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due Monday 300 word count

50 Billion a/yr

Flow of
main point: oil
oil = globalization

→ improvements

Estimating the Economic Benefits Derived From Forward-Engaged Naval Forces

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09 April 1997 → timeframe

Area: Middle East

Outline

- Purpose of Analysis
- The Approach Used
- The Three Cases Studied
  - Gulf War
  - 1994 Iraq-Kuwait Border Incident
  - 1987 Iranian Attacks on Gulf Shipping
- Conclusions

Purpose of Analysis

- To quantify the economic benefits of forward-engaged naval forces flow
  - QDR input
  - develop new methodology for examining economic impact
  - educate policy makers and the general public
  - lay foundation for further study and analysis
- Final written report: 18 July 1997
  - integration with coverage and response time analysis
  - tighter links to historical record

The Approach Used

difference

- Analysis examines the economic impact of the differential in oil futures prices resulting from U.S. Naval forward engagement and crisis response
- impact on the United States and countries comprising the Organization for Economic Development and Cooperation (OECD)
  - oil is the essential commodity
    - its price movements produce greatest economic impact

      how does it effect it?
  - futures prices* reflect market expectations based on available economic, political, military information
    - best unbiased estimate of likely daily prices when contracted delivery date arrives

* a price contracted today for delivery and payment on a specified later date

a price contracted today for delivery and payment an a specified later date

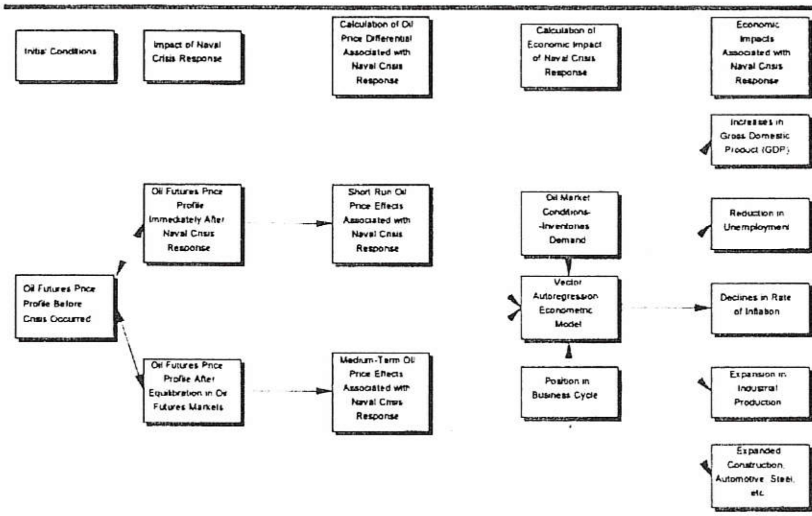
The Approach Used

- Naval forward engagement and crisis response affects market outlook their claim
  - futures prices increase in response to a crisis
    - a premium my be placed on immediate possession of oil
  - prices quickly decrease following naval crisis response they expect
- Differential in oil futures prices before and after naval crisis response allows the economic benefits of naval forward engagement and crisis response to be estimated
- vector autoregression econometric model to connect oil future models

The Approach Used

- Measurable economic benefits include increases in Gross Domestic Product (GDP), reduced unemployment and inflation, expanded industrial production, construction, etc.
- this report concentrates on GDP
  - other findings reported in appendix

The Approach Used



The Three Cases

timing of wars

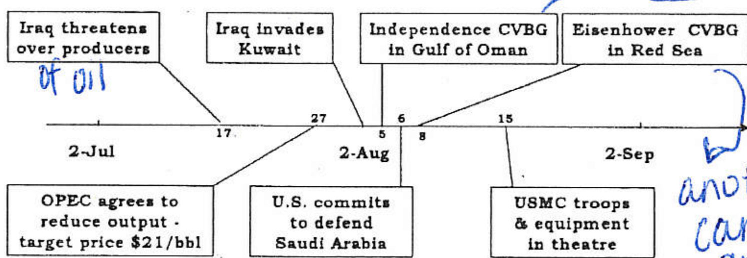
- The Gulf War
  - August, 1990
- The Iraq-Kuwait Border Confrontation
  - October, 1994
- Iranian Attacks on Gulf Shipping
  - January, 1987

summer of 1990

The Gulf War

- Occurred at a time of excess inventory and production capacity
  - mitigated oil price increases resulting from invasion of Kuwait
- OPEC incapable of establishing firm production quotas

carrier battle group w/strike range one day out from crisis.

