

FORENSIC ECONOMICS: AN INTRODUCTION WITH SPECIAL EMPHASIS ON PRICE FIXING

**John M. Connor
Professor of Industrial Economics
Purdue University
West Lafayette, Indiana
jconnor@purdue.edu**

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OBJECTIVE

To explain accepted methods of forensic analysis and how forensic economics is used in the context of competition-law enforcement

Definition: economic analysis presented to government and judicial authorities in public places.

Ordinary Analysis

- For professionals
- Bland language
- Avoid prescriptions
- Public good
- Disinterested/curious readers

Forensic Analysis

- For amateurs
- Persuasive language
- Takes a point of view
- Sold to clients
- Read for profit

AN ANCIENT ART

- **Lysias writes a prosecutor's speech 326 BC**
- **Public jury trial of a ring of Athenian wholesale grain merchants accused of hoarding supplies, monopsonistic procurement, and excess profits**
- **The overcharge rate (500%) is cited**
- **Merchants try the pass-on defense**
- **The prosecutor appeals to general deterrence**
- **Special deterrence is harsh (death)**

WHEN DID IT TAKE OFF?

- As Congressional advisors, as early as 1898
- For the U.S. FTC from 1914
- As testifying experts in U.S. private antitrust suits in the 1950s, but accelerated in 1970s
- 1000-2000 private U.S. antitrust suits per year
- 50-100 in Canada since mid 1990s
- Cartel overcharges by DOJ economists mid 1980s (large fines only)
- Federal Cartel Office bases fines on damages 1958
- Public DOJ damages estimates since 2005 because of *Booker* decision on criminal sentencing
- Few antitrust authorities calculate cartel harms for fines (ICN 2005 survey)

WHY IS FORENSIC ECONOMICS BETTER DEVELOPED IN NORTH AMERICA?

NORTH AMERICA

versus

EUROPE

Taste for empiricism in IO

Taste for theory in IO

Large Econ. Departments

Large Leveling of Universities

Govt.-University mobility and policy engagement

Antitrust Authorities do economics in-house

Note: Restraints on private actions in EU are being relaxed rapidly. Provim case may turn UK and Ireland into preferred fora.

WHY IS FORENSIC ECONOMICS BETTER DEVELOPED IN NORTH AMERICA?

NORTH AMERICA

**Private damages actions
common:**

**Civil law
Follow-on actions only
Discovery limited
Contingency opposed
Loser pays
Low damages paid
Class action rare**

EUROPE

**Private actions
“undeveloped”:**

**Common law
Govt. actions optional
Generous discovery
Contingency fees
Fees and costs awarded
1X or 3X damages
Class action rules**

Note: Restraints on private actions in EU are being relaxed rapidly. Provimis case may turn UK and Ireland into preferred fora.

