

The macroeconomics of oil

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Four relevant dimensions

- On the supply side: Increase in cost for oil-using sectors.
Main issue: Wage adjustment.
- On the demand side: Transfer from oil importers to oil exporters.
Three main issues:
Effect on world saving, and the world interest rate.
Effect on the relative demand for goods, and the dollar exchange rate.
Effect on the relative demand for assets, and the dollar exchange rate.

1. Oil, real wages, and unemployment.

- Given wage, increase in the price of oil leads to increase in price level, and thus decrease in real (consumption) wage.
- How large? Roughly: Ratio of expenditures on oil and gas as intermediate inputs to value added, times relative change in oil price.
- For US, ratio around 2.0%. Increase from 2002 to 2006: 100%, so **required decrease in real wage: -2%**.

- Outcome then depends on:

Real wage resistance: Wage increases, further price increases.

Monetary policy: If accommodating: Inflation. If tough: Higher unemployment needed to limit wage increases.

Current monetary policy wisdom: Yes to first round/no to second round price increases: Tough.

How could things go so wrong in the 1970s?

Puzzle: Required wage adjustment small, relative to fluctuations in productivity growth from year to year.

Yet, in the 1970s, stagflation: serious recessions, and serious inflation. Why?

- Larger oil share. (3% versus 2%: not enough).
- Middle East wars and disruptions.
- Slowdown in productivity growth. End of the post-war miracle
- Often explicit and sometimes full (more than full) wage indexation.
- Monetary policy accommodation.

How it has played so far: The U.S.

- Little or no real wage resistance, despite low unemployment. (No increase in wages in response to oil-triggered increases in prices). (Even limited pass-through).

Decrease in consumption wages, relative to productivity growth.

- Good news, but not a major surprise:

Weak unions/weak workers.

In an environment of high productivity growth.

- Lags? Adjustment has not come after four years. Unlikely to come now. So, stagflation unlikely. (Recession because of weak demand, and late Fed response: another issue)

How it has played so far: Europe

- Expected real wage resistance. (Standard explanation for sustained high unemployment in continental Europe)
- Very low productivity growth.
- Tough ECB stance. Yes to first round, no to second round
- Recipe for recession? Surprisingly turned out OK. Decrease in real wages, while declining unemployment.

Why? Intelligent unions? More likely: Weak unions.

Will it continue? Probably, not surely. Stagflation unlikely. (Strength of the current expansion: another issue.)

Inflation rates, productivity, and unemployment. U.S.

	2002	2003	2004	2005	2006	Sum
CPI	1.6	2.3	2.7	3.4	3.3	13.3
GDP deflator	1.7	2.0	2.6	2.8	3.0	12.1
Wage	3.3	3.6	4.7	5.2	4.5	21.3
Productivity	2.8	2.7	3.1	2.1	2.1	12.8
Unemployment rate	5.8	6.0	5.5	5.1	4.8	

Inflation rates, productivity, and unemployment. Euro area.

	2002	2003	2004	2005	2006	Sum
CPI	2.3	2.1	2.2	2.2	2.1	10.9
GDP deflator	2.6	2.0	1.9	1.7	1.6	9.8
Wage	2.4	1.9	1.4	1.2	1.6	8.5
Productivity	0.3	0.3	0.9	0.5	1.1	3.1
Unemployment rate	8.4	8.9	8.9	8.6	8.2	

2. The size of the transfer.

Increase in the value of net oil exports, 2002-2005: \$370b to \$800b (1.5% of world GDP), so \$430b.

- Increase in net exports: \$430b. (Major exporters: Saudi Arabia 13%, Russia 12%, Iran 5% Venezuela 4%, Kuwait 3%)
- Increase in net imports. U.S. \$120b, Other advanced, \$200b, China \$50b, Other developing \$50b.

So, think in terms of two major transfers:

- US/Europe towards oil exporters; largest
- China/Asia towards oil exporters

World saving, and the world interest rate.

- Oil importers. Perceived as largely permanent.
At given interest rate, saving roughly unchanged.
- Oil exporters. Revenues largely/fully government controlled: “Stabilization funds,” from Kuwait to Russia, to Norway.
Evidence so far: Spend between 00- (Norway) to 50+ cents (Venezuela, Iran) on the dollar.
- How large? Not very large: Half saved: .5 times \$ 430b, or \$215b.
Equal to an increase in the US saving rate of .5% of US GDP.
- So some, but small, decrease in world real interest rate.

Relative demand for goods and the dollar exchange rate

- Decrease in relative demand for goods of oil importers, US, Europe, Japan. In many cases, oil exporters import nearly everything else. So decrease may be small.

Otherwise, depreciation of the dollar, the euro and the yen.

- Question: Against which currencies!? Many oil exporters peg to the dollar...
- Likely to have real appreciation through inflation.
- And/or forced to have more contractionary fiscal policy, larger current account surplus (larger global imbalances. But no negative connotation)
- Transfer China-oil exporters: Similar propensities to import US/European goods. So no major effect on euro/dollar exchange rate.

Relative demand for assets, the dollar exchange rate, and relative rates of return

Dollar versus Euro assets?

Bonds versus stocks?

- In the past, large accumulation of reserves by Asian CBs. Implications of the transfer from China/Japan to oil exporters?
- If pegging, likely to accumulate reserves as well (From 2002 to 2005, \$250b). Perhaps smaller proportion in dollars. (Russia: 50% in dollars, 40% in euros)
- Composition of stabilization funds? (Russia: 45% in dollars, 45% in euros) Iran, Venezuela: surely different, but small.
- Best guess: **Not much effect. Small decrease in dollar exchange rate, increase in relative US interest rate?**

Parting thoughts

- In the 1970s, increases in the price of oil had mostly economic rather than geopolitical implications.

Major economic policy mistakes.

- This time, the opposite. Economic effects are limited. Geopolitical implications dominate.

Transfers of wealth to Russia, to Iran, to Venezuela have major geopolitical implications.