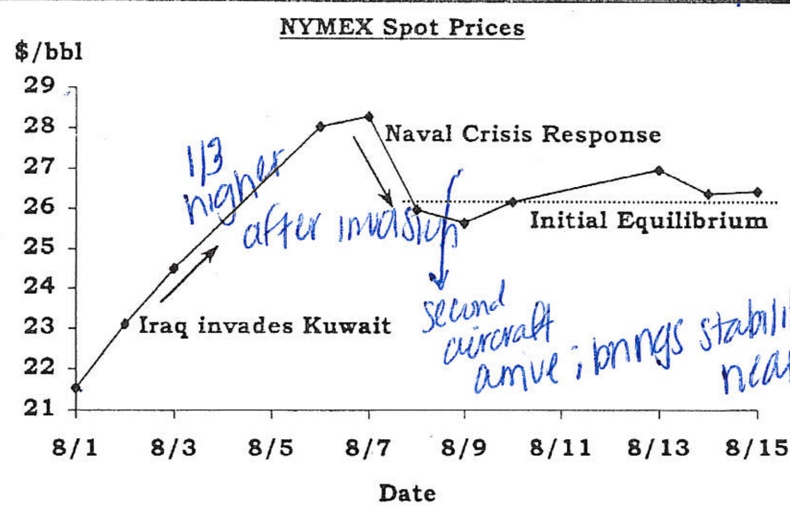


another carrier group

carries was handy for crisis

The Gulf War

Plot of time two week period



cost of oil

1/3 higher after invasion

second aircraft arrive; brings stability near crisis spot

spot prices that outbreak causes of uncertainty

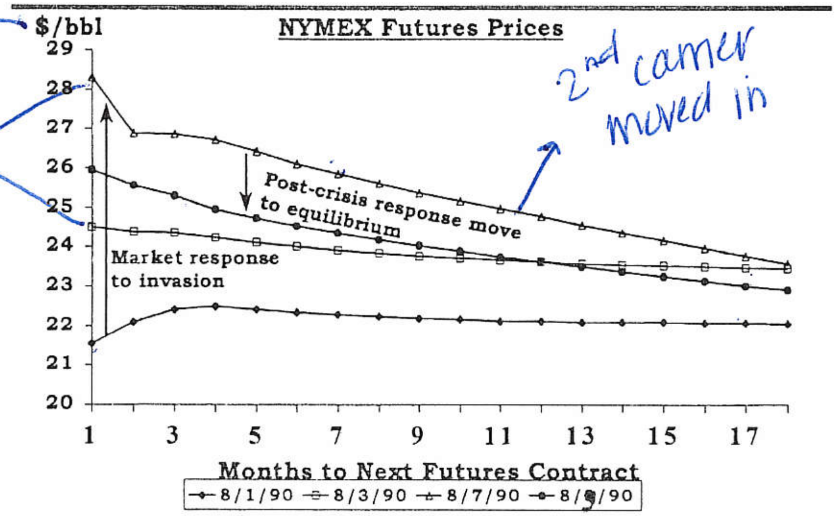
uncertainty drives up price
spot price drive up

5x greater before crisis began
1 quarter.

was taken 3rd of

The Gulf War

Price of oil



2nd carrier moved in

measuring future prices

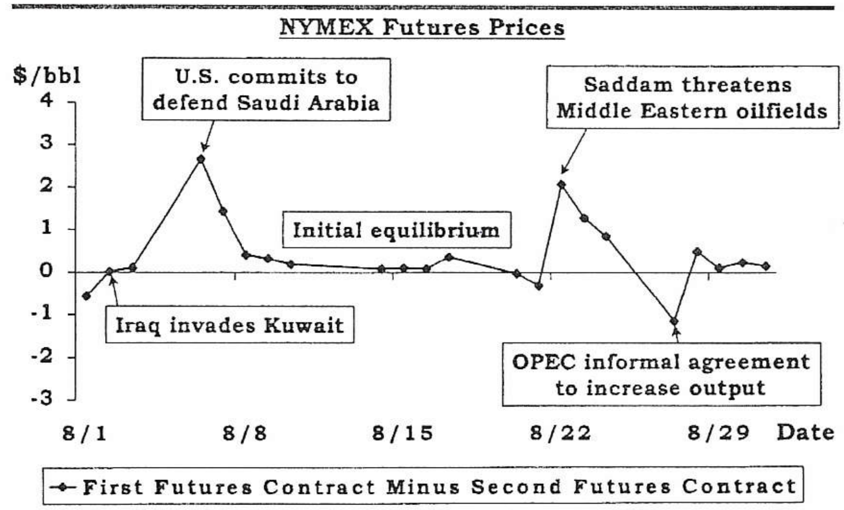
Future price = short term price ~~agreed~~ to 2 months was higher (taken on the 9th)

