Comments on “Speculation in the Oil Market” by Luciana Juvenal and Ivan Petrella

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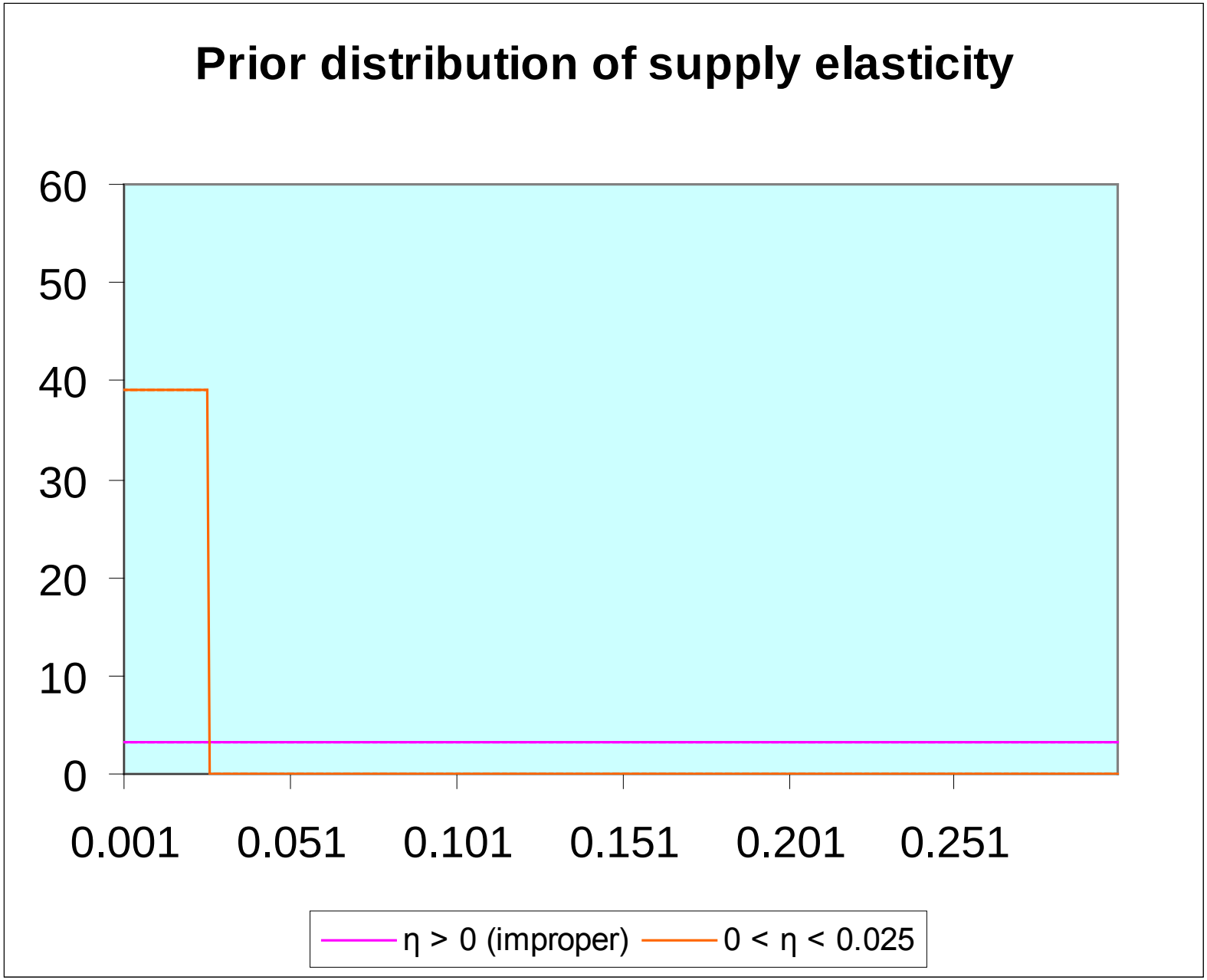
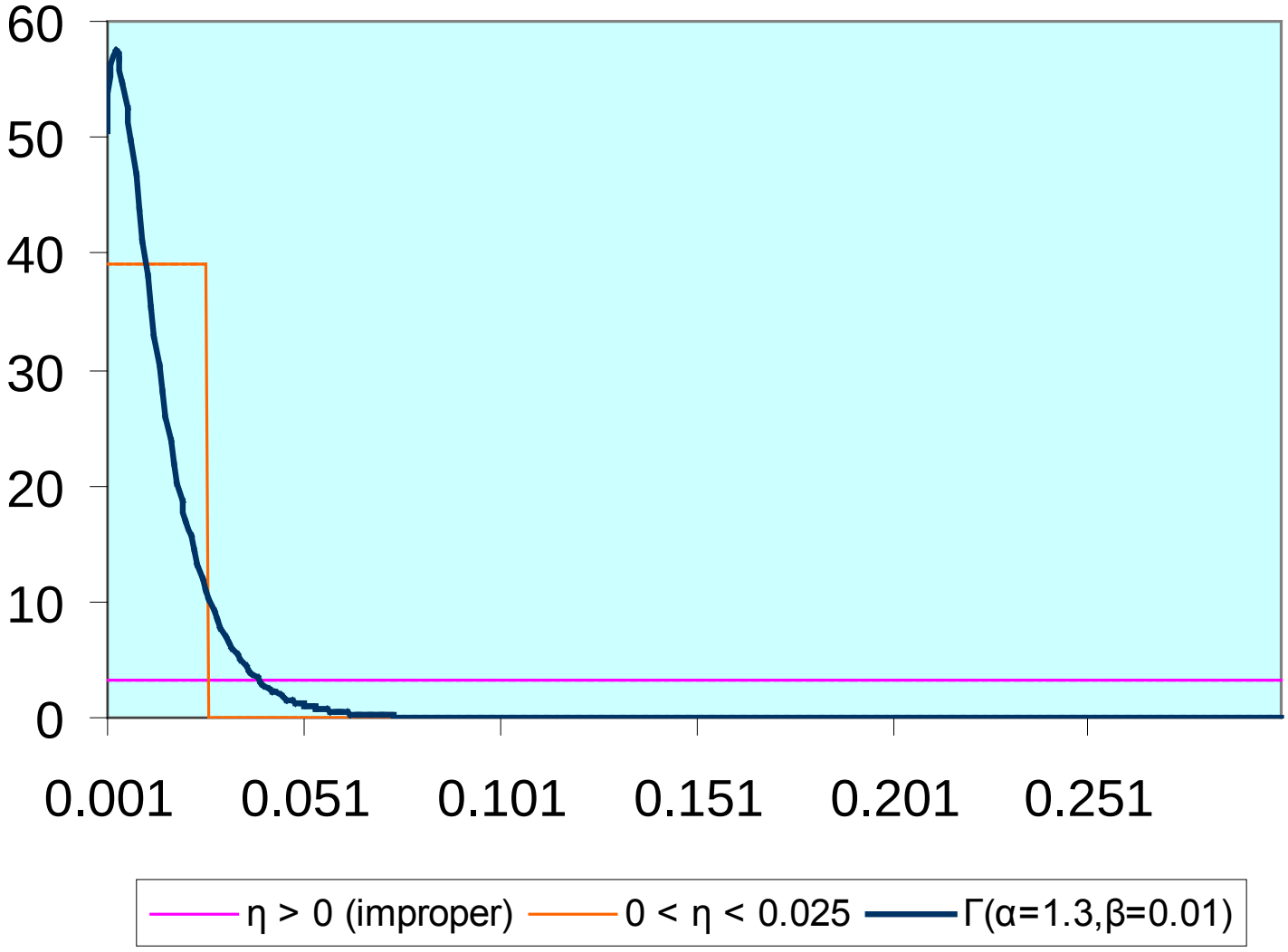
Methodological comment: sign restrictions versus informative priors

