

## Second Lecture

# The Trinity: Demand, Supply and Equilibrium

### Demand, Supply, Equilibrium

- Why?
- Dominant / influential
- The quantitative curse

### Market

- Attributes: commodity, space, time
- Focus: 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 does static analysis tell us anything about a dynamic world?
- Can mathematics deal with novelty?

**DEMAND**

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

$$Q^d = F(\text{price, average income, income distribution, price of substitutes, price complements } \dots \text{ tastes})$$

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

If  $P$  rises by \$2,  $Q^d$  will drop by 250 tons / week.

If  $P_{\text{pears}}$  rises by \$2  $Q^d$  will rise by 200 tons / week.

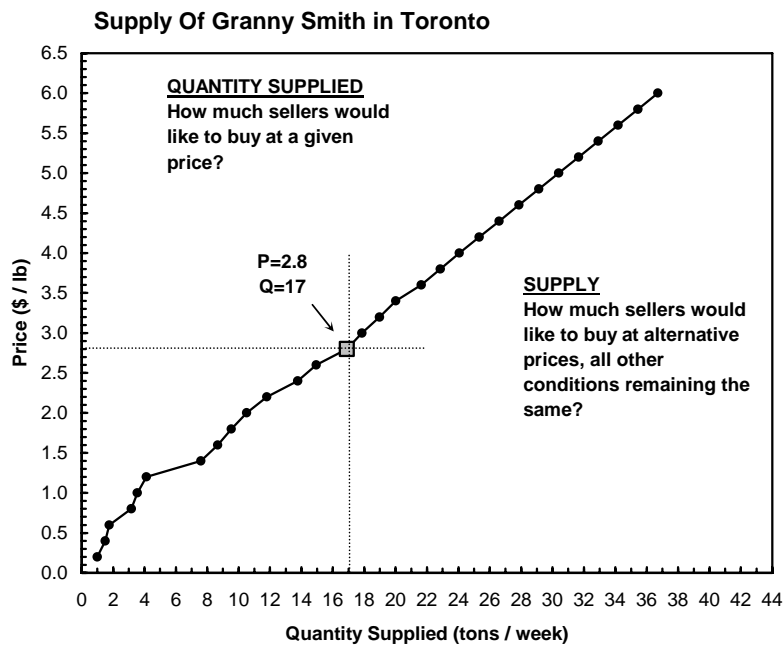
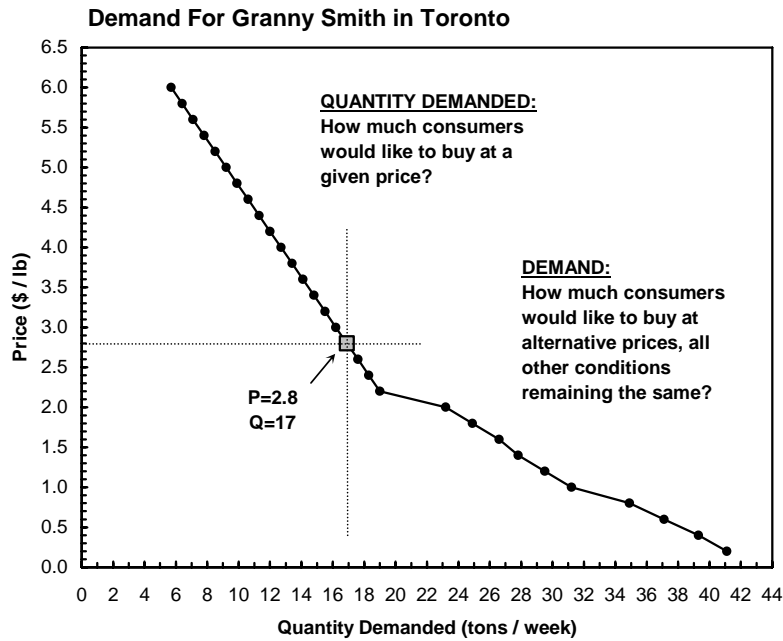
$$Q^d = F(P; Y, Y_{dis}, P_{sub}, P_{com}, \dots T)$$