lowest one
- future before invasion
- price paid before war rises a bit to 4th month. uncertainty rises then gradually declines
- most uncertainty in short term

The Gulf War

Behavior over days

(plus/minus)



bounce around based on events happening.

The Gulf War

future pymt.

See direct from 2nd carrier

- Three measures of the naval crisis response effect:
  - August 9th futures profile - August 7th futures profile
    - Direct impact of 2nd arrival
  - August 9th futures profile - August 24th futures profile
    - pattern produced by no naval crisis response, assuming oil prices would increase to $30 at this time
  - August 9th futures profile - Tight oil market profile
    - pattern produced by no naval crisis response with oil shortages producing an additional $5 per barrel price increase

oil glut

oil market is tight

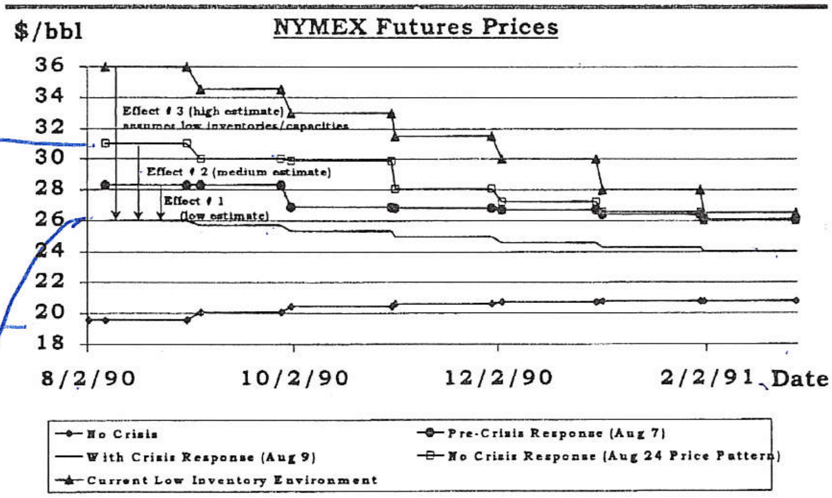
If no navy response

① difference on will show impact

② no price would achieve $30

③ if no carrier w/ tight oil market

The Gulf War



option #2

before invasion

impact of second aircraft

did or might change under different assumption

(2 year measurement)
4 yrs
8 8 effect
effect

The Gulf War

3 different affects

- Savings on U.S. Oil Imports:
  Effect 1: $3.2B Effect 2: $5.4B Effect 3: $10.1B
  2nd air craft arrive oil raise $30 should air carrier not applied
- Potential Gains in U.S. GDP:
  Effect 1: $55.2B Effect 2: $94.0B Effect 3: $182.7B
- Potential Gains in OECD GDP: (25 rich countries)
  Effect 1: $69.5B Effect 2: $119.6B Effect 3: $231.4B
- Significant gains also occurred in the expansion of industrial production, inflation reduction, and employment creation