Example: if demand curve shifts right, then quantity supplied should increase

Question: by how much?


Prior distribution of supply elasticity
60
50
40
30
20
10
0
0.001
0.051
0.101
0.151
0.201
0.251
η > 0 (improper)
0 < η < 0.025

Prior distribution of supply elasticity

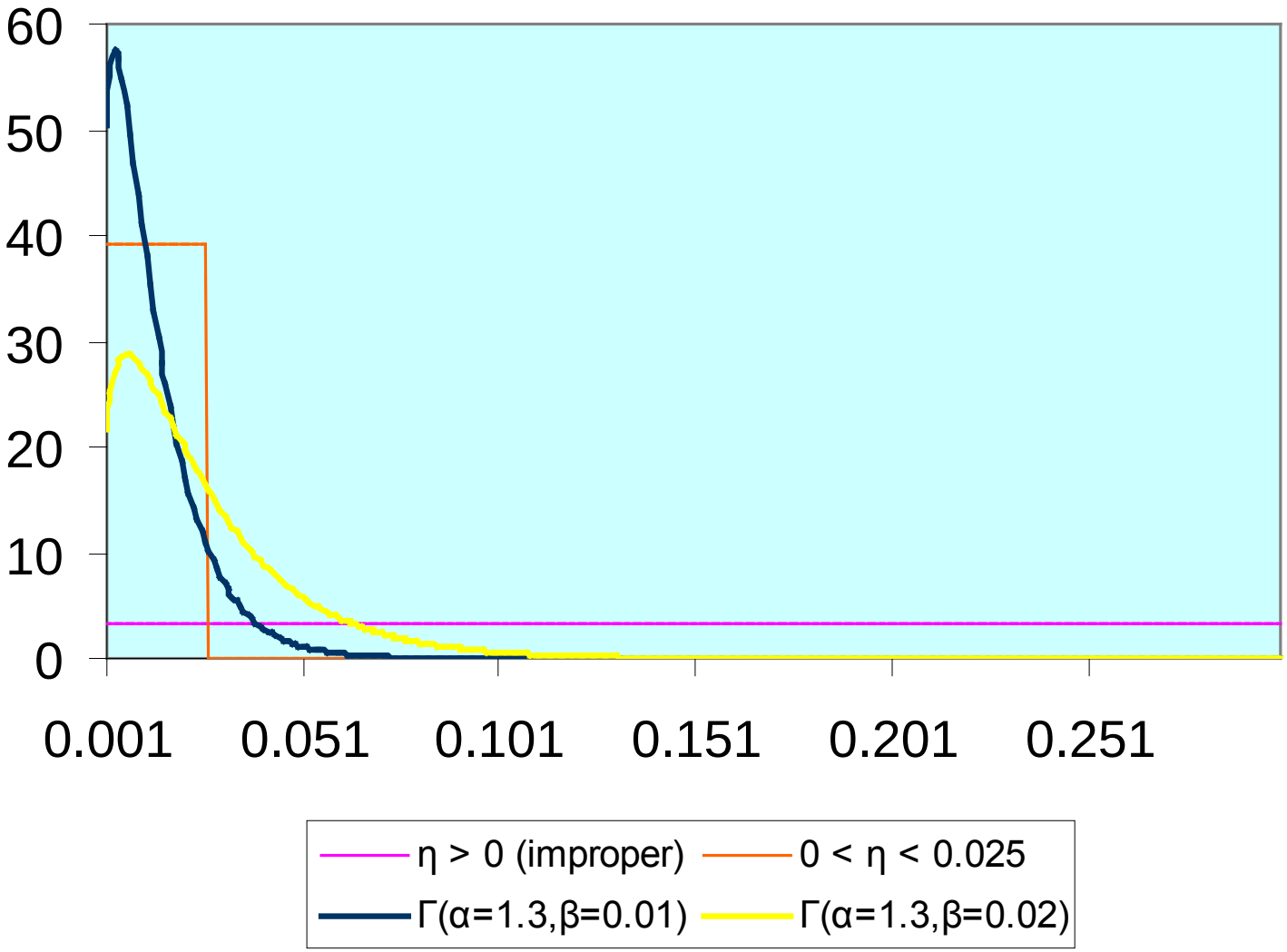


Advantages of informative priors over sign restrictions:

- Sign restrictions produce set estimates, not unique point
- Could be more concrete in discussing historical episodes.

