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Individual Transferable Quotas: Attributes, Outcomes and Allocation

Symposium on
Fishing Quotas and Quota Allocation

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Organization of talk

1. Background
   - The vital economic role of property rights
   - The common property problem in fisheries
   - Property rights in fisheries
2. Individual transferable quotas, ITQs
   - Properties of ITQs
   - The spread of ITQs around the world
   - The outcomes of ITQs
3. Special issues
   - The initial allocation of ITQs
   - Special taxation of ITQs

The vital economic role of property rights

- Most economic activity in the world is based on property rights (i.e. rights-based)
  - Property rights lead to markets (not the converse)
- Markets have been economically very successful
  - Responsible for the great economic progress of modern times
  - In Europe, real incomes have risen 100-fold since 1800
  - Foundation for modern day material well-being
- Non-existent or weak property rights ⇒ economic problems/inefficiencies
  - Many natural resources: e.g. ozone layer, climate ..and fish.

Weak property rights: The common property problem

- Common ownership (or use rights) to resources
- Often economically and environmentally devastating
- This problem has been understood for a long time

Quote from Aristotle (Politics book II section 3).

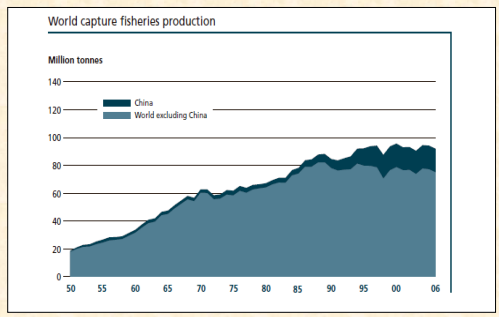
"There is a further drawback to common ownership: the greater the number of owners, the less the respect for the property. People are much more careful of their own posessions than of those communally owned."

The Common Property Problem in Fisheries

- Leads to:
  - Excessive fishing effort
  - Excessive fishing fleets
  - Excessively diminished fish stocks
  - Little or no profits in fishing

∴ Loss of all attainable economic benefits!

Trends in Global Capture Fisheries



Dramatic overexploitation of global fish stocks

FAO: 75% of global fish stocks fully or overexploited

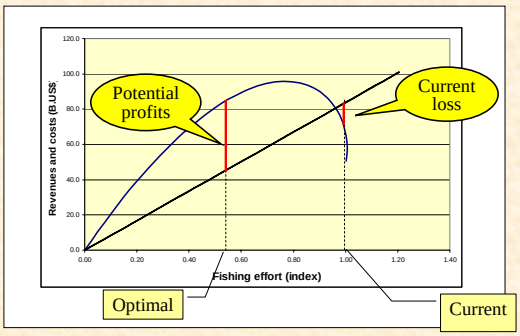
- The most valuable ones are the most overexploited
- Volume og global landings have been maintained by "fishing down the food-chain" (focussing on less valuable pray species)

The Economics of Global Fishing

- Not only has there been a dramatic biological mismanagement of the global fishery, the economic mismanagement is even worse
- Global landed value is about USD 100 b. per year
- Real profits are negative, perhaps ≈ USD -5 b.
- Subsidies are high, perhaps USD 10 b. (EU, Japan)
- Profits after subsideis, perhaps USD 5 b

The Economics of the Global Capture Fishery

(FAO/World Bank 2009. "Sunken billions")



How do deal with the common property problem in fisheries ?

Obvious solution:

Introduce individual property rights !

This is how the CP-problem has been solved in other areas of natural resource use

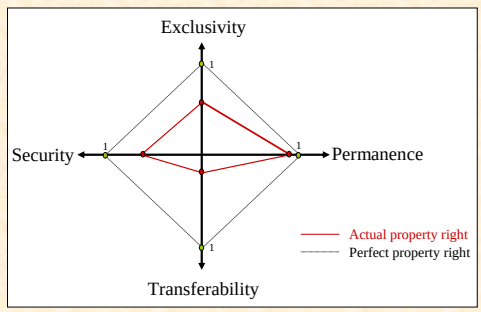
E.g. land use, farming, meat production (animal husbandry, instead of hunting), forestry....etc.

