	35.4
6.0	0.2	0.0	0.0	5.5	5.7	6.6	14.5	3.7	11.9	36.7

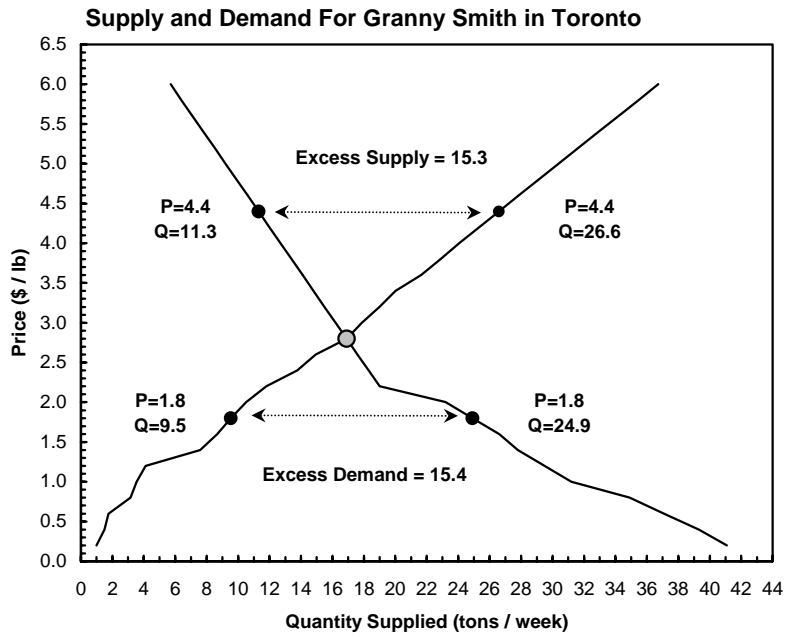
SUPPLY

$$Q^s = F(P; P_{input}, P_{sub}, N, Tech)$$

$Q^s = F$ (price; price of inputs, prices of alternative crops, number of producers, technology).

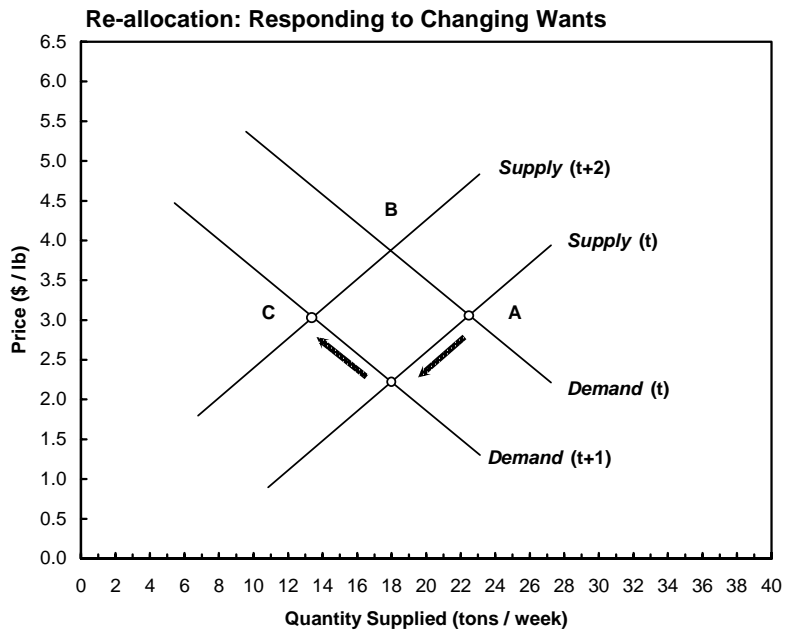
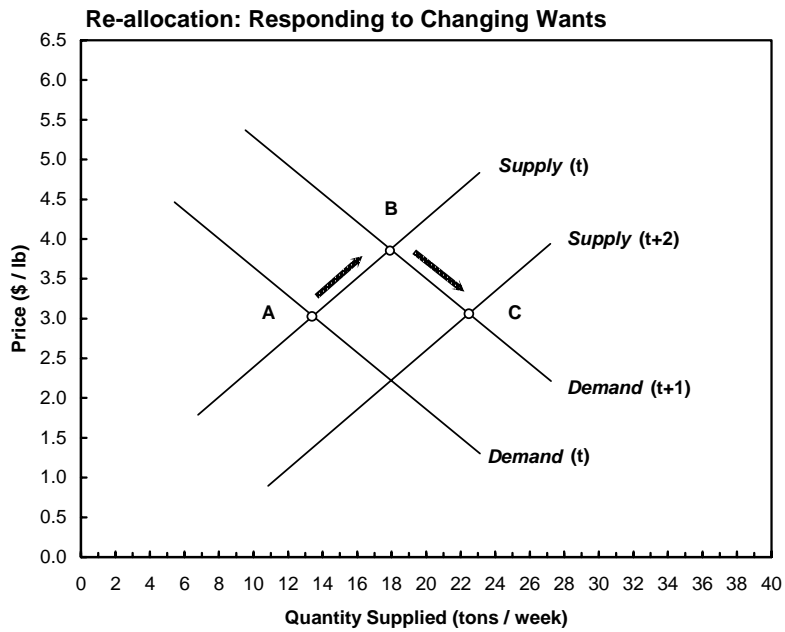