  E.g., supply shock reduced production by x million barrels, speculation added y million barrels to inventories
- Can see how results change with weaker priors

Prior distribution of supply elasticity



Speculation defined as “the purchase of commodities ... in anticipation of a financial gain at time of resale.”

Reduces quantity available to consumers today, increases price today.

If it results in more product being available to consumers at a future date when the product is more valuable, speculation is good.

If it results in more product being available to consumers at a future date when the product is less valuable, speculation is bad.

Good speculation is profitable to the speculator, bad speculation is not.

This paper's identification strategy-- if we see that:

(1) price is higher than expected

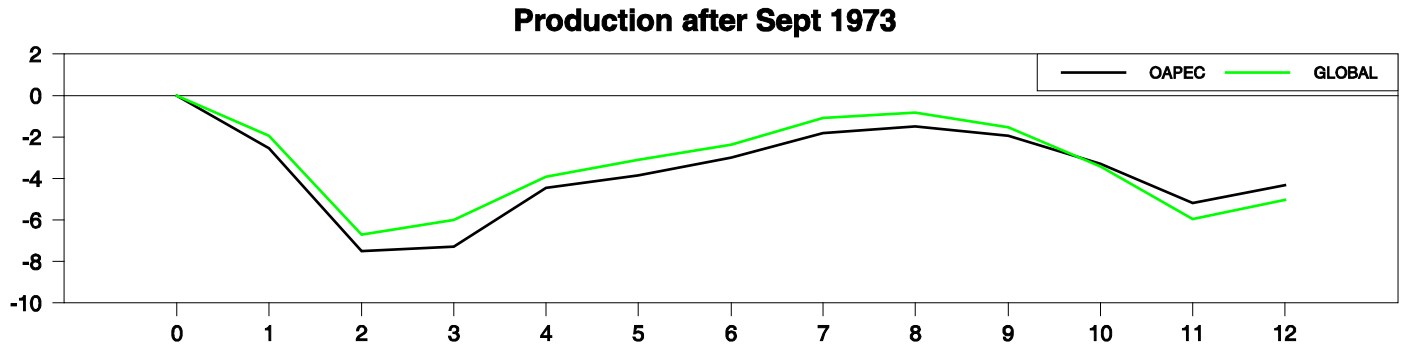
(2) inventories are higher than expected

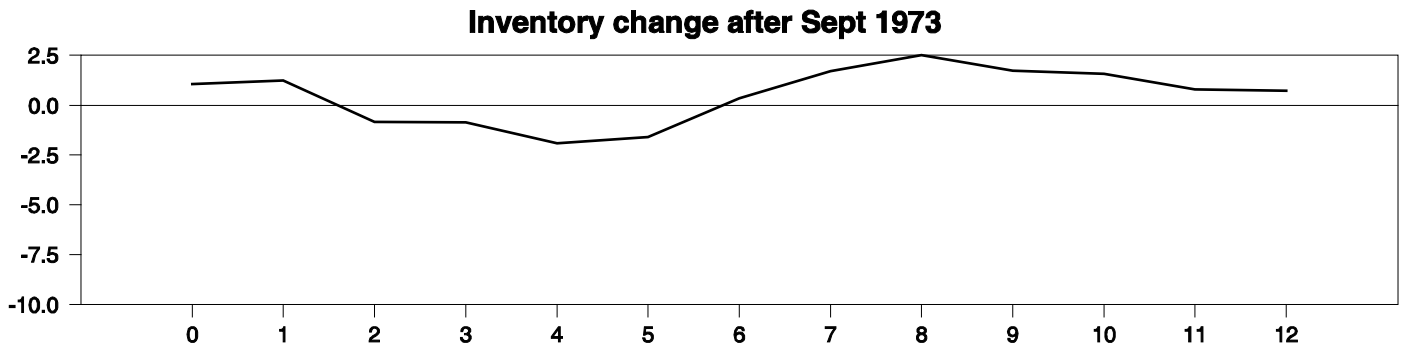
(3) supply is lower than expected

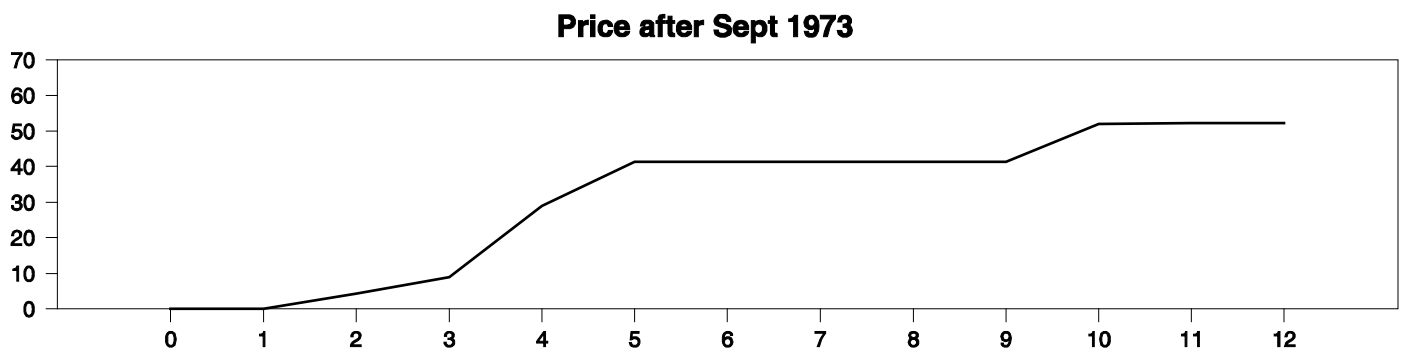
Then we will assume that this likely resulted from an increase in speculation