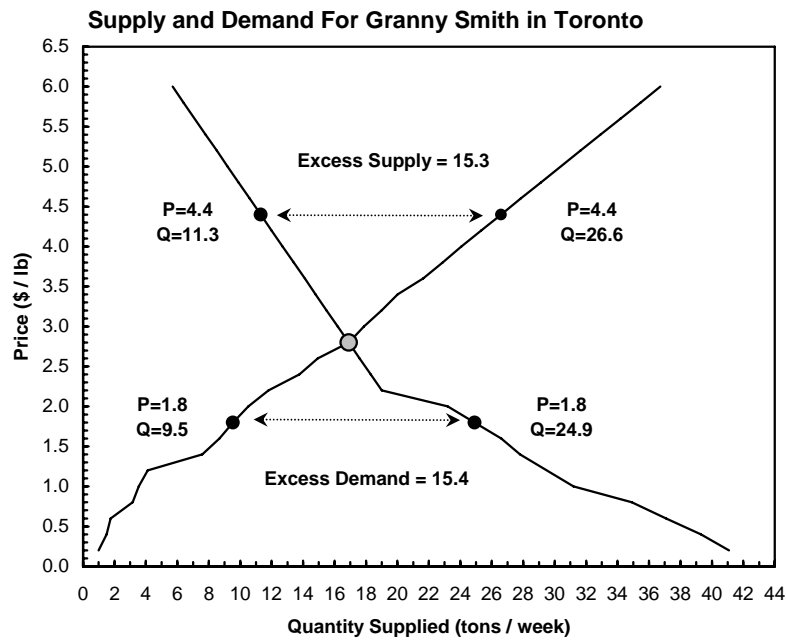
**SUPPLY**

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

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

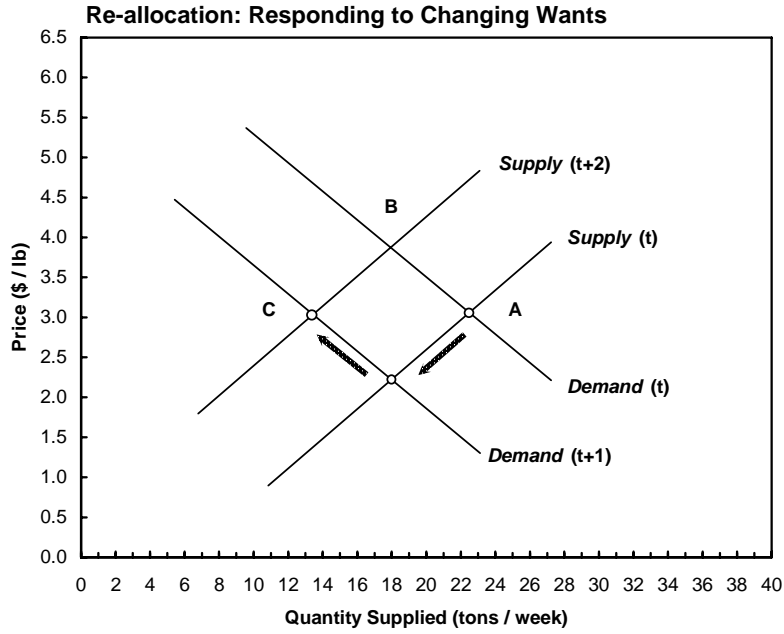
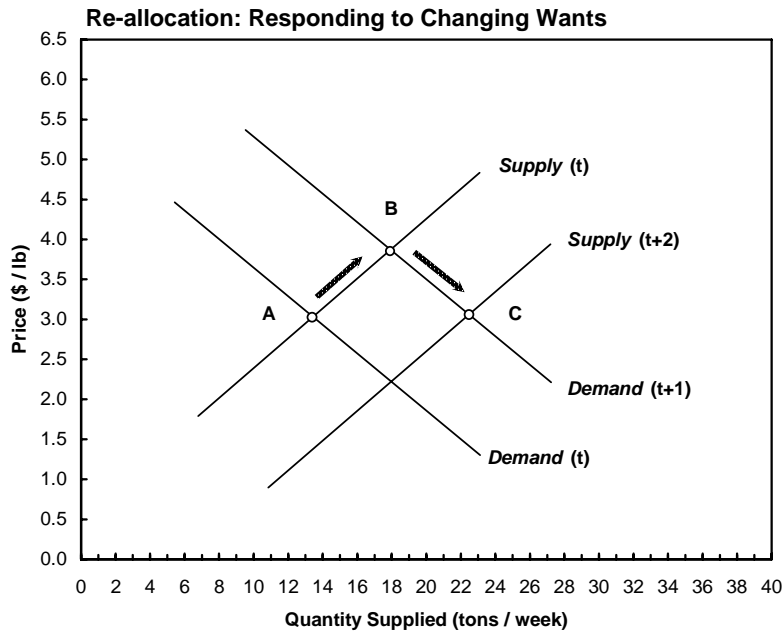
P (\$/lb)	Q Demanded (lb/week)					Q Supplied (lb/week)				
	A	B	C	D	Market	A	B	C	D	Market
0.2	6.0	3.1	12.0	20.0	41.1	0.0	0.0	0.0	1.0	1.0
0.4	5.8	3.0	11.0	19.5	39.3	0.0	0.0	0.0	1.5	1.5
0.6	5.6	2.5	10.0	19.0	37.1	0.0	0.0	0.0	1.8	1.8
0.8	5.4	2.0	9.0	18.5	34.9	1.0	0.0	0.0	2.2	3.2
1.0	5.2	0.0	8.0	18.0	31.2	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
<b>2.8</b>	<b>3.4</b>	<b>0.0</b>	<b>0.0</b>	<b>13.5</b>	<b>16.9</b>	<b>3.0</b>	<b>6.5</b>	<b>1.3</b>	<b>6.7</b>	<b>16.9</b>
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