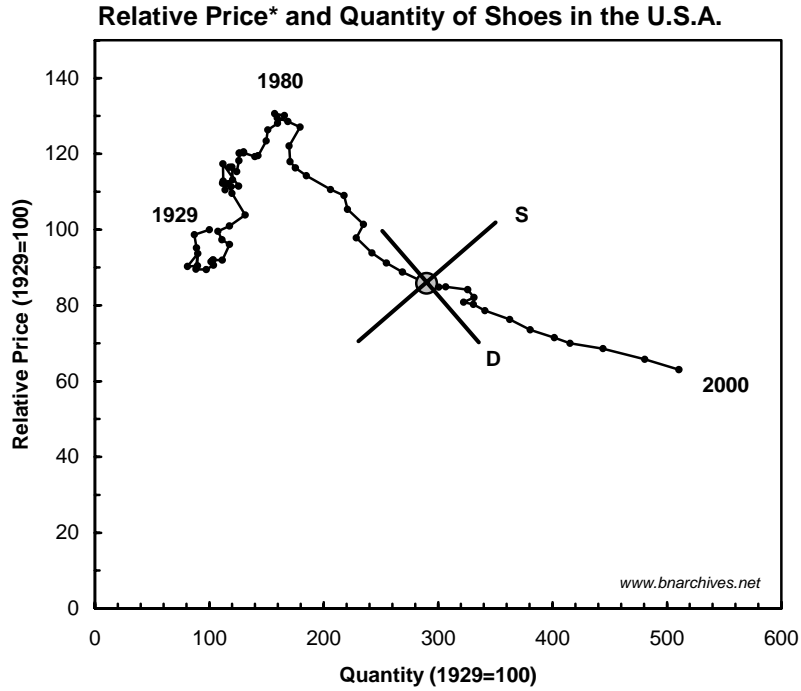
Law of supply and demand

Shift	Reason (example)	Price	Quantity
<i>Demand ↗</i>	Consumer taste	↑	↑
<i>Demand ↘</i>	Price of substitutes	↓	↓
<i>Supply ↘</i>	New technique	↓	↑
<i>Supply ↗</i>	Price of input	↑	↓