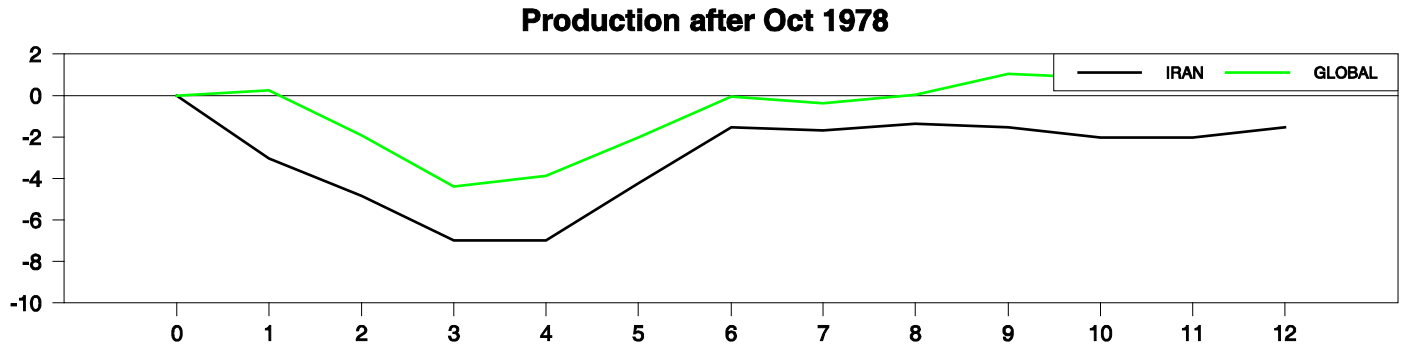
Example: suppose there is news that a military conflict in the Middle East is developing

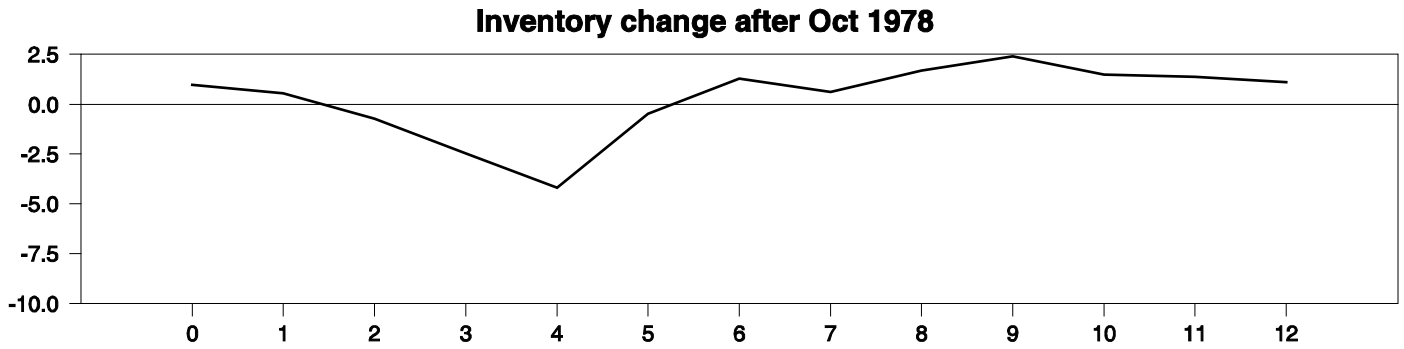
- supply begins to fall
- price begins to rise
- inventories built up at beginning of conflict, then are drawn down


Production after Sept 1973
OAPEC
GLOBAL
2
0
-2
-4
-6
-8
-10
0
1
2
3
4
5
6
7
8
9
10
11
12


Inventory change after Sept 1973
2.5
0.0
-2.5
-5.0
-7.5
-10.0
0
1
2
3
4
5
6
7
8
9
10
11
12


Price after Sept 1973
70
60
50
40
30
20
10
0
0
1
2
3
4
5
6
7
8
9
10
11
12


Production after Oct 1978
IRAN
GLOBAL
2
0
-2
-4
-6
-8
-10
0
1
2
3
4
5
6
7
8
9
10
11
12