they would be there because it made a difference being there

The Iraq-Kuwait Border Confrontation

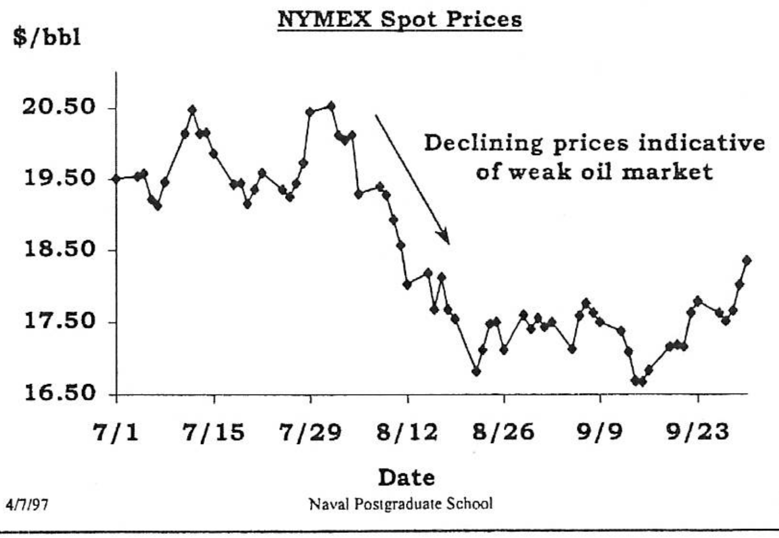
1994

- Oil prices had crashed in July falling from $20 to $17
  '94
- No prevailing concern over oil supplies
  - traders doubted that Hussein would actually invade Kuwait again
  - upward slope of futures market curves indicated no premium on immediate possession
- March 18 - sanctions renewed
- Summer - increasing pressure on U.S. to remove sanctions

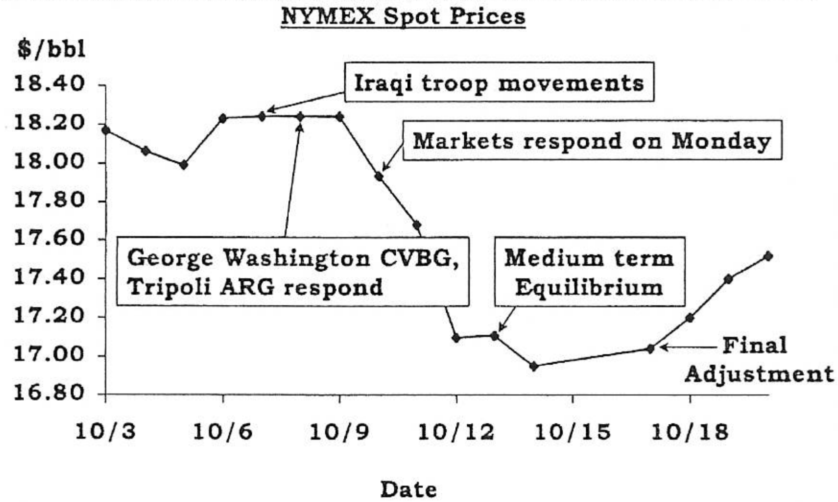
Iraq-Kuwait Border Confrontation

- **Oct 7:** Iraqi troop movements
- **Oct 8:** George Washington CVBG/Tripoli ARG respond
- **Oct 10:** Prices fall when markets open on Monday
- **Oct 13:** Further price decline with medium term equilibration in oil markets
- **Oct 17:** Slight rise in oil prices from final adjustment in oil markets

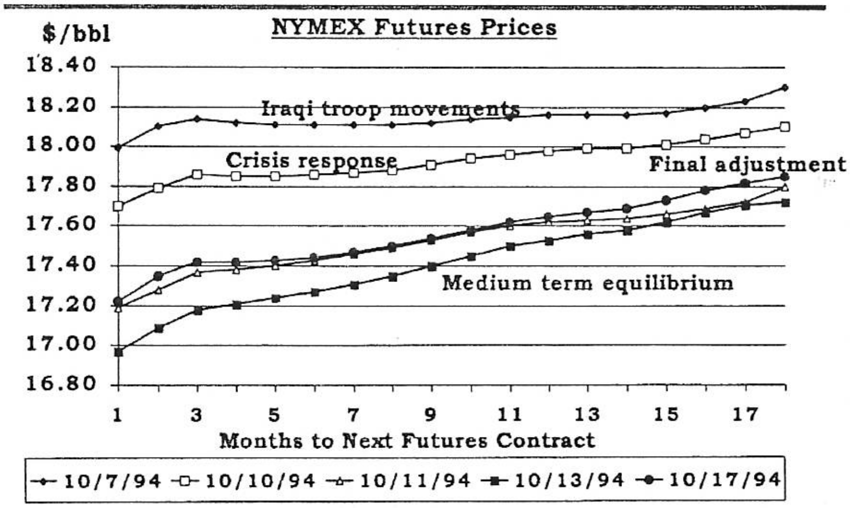
Iraq-Kuwait Border Confrontation



Iraq-Kuwait Border Confrontation



The Iraq-Kuwait Border Confrontation



The Iraq-Kuwait Border Confrontation

- Three measures of the naval crisis response effect:

Short Run Impact
  - October 10th futures profile - October 7th futures profile

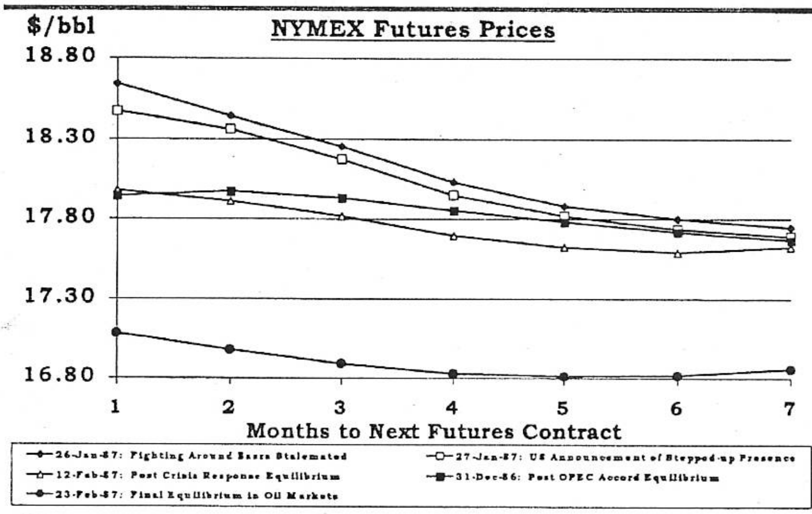
Medium Term Impact
  - October 13th futures profile - October 7th futures profile

Final Adjustment
  - October 17th futures profile - October 7th futures profile

The Iraq-Kuwait Border Confrontation

- Potential Gains in U.S. GDP:
  Short Run: $7.1B Medium Term: $11.1B
  Final Adjustment: $11.7B
- Potential Gains in OECD GDP:
  Short Run: $5.7B Medium Term: $17.9B
  Final Adjustment: $15.1B
- Potential Gains in World GDP:
  Short Run: $6.9B Medium Term: $21.5B
  Final Adjustment: $18.2B
- Significant gains again occurred in the expansion of industrial production, inflation reduction, and employment creation

Iranian Attacks on Gulf Shipping



Iranian Attacks on Gulf Shipping

- Two measures of the naval crisis response effect:

  Initial Impact

  - January 27th futures profile - January 26th futures profile

  Medium Term Impact

  - February 12th futures profile - January 26th futures profile

- A potential final adjustment (23 Feb - 26 Jan) was not calculated because it was more conjectural

Iranian Attacks on Gulf Shipping

- Potential Gains in U.S. GDP:
  Initial: $5.0B **Medium Term: $11.2B**
- Potential Gains in OECD GDP:
  Initial: $6.9B **Medium Term: $19.4B**
- Potential Gains in World GDP:
  Initial: $8.3B **Medium Term: $23.3B**
- Significant gains again occurred in the expansion of industrial production, inflation reduction, and employment creation

Conclusions

- Linkage between oil prices and naval forward engagement and crisis response has been established
  - oil prices decline a day or so after naval crisis response and the declines spread rapidly through the futures markets
  - gains increase with further equilibration in oil markets
  - linkage occurred in three different economic/political settings
- Spot price movements by themselves may seem small yet produce significant positive economic impacts when they ripple through the economy
- These patterns are consistent for the United States as well as the other major world economies for the other OECD

Iranian Attacks on Gulf Shipping '87

- Occurs well into the Iran-Iraq war all through 1980s
- Excess production led to depressed oil prices
- Crisis evolves over time as part of larger conflict
  - 9-21 Jan: Iranian offensive
  - 19 Jan: Iranian use of Sea Killer in night attacks on Gulf Shipping
  - 27 Jan: Crisis response in form of U.S. announcement of stepped-up presence
  - 27 Jan: Immediate impact/equilibration in oil markets
  - 12 Feb: Medium term equilibration in oil markets

Iranian Attacks on Gulf Shipping

NYMEX Spot Prices