CARTEL OVERCHARGE ESTIMATION: METHODS

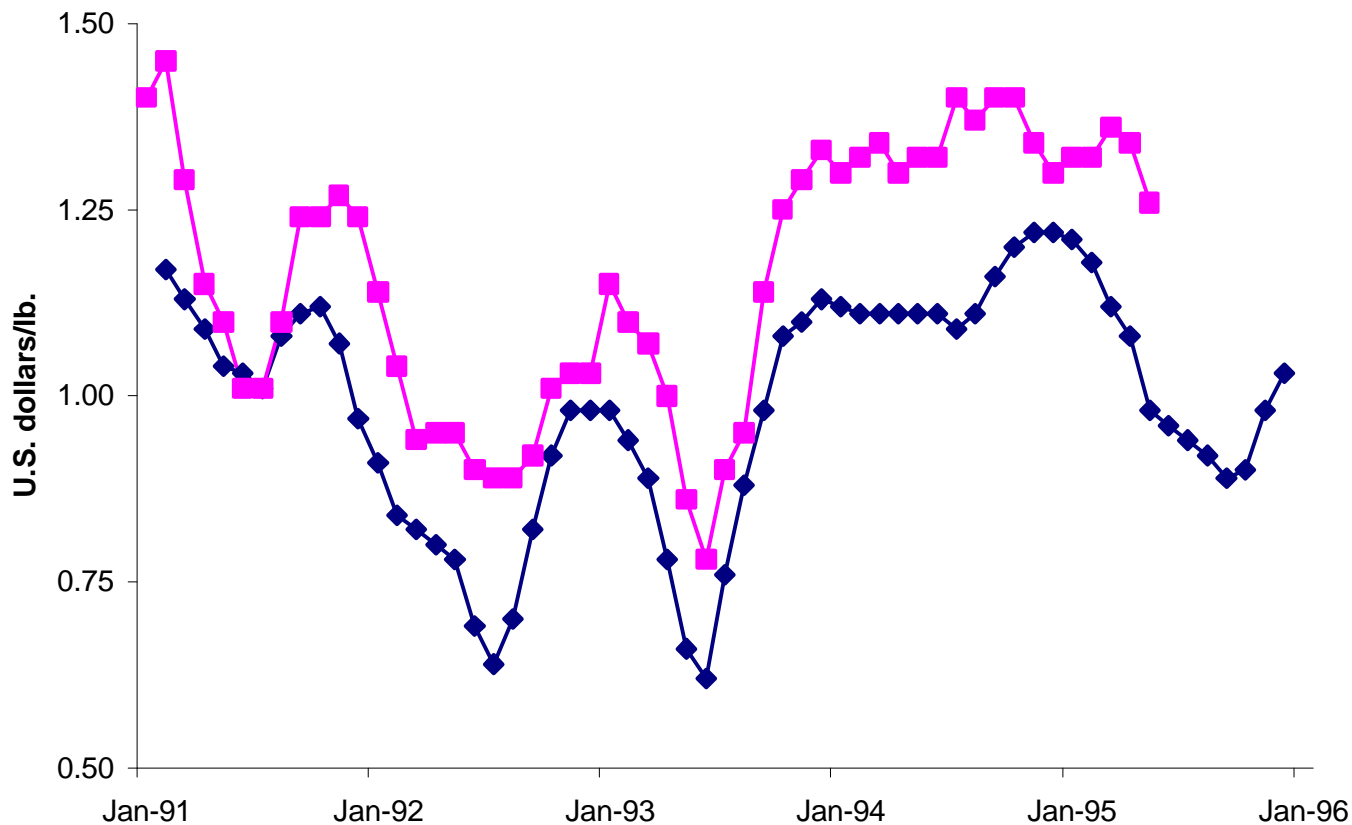
- Market definition problem is solved by the defendants themselves
- Except for lags, the collusive-effects period is a parameter
- Most data supplied by the defendants, so quality not a matter of dispute
- Proof of the “fact of injury” usually unnecessary, only amount of injury
- Standard of proof is “reasonableness”
- Dead-weight losses should be calculated, but rarely permitted in U.S. courts
- Pass-on a major issue in indirect-buyer cases
- Main issue is the benchmark/but-for price

CARTEL OVERCHARGE ESTIMATION: METHODS

- Five methods reasonable:
 - Before-and-after (With-and-without collusion)
 - Yardstick/analogous market
 - Marginal-cost based
 - Constant-margin analysis
 - Reduced-form multiple regression:
 - a) Dummy variable model
 - b) Forecasting or backcasting