Inventory change after Oct 1978
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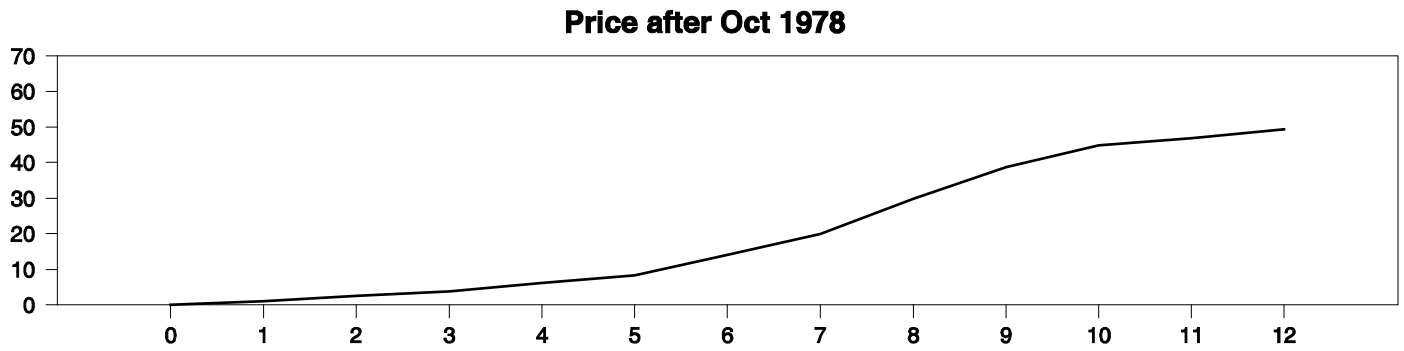
0.0
-2.5
-5.0
-7.5
-10.0
0
1
2
3
4
5
6