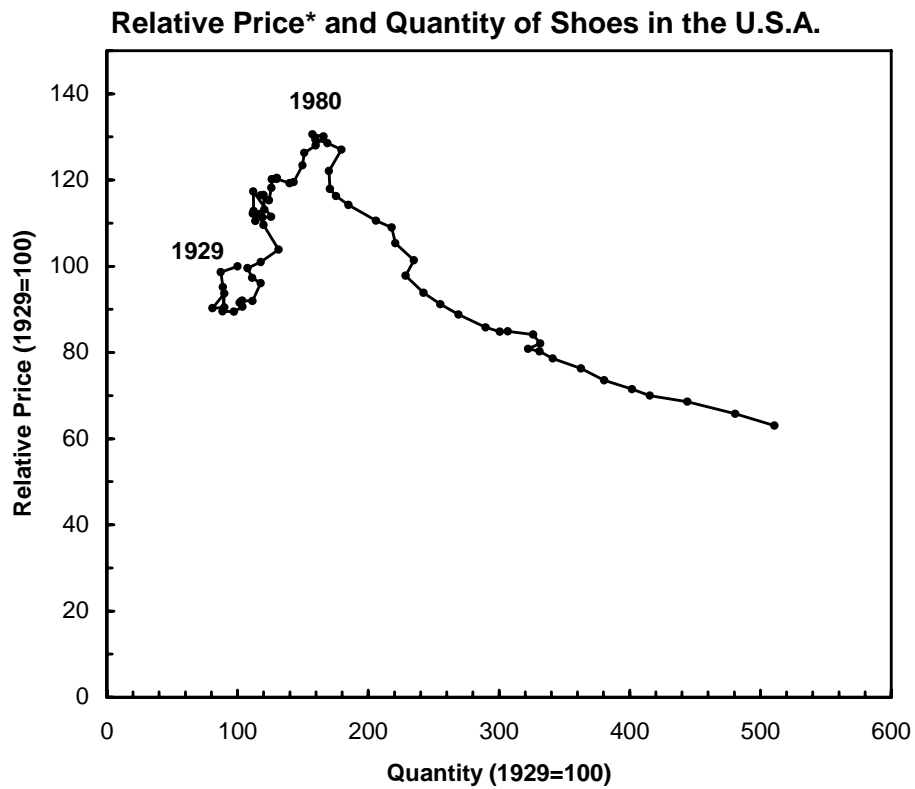




**Laws of Supply and Demand**

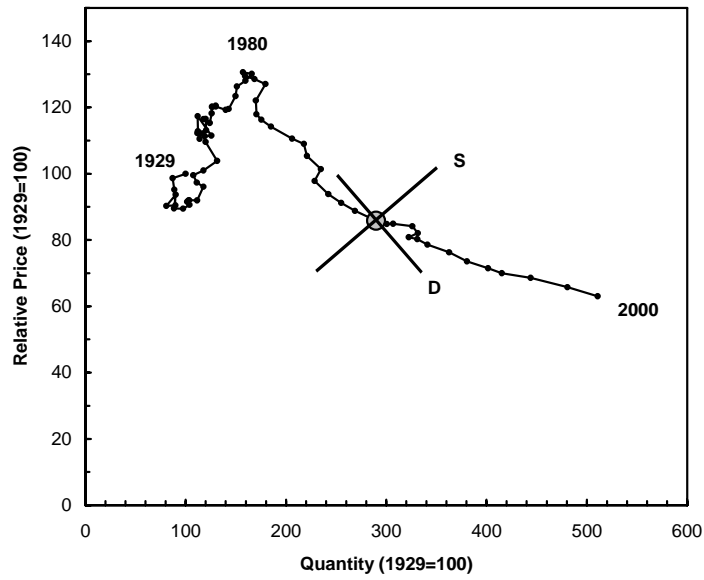
Shift	Reason (example)	Price	Quantity
<i>Demand</i> ↗	Consumer taste	↑	↑
<i>Demand</i> ↘	Price of substitutes	↓	↓
<i>Supply</i> ↗	New technique	↓	↑
<i>Supply</i> ↘	Price of input	↑	↓





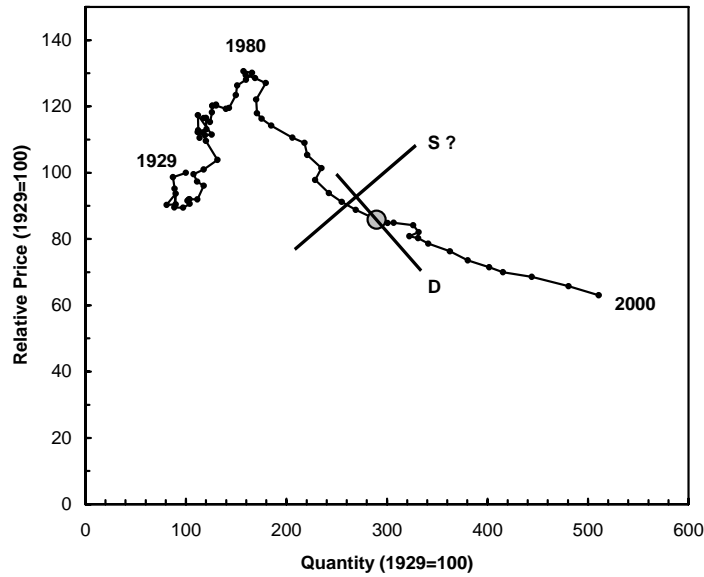
\* 'Relative Price' is computed by dividing the price index for shoes by the price index for personal consumption expenditures. Quantity refers to a chain type index.  
SOURCE: U.S. Bureau of Economic Analysis, NIPA table 7.20.

Relative Price\* and Quantity of Shoes in the U.S.A.