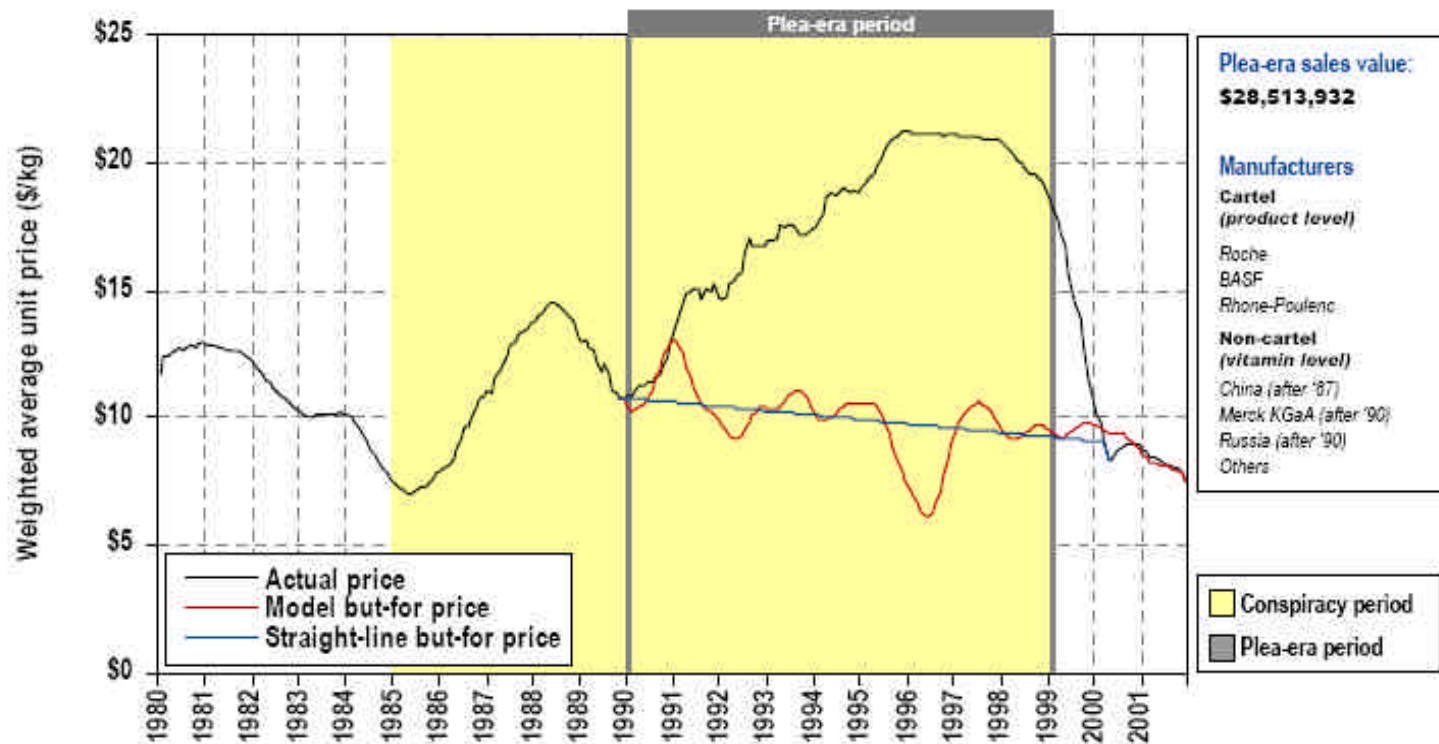
RAW DATA EXAMPLE

Figure 1. Lysine Transaction Prices, U.S. and EU Markets, 1991-1996.



BEFORE-AND-AFTER METHOD

Figure 12-1: Vitamin E Acetate 50% Spray-Dried Feed Grade price and but-for price



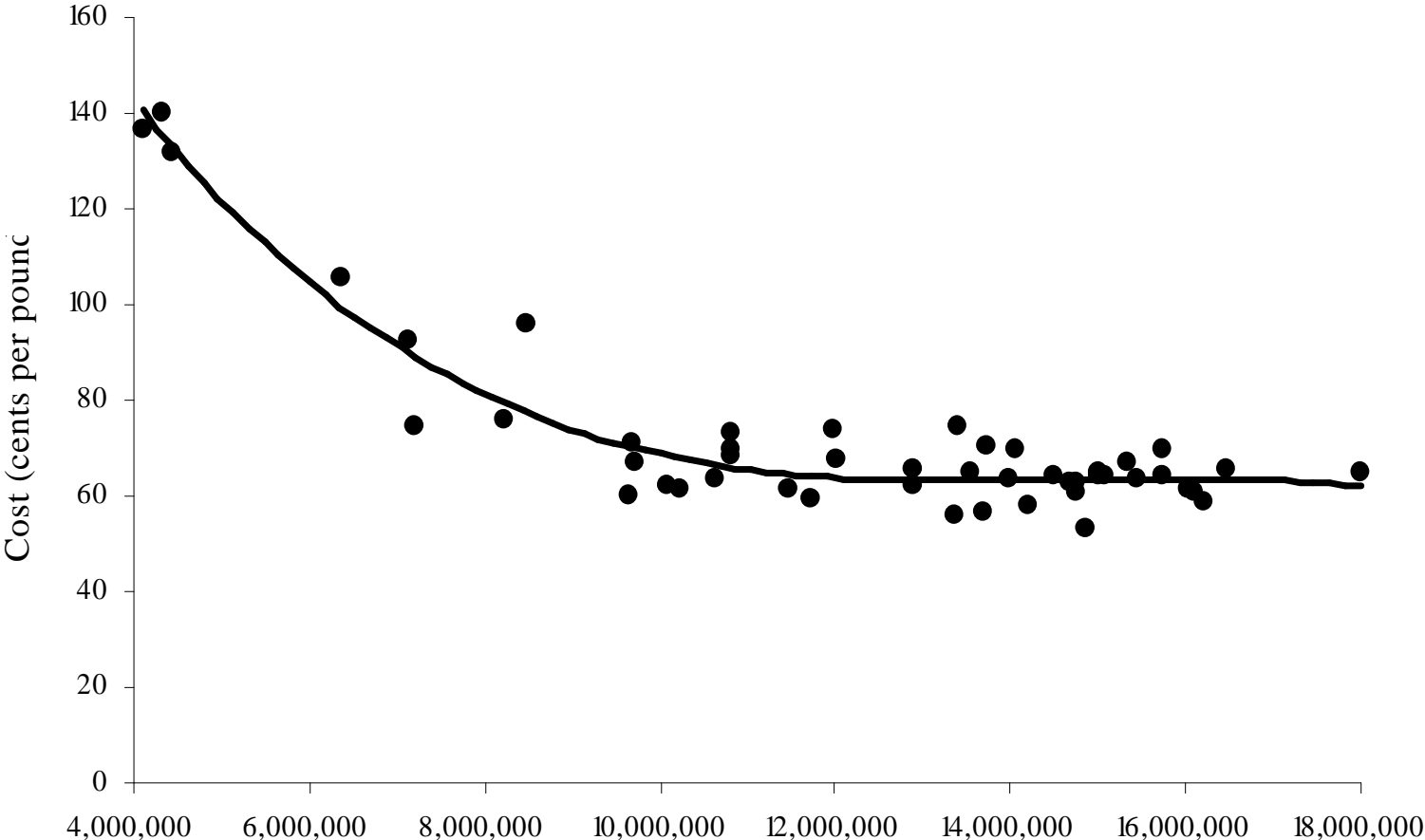
Source: 7-month centered moving average for U.S. "tel quel" feed price from Roche ROVIS data