7
8
9
10
11
12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0
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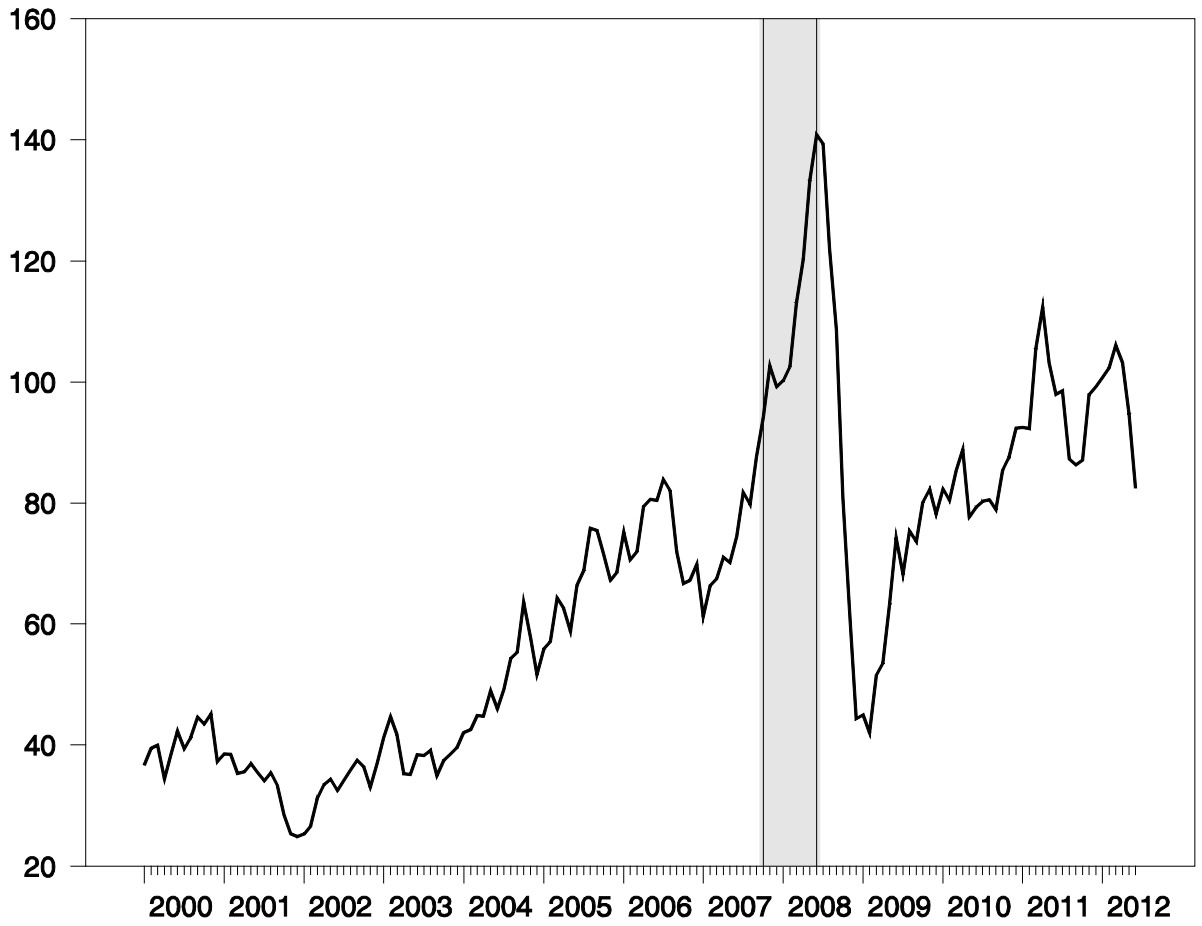
