

VESSEL BUYBACK AUCTIONS

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MOTIVATION

- **Tragedy of the Commons: Lack of formal property rights leads to capital stuffing, overfishing, and diminished profits for all**
- **ITQs fix, but hard to implement**
- **Practical response is limited entry/catch at fishery level**

LIMITED ENTRY

- What is limited entry?
 - Formally set TAC
 - Implicitly set TAC through restrictions on season, gear, etc.
- Combats problem of overfishing
- Exacerbates problem of capital stuffing
 - Race to fish with cap on total catch
- International makes participation tricky

BUYBACK AUCTION

- Buyback program can help address overcapitalization through buying out and retiring vessels
- Only effective if entry/catch truly limited
- Industry must be heterogeneous in profitability to ensure mutually beneficial deals
 - Buyers are better off net of purchase price
 - Sellers are better off after exit

BUYBACK FINANCING

- Assume that buybacks will be self-financed
 - Clearly easier with injection of cash, but from whom?

Two Approaches to Financing:

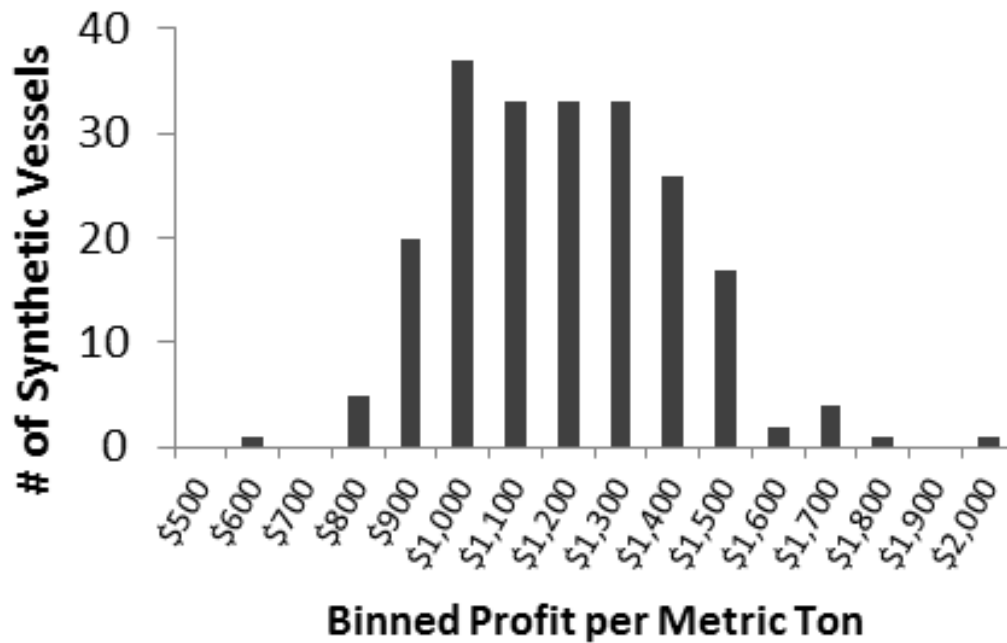
- Homogenous Tax: easy to implement but only as good as least profitable boat that remains
 - → smaller buyback
- Heterogeneous Tax: Boats that benefit more can contribute more, but enforcement is tricky
 - → larger buyback

APPLICATION TO IATTC

- Create a ‘synthetic’ tuna fishery based on vessel-level operational costs, catch, and price data
 - Costs & catch randomly merged to preserve anonymity
- Time period: 2008-2011.
- Vessels: Class V and VI vessels that operated in IATTC
- Catch: Yellowfin, Skipjack, and Bigeye

DISTRIBUTION OF PROFITABILITY

Profits per Metric Ton of Catch in Synthetic Fleet



CASE STUDY – SOME CAVEATS

- Fleet is synthetic so more illustrative than definitive
- We don't observe vessel size so need to make an assumption
 - Relative Capacity – assume that each vessels catch in data represents a fixed percentage of capacity
 - Vary at 80%, 90%, 100%

3 FINANCING APPROACHES

- Perfect Discrimination
 - Everyone pays based on increased profits
 - Unrealistic but useful benchmark
- Heterogeneous Tax
 - Everyone pays based on change in catch
 - Catch observable, but catch imperfect proxy for profit
- Homogenous Tax
 - Everyone pays the same amount

RESULTS – RELATIVE CAPACITY

	Capacity Scaling Factor	Boats Bought-Out
Perfect Tax Discrimination	80%	110
Heterogeneous Tax – Based on Catch		105
Homogeneous Tax		2
Perfect Tax Discrimination	90%	98
Heterogeneous Tax – Based on Catch		93
Homogeneous Tax		1
Perfect Tax Discrimination	100%	85
Heterogeneous Tax – Based on Catch		79
Homogeneous Tax		0

CONCLUDING REMARKS

- Buybacks can significantly decrease the size of a fishery if entry is limited and vessels differ in profitability
- The financing mechanism matters and homogenous approaches will limit size of buyback
- ‘Practical’ heterogeneous approach applied to synthetic IATTC implies industry contraction of 35-50%