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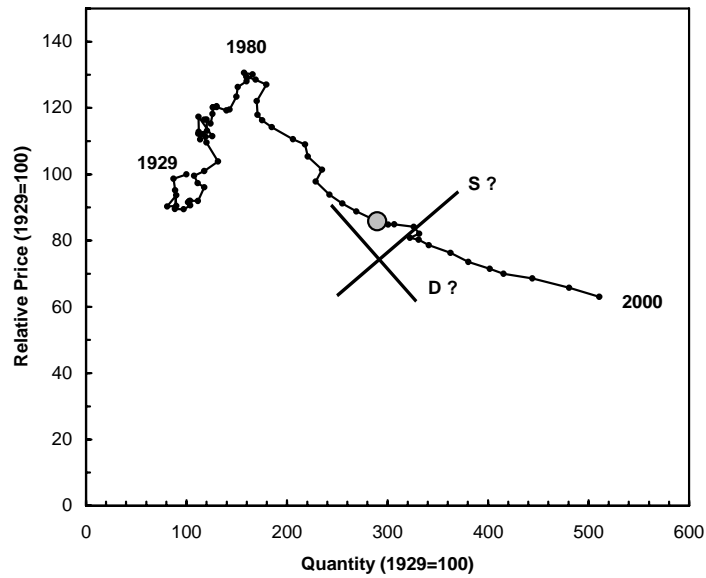
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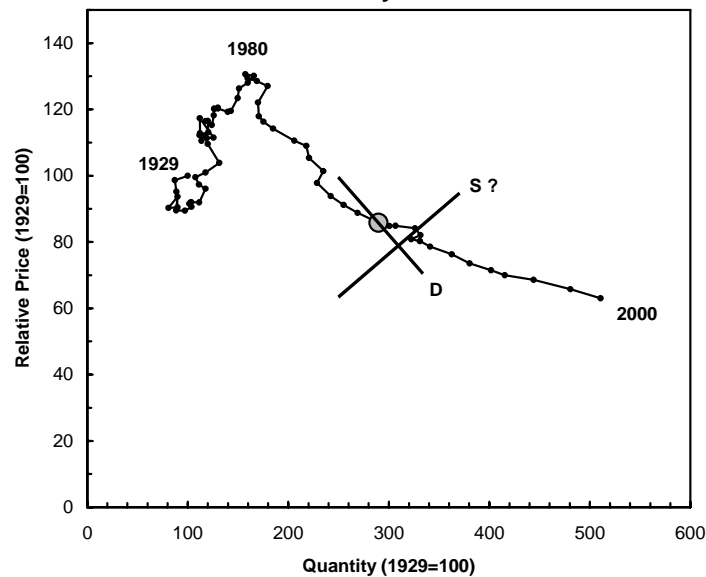