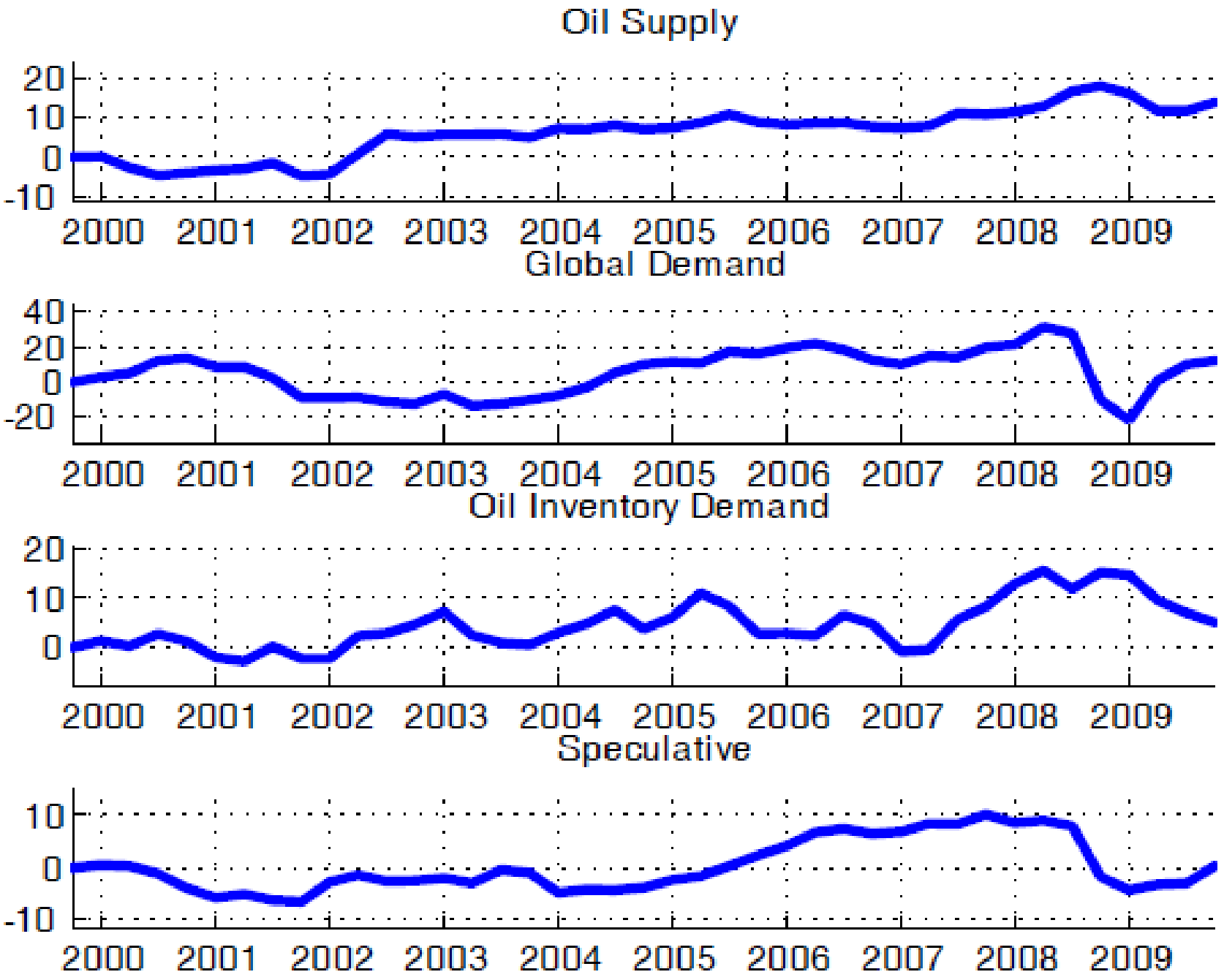
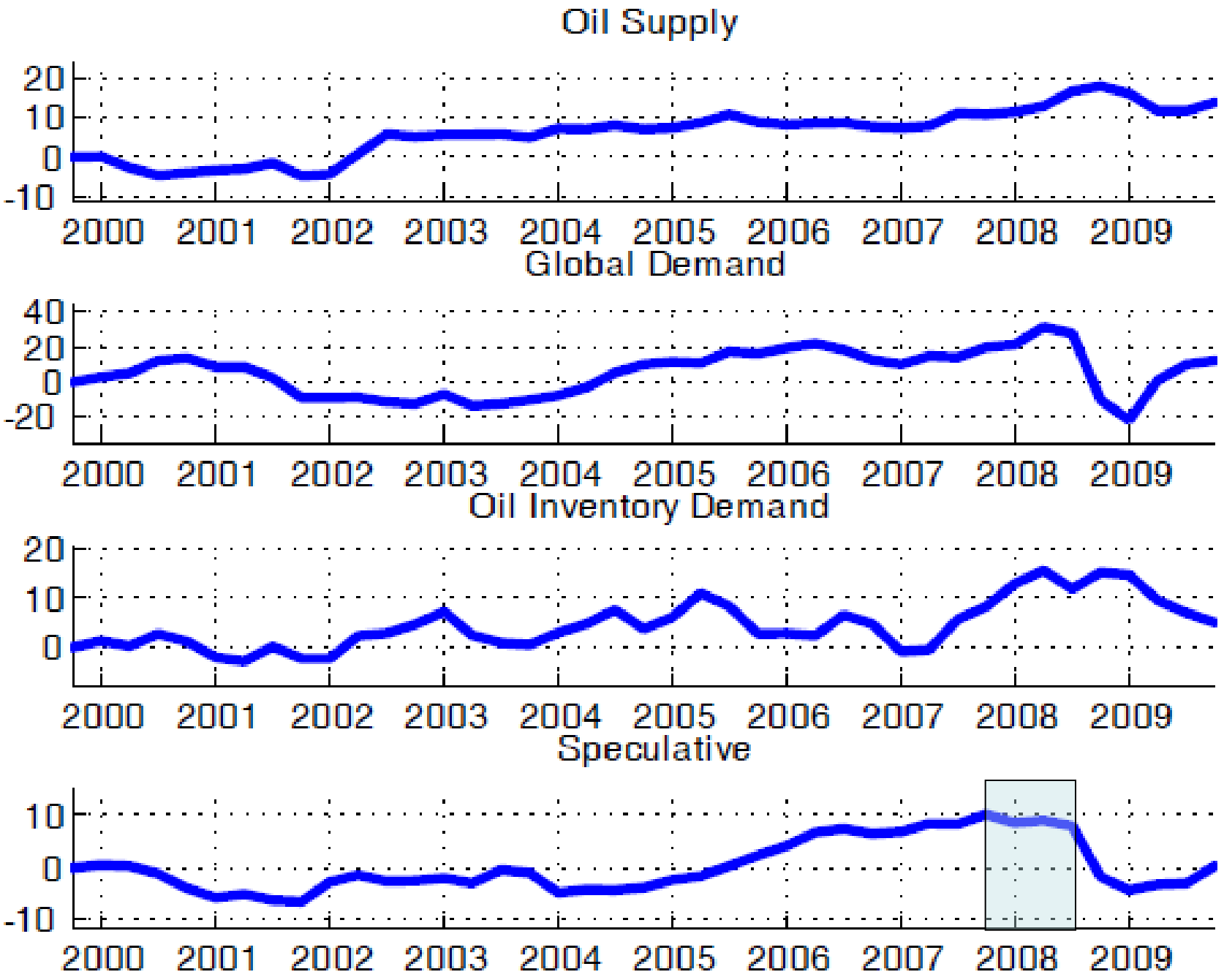
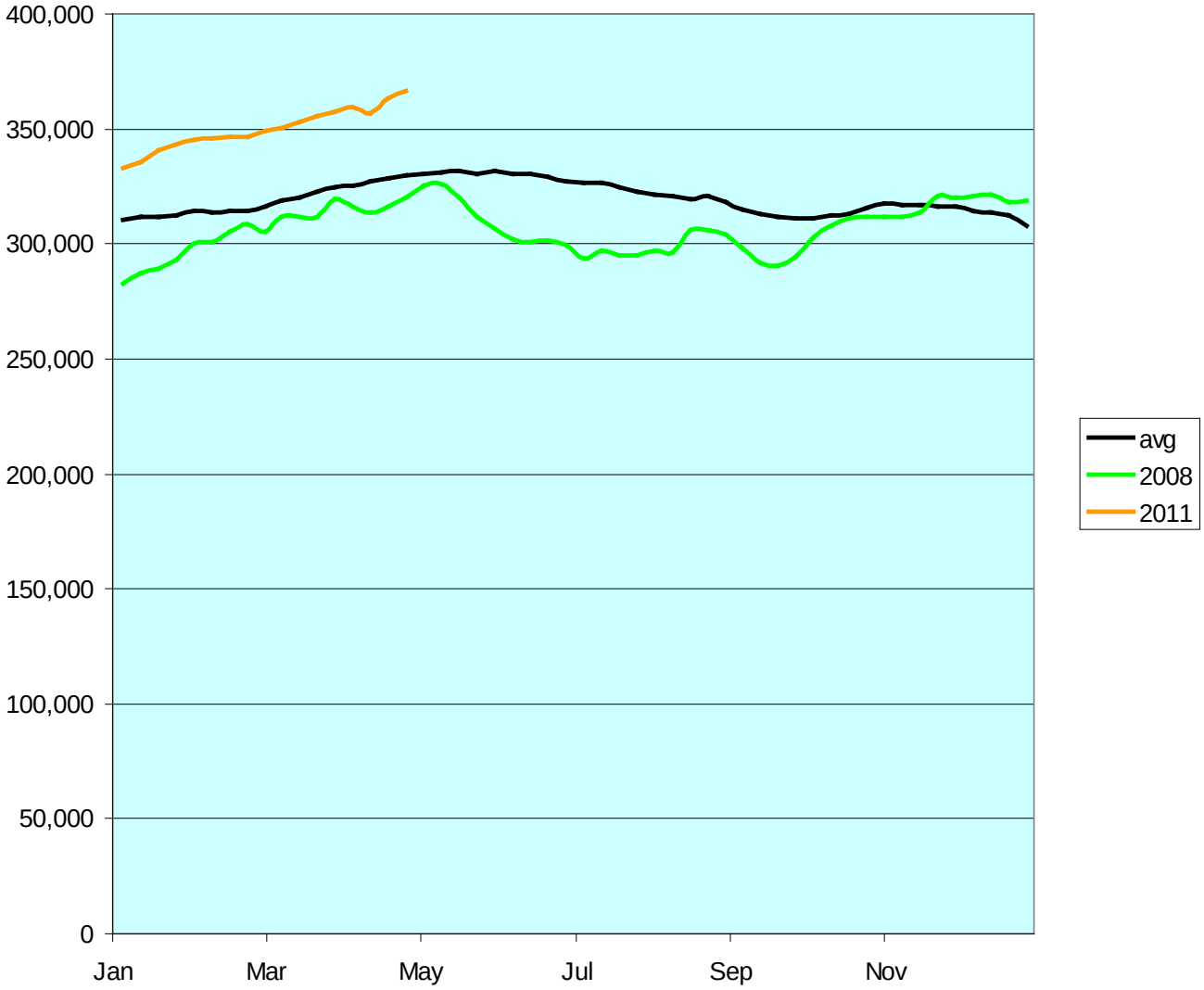
Key focus of paper: what happened last decade