But, property rights must be sufficiently high quality!

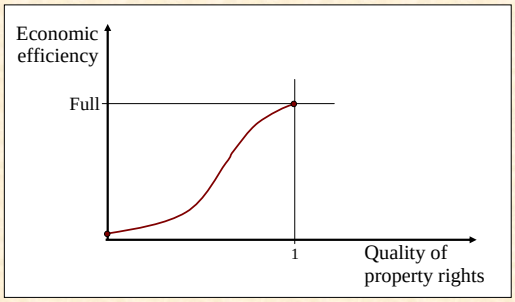
Key property rights attributes

1. Security
2. Exclusivity
3. Permanence
4. Transferability

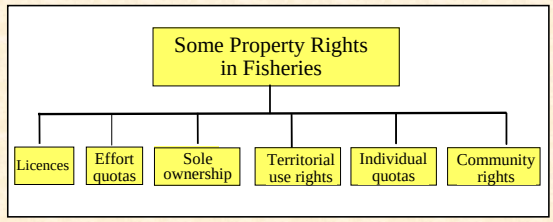
Property Rights quality: Graphical representation



PR quality and economic efficiency
(From Arnason 2007)



Property rights in Fisheries



- Licences and effort quotas are too weak to make much difference
- Sole ownership and TURFs are good, ... if feasible
- Individual quotas are widely applicable and often effective
- Community rights merely reduce the scope of the CP-problem

What are ITQs?

Individual rights (property rights) to a quantity of harvest over a period of time.

- Not property rights in stocks!
- Not property rights in aquatic habitat!

⇒ Weak property rights in the fundamental resource

- Much weaker PRs than, say, farming rights or TURFs

Nevertheless, ITQs

(1) Usually lead to efficient harvesting of the TAC
- Reduce fishing effort
- Minimize costs (fleet, timing of effort etc.)
- Maximize value (quality, marketing, timing of supply)

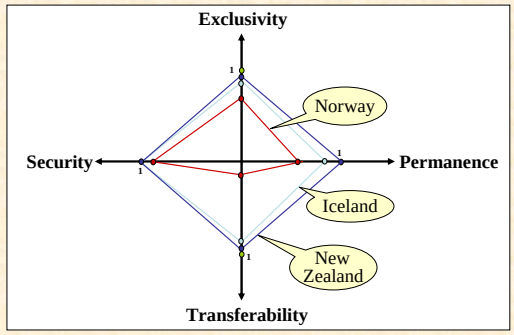
(2) Create a basis for fisheries self-management
- Selecting the correct TAC
- Protecting the underlying resource (ecosystem & aquatic habitat)
- Setting and enforcing sensible fisheries rules

(3) Create basis for optimal joint use of marine resources
- Recreational fishing, ocean mining, conservation etc.

Effectiveness of ITQs

- Depends very much on the quality of the ITQ property rights.
  1. Security; (from "ad hoc" decisions to constitutionally protectected rights)
  2. Exclusivity (government fishing rules, enforcement)
  3. Permanence (from 1 year to indefinitely)
  4. Transferability (from zero to virtually unlimited)

Example:
Property Rights Value of three ITQ Systems



Adoption of ITQs Worldwide

- Since the late 1970s, ITQs have been adopted in the world's fisheries at an increasingly fast rate.
  - Currently, ITQs are employed in hundreds of fisheries worldwide.
  - At least 22 fishing nations employ ITQs in their fisheries management.
    (New-Zealand, Australia, USA, Canada, Greenland, Iceland, Holland, Norway, Denmark, Sweden, Estonia, Germany, UK, Portugal, Spain, Russia, Morocco, Namibia, South Africa, Chile, Peru, Falkland)
  - Close to 25% of the global catch is taken under ITQs!