YARDSTICK METHOD

- Most often applied to localized bid-rigging cartels
- First step is to find a near-by market with similar demand and supply characteristics
- Test with simple correlation of pre-collusion prices in affected market with analogous market
- Repeat correlations in post-cartel period
- If correlations high, calculate differences in prices between two markets during collusive period
- Sometimes analogous product is used, but this is less common

MARGINAL-COST APPROACH 1

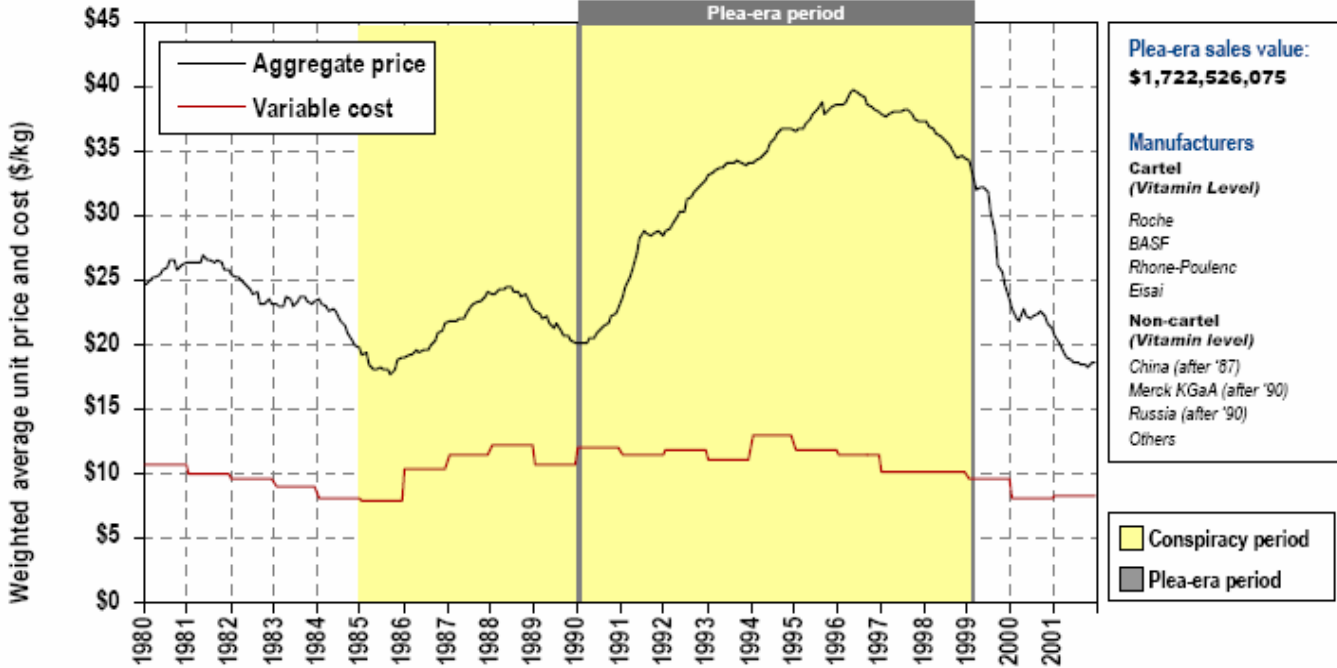
Figure 2. ADM's Lysine Manufacturing Costs, 1991-1995.