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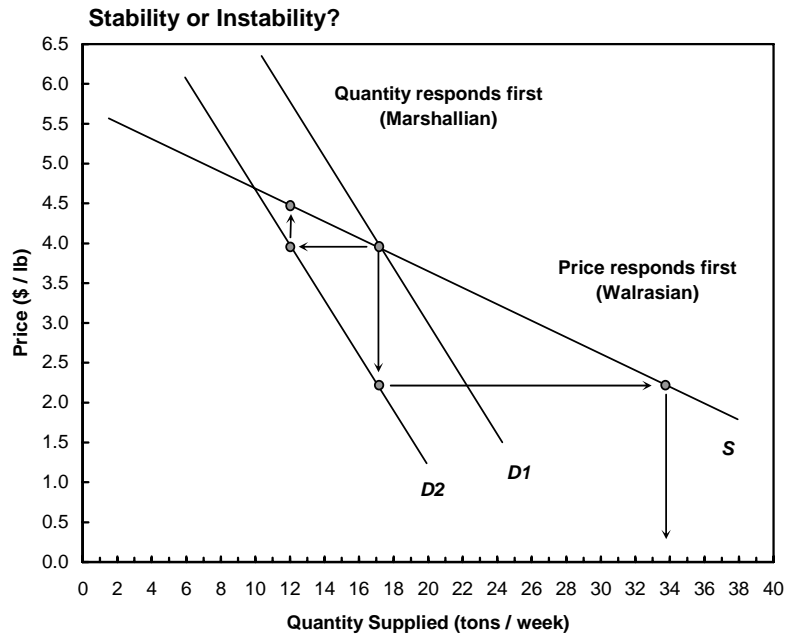
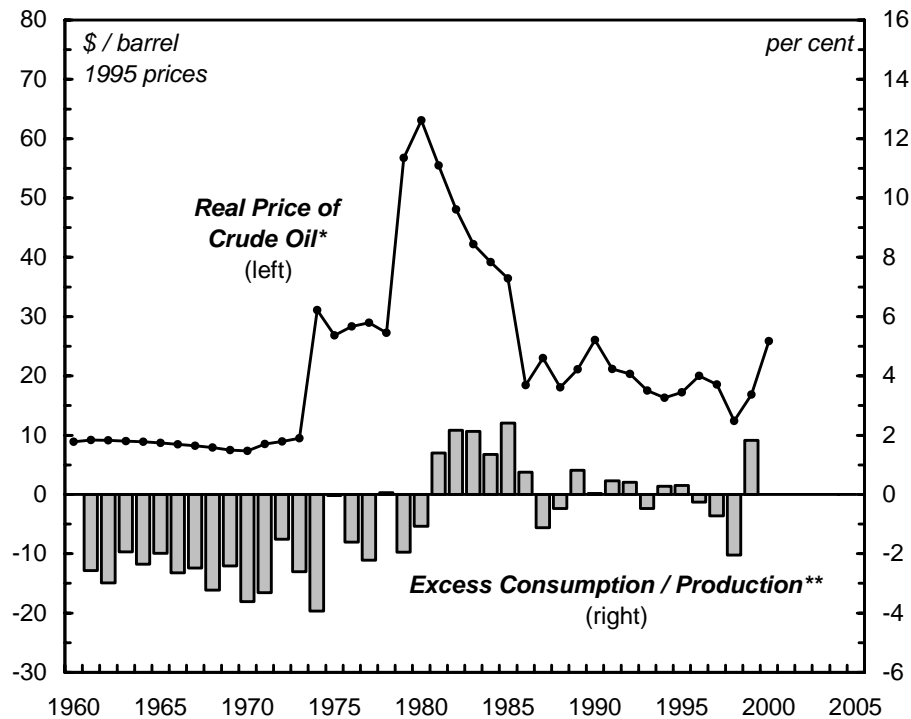


Figure 5.5  
 'Scarcity' and the Real Price of Oil



\* Spot \$ price divided by the U.S. Implicit GDP Deflator.

\*\* World consumption less production as a per cent of their average.

SOURCE: British Petroleum (Annual); IMF and U.S. Department of Commerce through McGraw Hill (Online).

## “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  
~~~~~
- **“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  
~~~~~
- **“Oil prices fall on rising US stockpile”**  
Roberts, Adrienne. *Financial Times*: Jun 28, 2001. p. 15
  
- **“Crude markets unphased by OPEC; oil prices rise despite stock build”**  
*Octane Week Potomac*: Jun 26, 2000. Vol. 15, Iss. 26, p. 1  
~~~~~
- **“OPEC agreement means oil prices likely to increase”**  
*The Gazette* Montreal, Que.: Jun 29, 1987. p. B5
  
- **“Oil prices fall despite OPEC agreement”**  
Mead, Gary. *Financial Times* London (UK): Jun 25, 1998. p. 32  
~~~~~
- **“Oil prices soar on OPEC pact to cut output”**  
By Michael Siconolfi. *Wall Street Journal* New York, N.Y.: Aug 6, 1986. p. 1
  
- **“Oil price falls despite cut in output”**  
Solman, Paul. *Financial Times* London (UK): Jun 13, 1998. p. 12  
~~~~~
- **“Oil prices fall again in response to Bush’s hope for Mideast accord and signs of ample supplies”**  
Tanner, James. *Wall Street Journal*. New York, N.Y.: Oct 3, 1990. p. C14
  
- **“Oil price rises despite ample supply”**  
*Calgary Herald* Calgary, Alta.: Dec 8, 1995. p. C13  
~~~~~
- **“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