

FOOD, FIBER AND FUEL

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The issue today concerns the effects of global energy markets on the food and fiber sector

- Specifically we will consider how energy policies affect agriculture;
- And we will consider how agricultural policies affect energy policy.

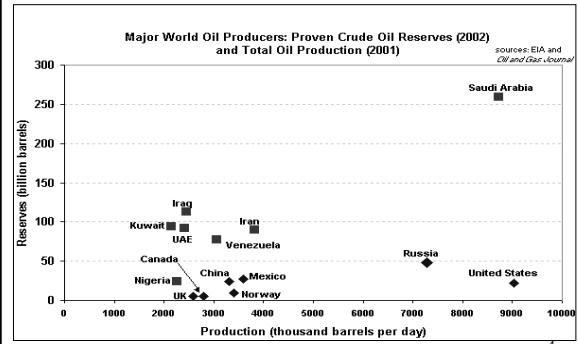
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PART I: SOME GENERAL DATA

- We will look at U.S. energy in terms of:
 - Production;
 - Consumption;
 - Imports;
 - Historic price trends;
 - Current prices;

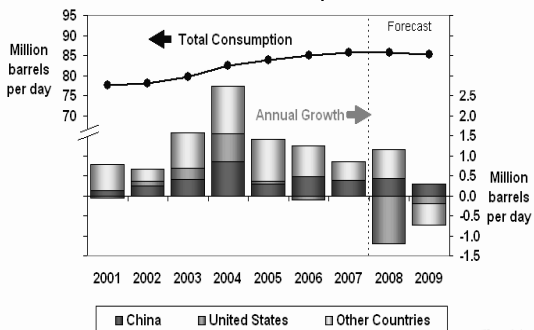
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OIL RESERVES AND PRODUCTION (red=OPEC; blue = non-OPEC)