Key price run-up was Oct 2007 to June 2008



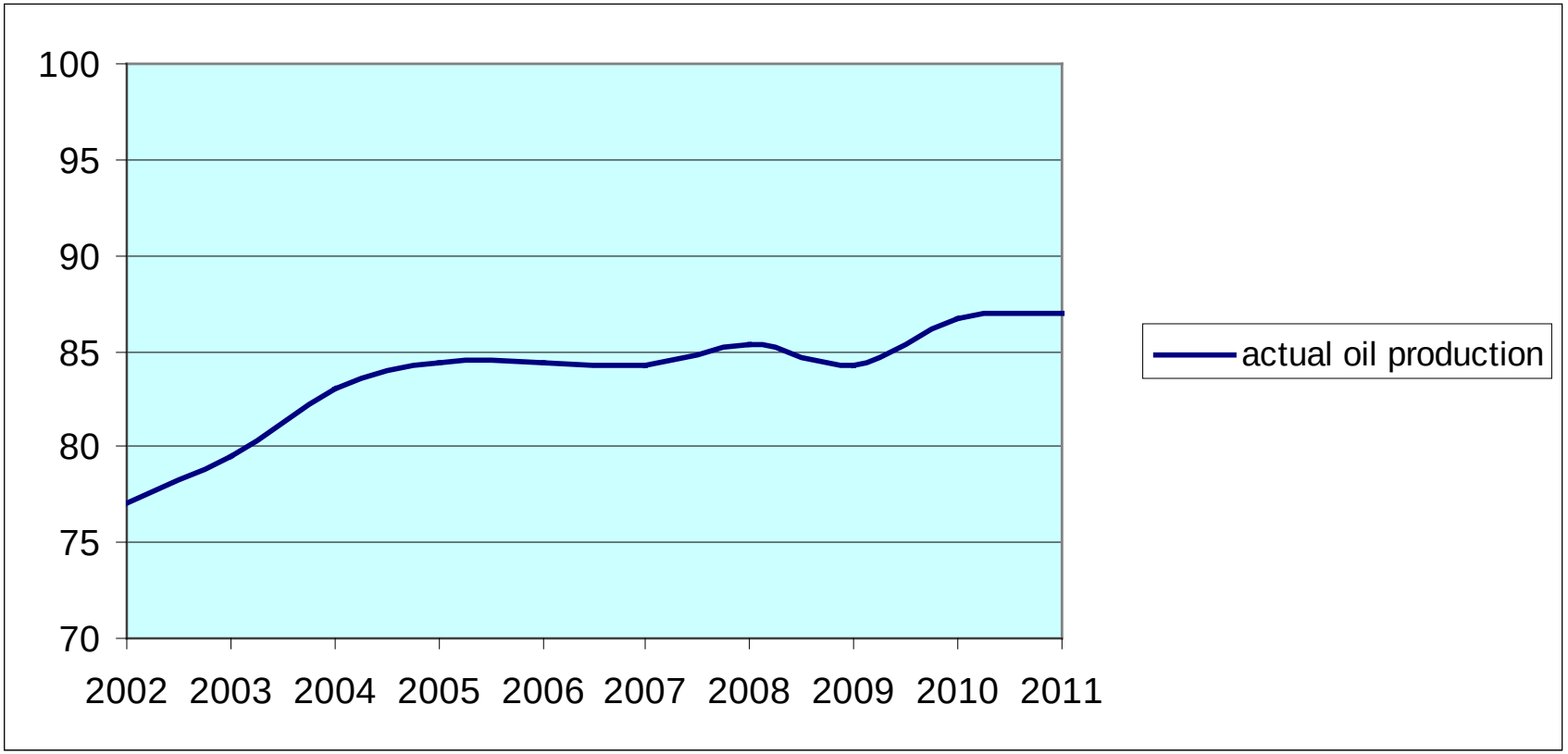

Oil Supply
20
10
0
-10
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
Global Demand
40
20
0
-20
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
Oil Inventory Demand
20
10
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
Speculative
10
0
-10
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009


Oil Supply
20
10
0
-10
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Global Demand
40
20
0
-20
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Oil Inventory Demand
20
10
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Speculative
10
0
-10
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009



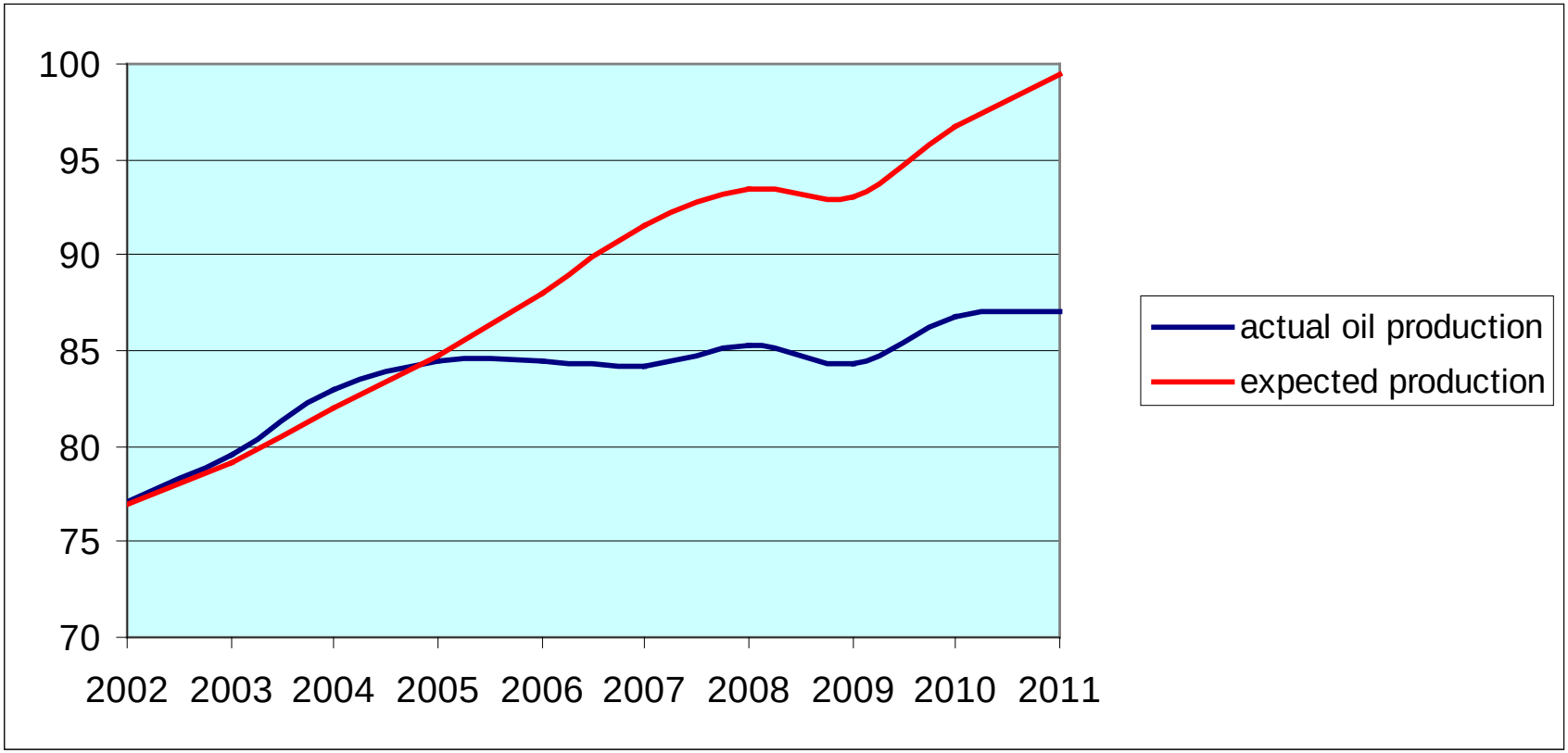
Weekly U.S. ending stocks of crude oil (excluding SPR), thousands of barrels

Total global oil production, 2002-2011 (millions of barrels per day)



World real GDP increased 17.5% (logarithmically) from 2004 to 2008

Projected demand growth assuming constant price and income elasticity = 0.75



2011 shortfall = 12.5 mb/d (13.4% of world production)

Sample calculations

- Price of oil at end of 2004 was $50/barrel (in 2011 dollars)
- If we assume price elasticity of 0.1, price today should be (50)exp(0.1344/0.1) = $192/barrel (value reached in June 2008 was $147)
- If we assume price elasticity of 0.2, price today should be (50)exp(0.1344/0.2) = $98/barrel

Summary

- Speculation as the paper defines it is probably a good thing
- This method for estimating the contribution of speculation is not convincing
- The paper concludes that speculation historically mattered very little and not at all for the price spike of 2007-2008
- The most important fact is stagnating global production since 2005