Source: Trial Exhibit in U.S. v Michael D. Andreas et al.(1998)

MARGINAL-COST APPROACH 2

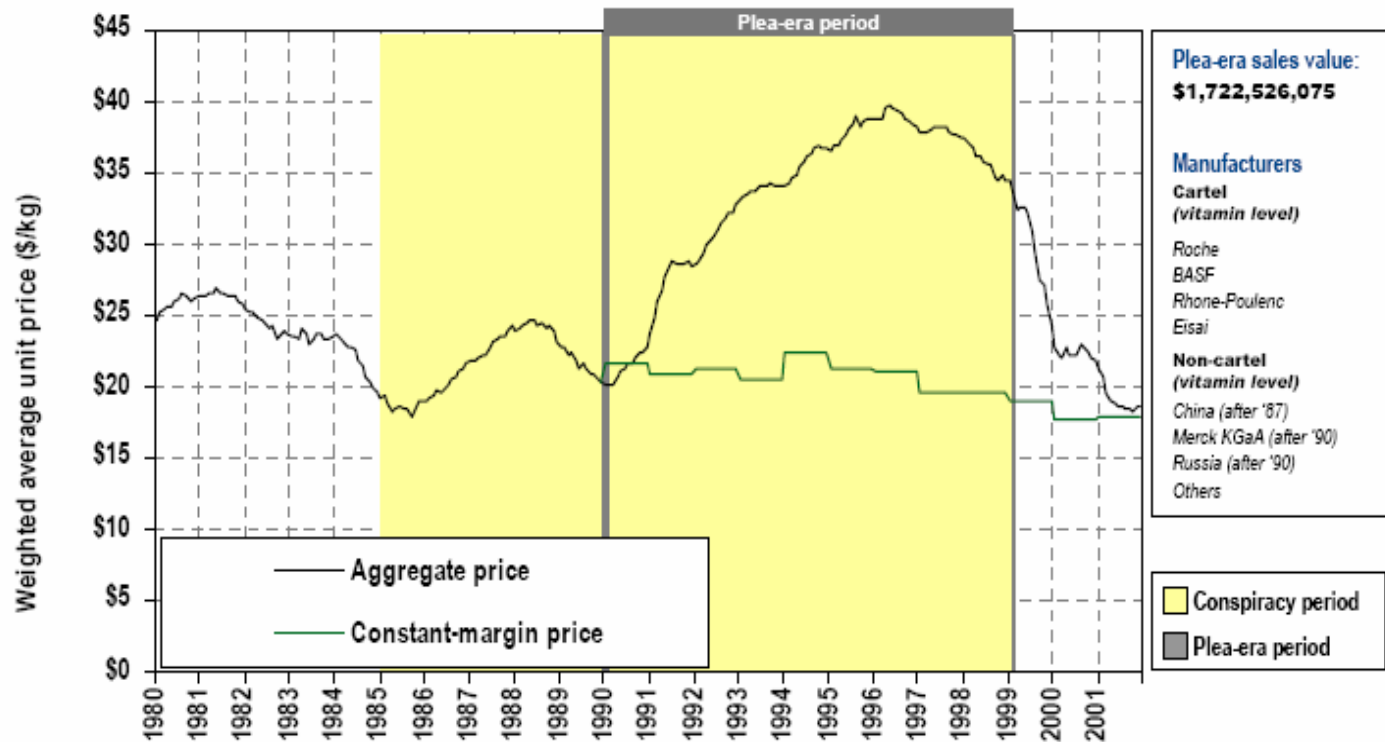
Figure 9-1: Vitamin E aggregate price at 100 percent basis and variable cost



