MARKET POWER, REGULATION AND SPECULATION: DO WE HAVE ANY COMPETITIVE ENERGY MARKETS?

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SURVEY

1. Introduction
2. Method of approach
3. The world oil market
4. Major results
5. Conclusions
Historical oil price development

US$ (current prices)

US$ of 2007

$ money of the day $ 2007
Historical feedstock price development

Feedstock price (US $/metric ton)

- Corn
- Wheat
- Rapeseed oil
- Soybean oil

Year:
- 1996
- 1998
- 2000
- 2002
- 2004
- 2006
- 2008
Comparison: historical oil, feedstock, and electricity price development.
2. METHOD OF APPROACH

- Describing the fundamentals of supply & demand in energy markets;

- Supply: Discussion of the role of OPEC in the world oil market;

- The issue of physical short-term and speculative long-term demand;
ENERGY SUPPLY & DEMAND

Price, costs

Price \( (t_0) \)

Demand \( t_0 \)

Supply \( t_0 \)
There are at least the following basic explanations for the development of energy prices:

- general physical fundamentals of demand & supply (short-term and long-term) incl. peak-oil, grid-bottlenecks, power plant shortages
- strategic behaviour of suppliers (oligopoly game)
- fiscal (e.g. currency) developments and strategic/speculation from the demand-side
BUYERS MARKET

Demand

Supply

Preis
Price, costs

kWh

$P_{COMP}$
SELLERS MARKET

Market price = Scarcity price

$P_{SCAR}$

$kWh$

$P_{COMP}$

Demand

Supply
3. WORLD OIL MARKET

FUNDAMENTAL MODEL
BASED ON SUPPLY-SIDE COST CURVE

Worldwide full-cycle upstream cost* of oil in 2001

* - finding, development and production excl. transportation and taxes (CERA, Sept. 2001)

** - 2001 finding, development and production cost – 3.7 $/bbl,
4. MAJOR RESULTS
Supply-side: Only OPEC ist flexible!
1982-1985: High cartel prices

Price level set by OPEC:
Price \( (t_1) = \text{Price} \ (t_0) \)

OPEC adjusts supply accordingly to the price set

Demand

Supply

\[ \text{Price, costs} \]

Demand \( t_0 \)

Supply \( t_0 \)

Supply \( t_1 \)

Demand \( t_1 \)
ELECTRICITY MARKET IN CENTRAL EUROPE

Spot market price

Mark up's!

Marginal production costs

[EUR/MWh]

Spot market EEX
System SRMC
CAN WE EXPLAIN RECENT DEVELOPMENTS IN WORLD OIL (OR FEEDSTOCK/BIOFUELS) MARKETS WITH SUPPLY-SIDE IMPACTS?
Oil production vs consumption world-wide

High prices due to low production?

Consumption exceeds production

Mill. tonnes


Mill. tonnes Consumption Production
Oil production world-wide

- World
- OPEC
- Other Non-OPEC
- Former Soviet Union
- Total world-wide

Oil production graph with data points from 1965 to 2010.
Oil consumption world-wide
Oil consumption world-wide and in selected regions

- TOTAL WORLD
- China
- India
- Japan
- Total North America
Physical vs virtual demand
2004 - 2008: Increasing demand (incl. speculation)

Price (t₁)

Total Demand t₀

Supply t₀

Supply t₁

Physical Demand t₀

Physical Demand t₁

Price (t₂)

Price (t₀)

bbl oil

Total Demand t₁
Period 1980 – 1985: “sellers market”: price increases due to OPEC market power and price drops due to significant physical demand drops;

- oil price and feedstock price increases 2003 – 2008 due to signif. increases in “virtual” demand;

- decrease in 2009 due to burst of speculation bubble (→ drop in virtual demand); physically, demand & production changed only moderately

- Currently: far away from lasting competition in energy markets, speculation increasingly attractive … regulation needs world-wide level