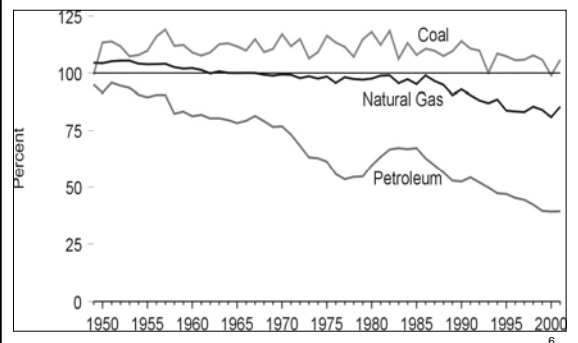


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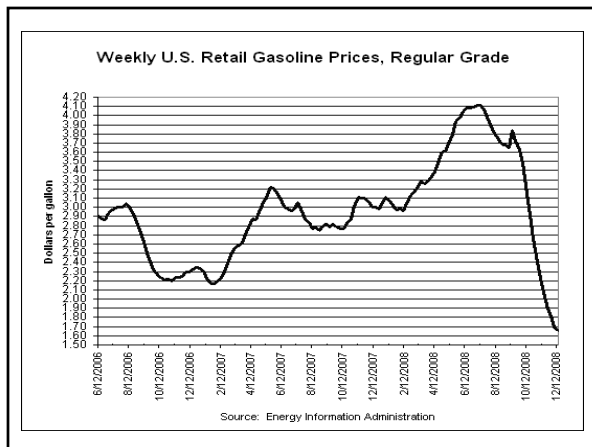
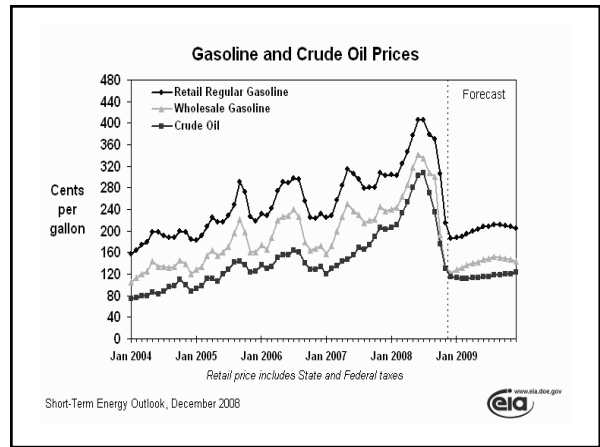
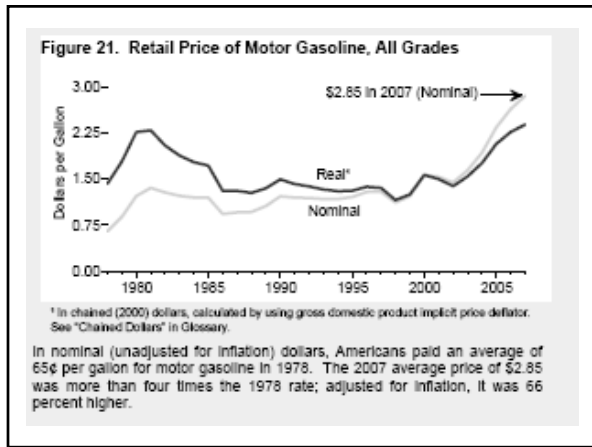
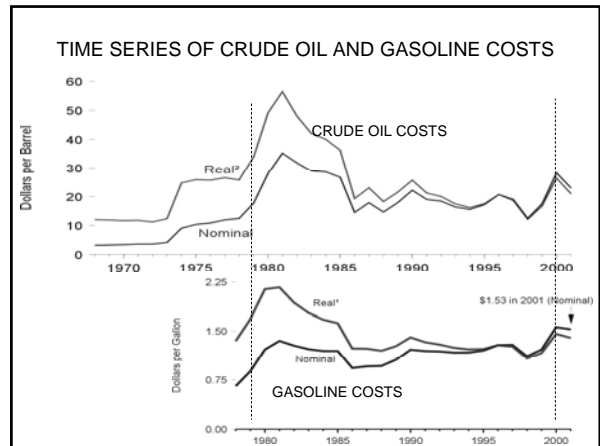
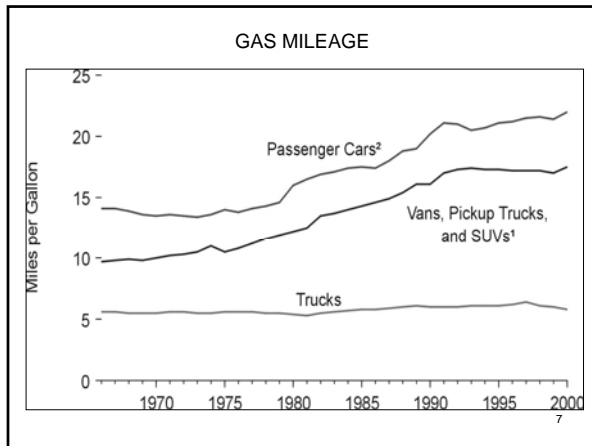
World Oil Consumption



SELF SUFFICIENCY? DOMESTIC USE AND PRODUCTION OF OIL



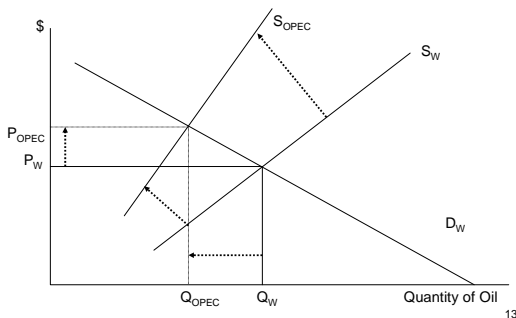
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Part II. Some Economics

- We will look at the world oil market and how that market works in terms of price and quantity;
- And how the Organization of Petroleum Exporting Countries (OPEC) influences production and thus world prices of oil.

We have here the world demand for oil at various prices—lower prices leading to greater total oil sales, and higher prices having the opposite effect. Now consider the OPEC suppliers. They wish to shift the supply curve UP thereby restricting supply and thus raising prices from P_W to P_{OPEC} .



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Part II. Oil and Agriculture

- High oil prices drive up the costs of agricultural production;
- But high oil prices also stimulate an interest in corn and other cellular materials for the manufacture of bio-fuels;
- This interest drives up the demand for corn;
 - Which also drives up its price leading to higher prices for corn bread, cereals, chicken, beef, and indeed any animal that eats corn.