Source: 7-month centered moving average for U.S. "tel quel" price from Roche ROVIS data and contribution margin data from Roche Data Books

CONSTANT-MARGIN METHOD

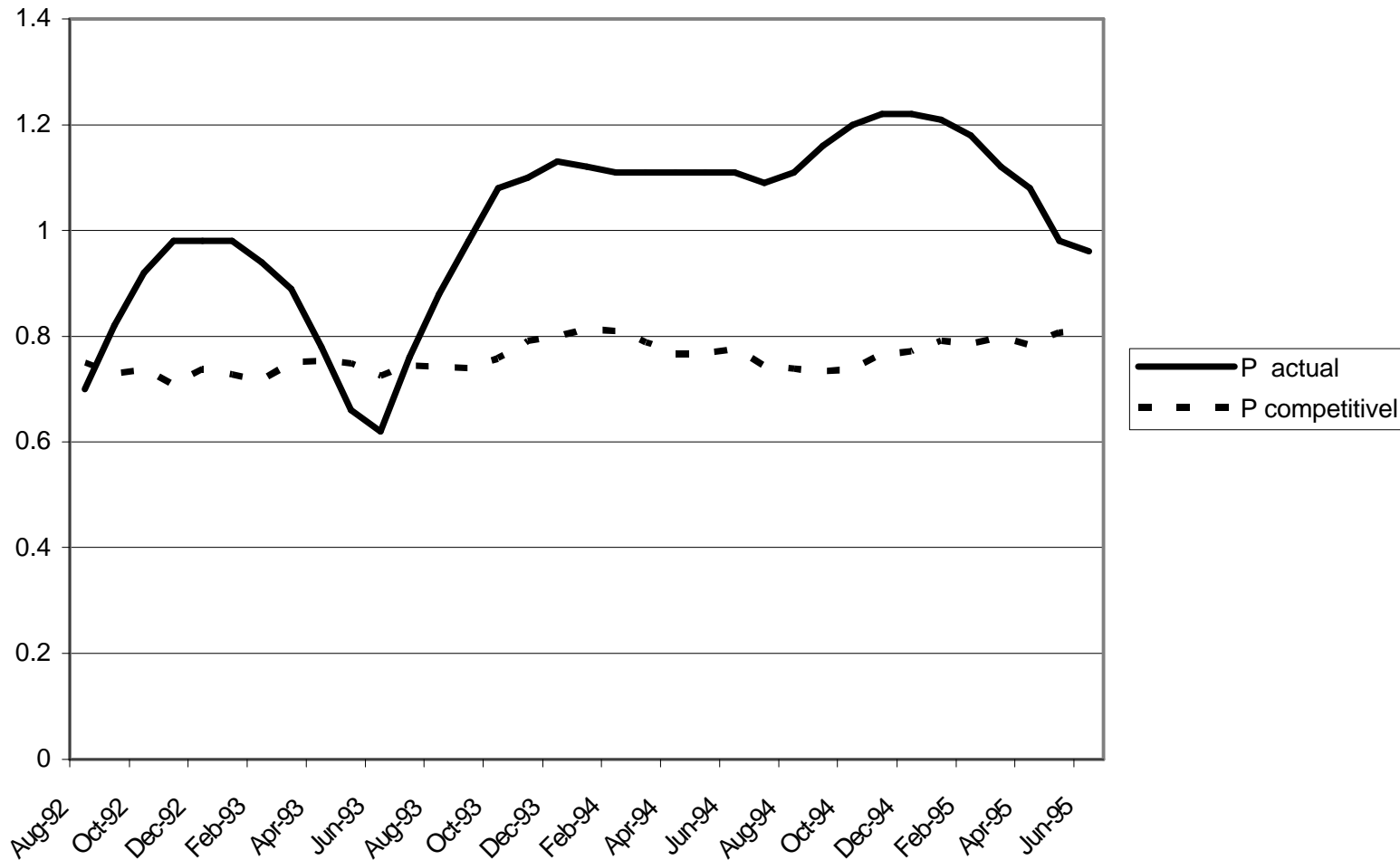
Figure 12-5: Vitamin E aggregate 100 percent basis price with constant-margin price



