Renewable resource market responses to rights-based management: market linkages in southern US fisheries.

BACKGROUND

- Property rights are foundational to economic and ecologic efficiency.
- Recently, there has been increased awareness of the consequences of common pool or open access management of renewable natural resources.
- This has led to the expansion of rights-based management for resources such as timber, water, and fisheries.
- The Gulf of Mexico implemented individual fishing quotas, IFQ, in 2007.

OBJECTIVES

- To our knowledge, no one has used market integration analysis as a tool to determine the efficiency of natural resource-leasing markets.
- Our objective is to show the effectiveness of this tool on the United States Gulf of Mexico (GOM) individual transferable quota market for snapper and grouper species.

METHODS

- For our cointegration analysis of the GOM fishery, we used the Johansen test.
- This method allows for hypothesis testing and, therefore, law of one price (LOP) and exogeneity testing.

ANALYSIS

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<tr>
<th>Variables</th>
<th>Time Period</th>
<th>Lags</th>
<th>Cointegration</th>
<th>Exogeneity</th>
<th>LOP</th>
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INITIAL FINDINGS

- Fishery ex-vessel and allocation (lease) prices are cointegrated, which is evidence of an efficient market. A visual example of a cointegrated market can be seen in figure 1.
- Ex vessel LOP only holds after IFQ implementation, suggesting the management system may have caused a shift in the grouper market.
- Ex vessel/Allocation LOP holds in select cases, with the only difference in price being transportation or harvest costs.
- Ex-vessel prices appear to be exogenous. That is, they determine allocation prices. This supports previous literature.
- Time series show the success of the IFQ system in increasing product value and decreasing price volatility, as seen in figure 2.