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Ethanol and Corn Prices

- The recent rise in corn prices--almost 70 percent in the past six months—is often attributed to the increased demand for biofuels.
- In 2007 it is estimated that we will use 18 - 20 percent of the total corn crop for the production of ethanol;
 - By 2008 that will jump to 25 percent.
 - And that increase is alleged to be the main driver behind the price increase for corn.

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Ethanol and Food Prices

- The jump in corn prices is already affecting the cost of food.
 - In Mexico, which gets much of its corn from the United States, the price of corn tortillas has doubled in the past year setting off large protest marches in Mexico City.
 - It's almost certain that most of the rise in corn prices is due to the U.S. ethanol policy.

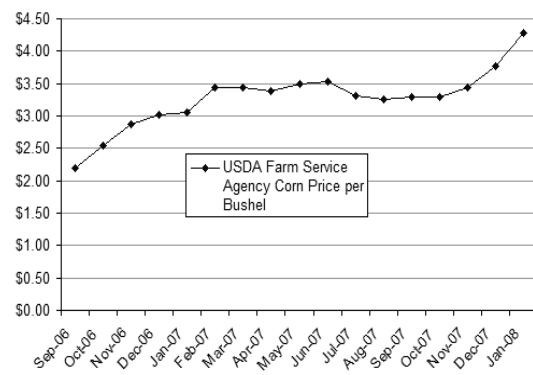
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Part III. Agriculture and Oil

- Corn is the most widely produced feed grain in the United States, accounting for more than 90 percent of total production.
 - Around 80 million acres of land are planted with corn.
- The majority of the crop is used as livestock feed; the remainder is processed into a multitude of food and industrial products including starch, sweeteners such as high fructose corn syrup, corn oil, and ethanol for use as a fuel.
- As corn prices rise, agricultural companies stand to benefit as their corn or corn seeds command a higher price in the market.
- Companies who buy corn or derivative products such as high fructose corn syrup can be hit with much larger costs when corn prices rise.

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Corn Prices since Sept. 2006



Companies that benefit when corn prices rise:

- Archer Daniels Midland and Bunge grow corn;
- Monsanto and DuPont produce corn seed which is genetically engineered to have properties that make it ideal for ethanol production.
 - They stand to benefit from rising corn prices because farmers will tend to increase the amount of corn they plant and thus the amount of seed they buy;
- UAP Holding distributes fertilizer, insecticide, anti fungal, and other chemicals used in farming of corn.
 - The main hurdle will be cannibalization, if farmers cease producing a crop that requires greater use of chemicals and start producing corn which requires relatively few and low levels of chemicals;
- Potash Corporation of Saskatchewan and Mosaic Company produce fertilizer and benefit from high corn prices as farmers use more crop nutrients to try to increase yield;
- Deere & Company as the world's largest tractor manufacturer, benefits from biofuels regardless of which crop (corn, soybeans, other grains) is ultimately used for fuel.

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Companies that suffer when corn prices rise:

- Coca Cola, Pepsi and other makers of non-alcoholic beverages are hit hard since high-fructose corn syrup is the principal sweetener in many of the soft drinks these companies produce;
- Heinz and other ketchup makers suffer when corn prices go up because high-fructose corn syrup is a key ingredient in ketchup. Corn syrup prices are up 25% for Heinz, effectively raising their ingredients cost by nearly 5% in the quarter ending Aug 1, 2007;
- Tyson Foods, Pilgrim's Pride, Smithfield Foods, and other livestock companies use corn as animal feed. When corn prices go up, it becomes more expensive for them to raise animals.
- Kraft foods and other snack food companies whose snacks are made from corn or high fructose corn syrup can be hurt by rising corn prices.
- Hormel Foods, Tyson Foods, and Sanderson Farms are hurt as corn prices rise. Corn can be a significant input in the production of meat products as it is used for the feed of hogs, chicken, cows, etc.

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Some Questions

- How does the historic trend in the price of gasoline relate to the trend in miles per gallon by American cars?
- How does the price of gasoline affect imports of oil into the U.S.?
- How is the retail price of beef affected by the price of crude oil (and ultimately of gasoline)?
- How does the price of gasoline and diesel fuel affect equipment use in agriculture?

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