

Price Model Segment

Outline

- Cointegration analysis of dockside prices
 - Impetus for research
 - Major results
- Groundfish price model
 - Specification & data
 - Relationship to previous models
 - Results
- Weaknesses
 - Missing market information
 - Consumer surplus

Cointegration Analysis of Dockside Prices

- U.S. whitefish market is complex with many species that compete with each other at the local level and nationally
- Model specification has been somewhat arbitrary
- CMER project to test for cointegration of whitefish prices over the long run
 - New England dockside prices (15 groundfish species)
 - Region wide and by port
 - Import prices (national)
- Results
 - Aggregation: cointegration found for most species
 - Exogeneity of cod prices: drives prices of other species

Cointegration (ctd)

- “In conclusion, even with the relatively weak results of this analysis, we can say that groundfish prices are influenced by the prices of cod. There is some cointegration among the other groundfish species, except for yellowtail and windowpane flounder. Therefore, estimation of the demand equations could probably proceed by using cod as the substitute species in all equations, and using the rest of the groundfish species (except yellowtail and windowpane flounder) as an aggregated good.”

(Roheim et al. 2003. Market information and fisheries management. NOAA/CMER Award #NA07FE0188. p. 36)

Amendment 13 Dockside Price Model

- **Model specification conformed to:**
 - management needs
 - biological inputs
 - cointegration results
 - available information
 - not a multi-market model
- **Data:**
 - annual landings and average prices (1977-2001)
 - regional
 - geographic variation by state or ports and differences in prices among gears not modeled

Amendment 13 Dockside Price Model (ctd)

- Relationship to previous models:

- Amendment 5

- 10 large mesh species
 - aggregate of pollock, white hake, redfish, windowpane
 - annual average market category prices 1972-1990
 - fish size
 - time

- Amendment 7

- 10 large mesh and 3 small mesh species
 - aggregates of 7 large mesh (not C,H,Y) and 3 small mesh
 - monthly average regional prices 1977-93 with exclusion of outliers
 - NE imports and landings of other species are substitutes
 - income

Amendment 13 Dockside Price Model (ctd)

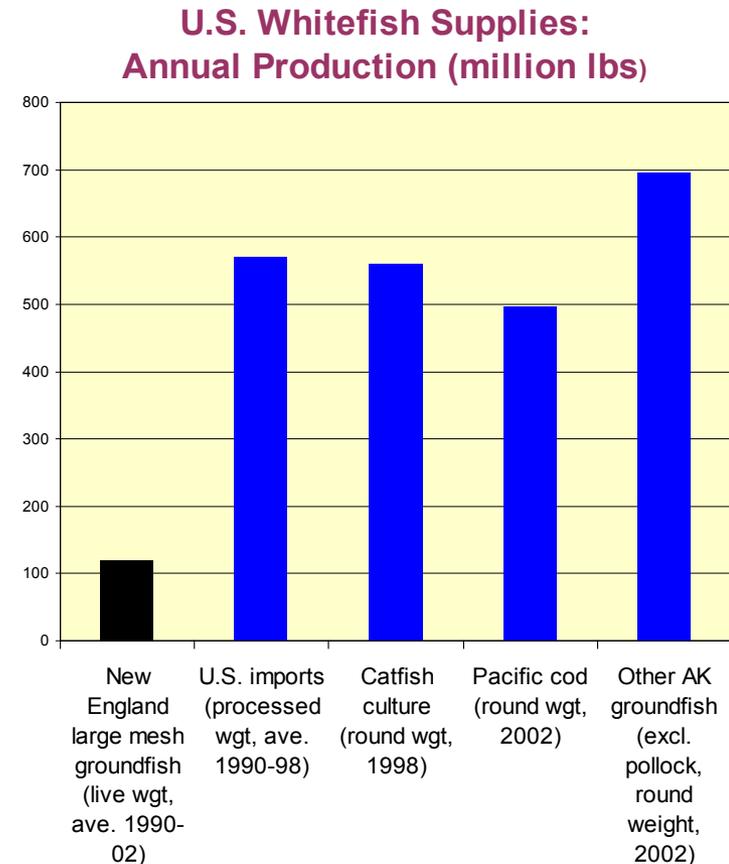
- Relationship to previous models (ctd):
 - Amendment 13
 - 10 large mesh species
 - separate models for cod, haddock, yellowtail, and redfish
 - aggregate of pollock, white hake, plaice, winter flounder, witch flounder, windowpane
 - annual average regional prices 1977-2001
 - cod is price leader
 - time

Amendment 13 Dockside Price Model (ctd)

- Results:
 - expected influence of landings, but price changes are inflexible
 - cod price increased about 3 cents/yr
 - influence of cod price consistent across equations

Weaknesses

- Missing information on influence of national markets on local dockside prices:
 - New England groundfish landings comprise a relatively small share of total whitefish supplies
 - low Durbin-Watson statistics and high R^2 suggest that the model is misspecified in some way



Weaknesses (ctd)

- **Net benefit estimation:**
 - adequate to predict prices in short run
 - some confidence in predicting changes in revenues from changes in landings
 - estimating consumer surplus and welfare in forward markets is uncertain