Source: 7-month centered moving average for U.S. "tel quel" feed, food, pharma, and cosmetic price from Roche ROVIS data and contribution margin data from Roche Data Books

ECONOMETRICS WITH DUMMY VARIABLE

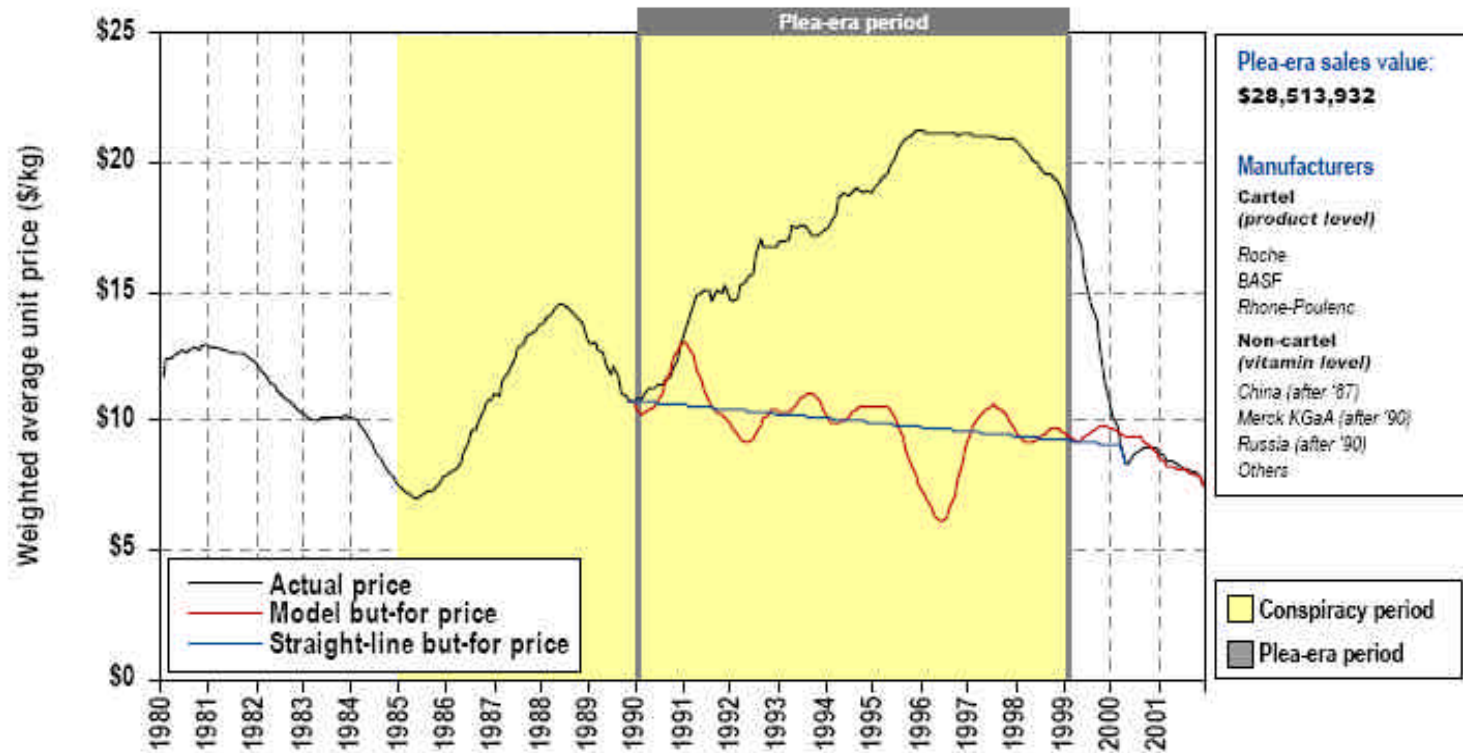
Figure 5: Lysine Prices - Actual versus Competitive Model



Source: Morse and Hyde (2003)

FORECASTING ECONOMETRICALLY

Figure 12-1: Vitamin E Acetate 50% Spray-Dried Feed Grade price and but-for price



Source: 7-month centered moving average for U.S. "tel quel" feed price from Roche ROVIS data

Conclusions

- Regression techniques in principle superior, but tend to take time
- Connor and Bolotova (*IJIO* 2006) found no evidence of bias among the 5 method
- Best to present simpler methods in forensic settings, if only to verify regression results