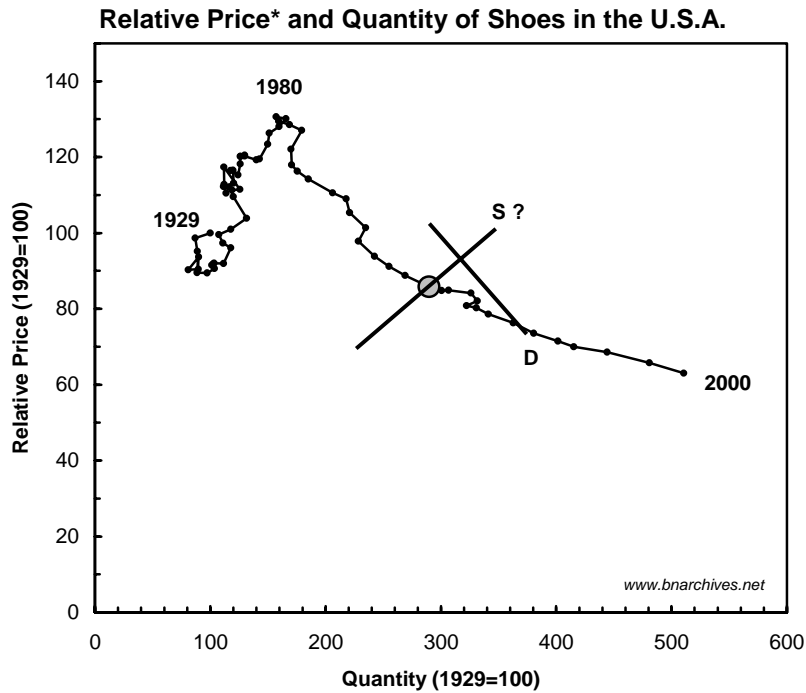




* 'Relative Price' is computed by dividing the price index for shoes by the price index for personal consumption expenditure. Quantity refers to a chain type index.
SOURCE: U.S. Bureau of Economic Analysis, NIPA table 7.20.



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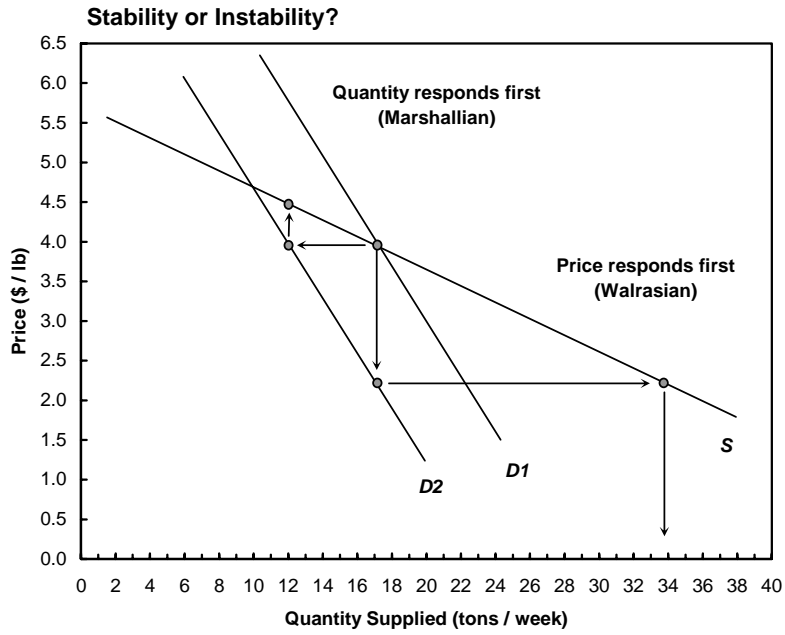
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“Because” and “Despite” in the Oil Market

- **“Oil prices rise as OPEC output cut nears”**
Robert DiNardo, John Kingston, Anita Nugraha, Margaret McQuaile. Platt's *Oilgram News*. New York: Mar 5, 2004. Vol. 82, Iss. 43; p. 1

- **“World: Commodities - Oil prices fall despite OPEC output cut”**
EIU Viewswire New York: Mar 31, 2004. p. n/a
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- **“Oil prices slide in anticipation of rise in output”**  
By Marie C. Sanchez. *Wall Street Journal* New York, N.Y.: Oct 30, 2000. p. 1
  
- **“Oil prices soar despite rise in output”**  
*Toronto Star* Toronto, Ont.: Sep 12, 2000. p. D3  
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- **“Oil prices fall on rising US stockpile”**
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- **“Crude markets unphased by OPEC; oil prices rise despite stock build”**
Octane Week Potomac: Jun 26, 2000. Vol. 15, Iss. 26, p. 1
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- **“OPEC agreement means oil prices likely to increase”**  
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- **“Oil prices fall despite OPEC agreement”**  
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- **“Oil prices soar on OPEC pact to cut output”**
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- **“Oil price falls despite cut in output”**
Solman, Paul. *Financial Times* London (UK): Jun 13, 1998. p. 12
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- **“Oil prices fall again in response to Bush’s hope for Mideast accord and signs of ample supplies”**  
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- **“Oil price rises despite ample supply”**  
*Calgary Herald* Calgary, Alta.: Dec 8, 1995. p. C13  
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- **“Oil prices rise amid reports Iraq jets attacked operations at Iran terminal”**
By Michael Siconolfi. *Wall Street Journal* New York, N.Y.: Aug 13, 1986. p. 1

- **“World oil prices fall despite Iran-Iraq war”**
Chronicle - Herald Halifax, N.S.: Jul 7, 1984. p. 13