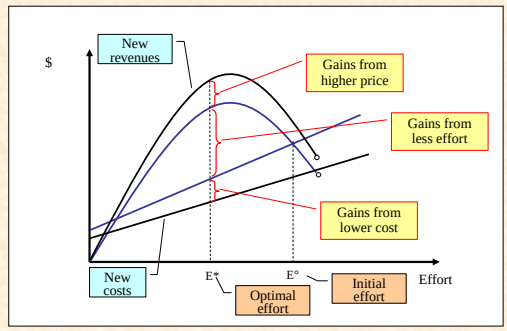
ITQs worldwide: Speed of adoption

Decade	Adoption of ITQs: (no. of countries)	Approximate volume of harvest (m. metric tonnes)
1970-79	2	0.2
1980-89	5	2.0
1990-99	7	4.0
2000-09	8	14.0
Total	22	20.2

Outcomes of ITQs worldwide - General patterns -

- Economically and biologically quite successful
  - (1) Reduction in fishing effort (usually immediately)
  - (2) Fishing capital declines (but usually slowly)
  - (3) Biomass recovers (slowly) or stops declining
  - (4) Unit price of landings increases (often substantially)
  - (5) Profitability increases (often substantially)
  - (6) Quotas become valuable (quickly!)
  - (7) Resource stewardship; incentives to enhance stocks
  - (8) Discarding: Often reduced

More efficient harvesting under ITQs



Outcomes of ITQs (cont.)

(1) Tendency for more concentration (fewer, larger companies)
- But really inevitable for an initially overexploited fishery

(2) Tendency for reduction in fisheries employment
- But often less than often expected (more quality, more value–added, further processing/marketing)
- Also, probably an increase in total employment (increased GDP)

(3) Tendency for some regional re-allocation of activity
- Depends on initial situation
- More overall wealth in fishing regions

(4) Tendency for altered distribution of income
- Some get more of the social gains, some may lose
  => possibly some social unrest

Other important features of ITQs

1. Stock rebuilding (relatively) easy under ITQs
   - The ITQ-shares usually become quite valuable
   - The value is maximized by 'socially optimal' harvesting
   - ⇒ ITQ-holders are automatically compensated for stock rebuilding!!
   - ⇒ ITQ-holders are in favour of stock rebuilding
2. Ecosystem management (relatively) easy under ITQs
   - Same reasons
3. ITQs offer a basis for accommodating (by bargaining)
   - Recreational fishing
   - Fish conservation demand

How to deal with 'negative' social outcomes

- Too much concentration
  - Impose upper limits on company ITQ holdings
- Too much regional reallocation of activity
  - Restrictions on trading accross regions
- 'Unfair' distribution of gains
  - Temporary compensation funds funded by
    - Normal income taxes (will increase)
    - Possibly special (temporary) taxation

But, beware of reduced economic efficiency

Special Issues

Two topics

1. Initial Allocation of ITQs
2. Special taxation of ITQs

Initial allocation of ITQ-rights

- ITQ-systems in at least 22 countries
- Probably about a thousand (1000) ITQ fisheries
- Initial allocation of quota-rights
  - (i) Grandfathering (almost always)
  - (ii) Administrative decision (very rare; in Africa)
  - (iii) Auctions (extremely rare; 4 cases, 2 discontinued)

Why Grandfathering?

1. Expedience (fishers already there)
2. Legality (can't take away customary rights)
3. Fairness (society gains => why should fishers lose?)
4. Economic efficiency
   - Fishers probably the most efficient operators
   - Minimize transaction costs
   - Appropriate incentives (to build support for ITQs; genrating R&D, E&D; build trust in property rights)

Administrative allocations

- A few cases (primarily in Africa)
  - Namibia, South Africa and possibly Morocco
- Apparent reason:
  - No clear prior rights (participation) by national/local fishers
  - Achieve political objectives (more native participation, promote local processing etc.)

Auctions of ITQ rights

- Extremely rare; only four cases
  - Russia and Estonia 2001-3 (discontinued)
  - USA: Washington geoduck fishery (small shellfish fishery. Note: TURFs not ITQs)
  - Chile: Some southern fisheries
- Apparent reason:
  - Raise government revenue
  - Unclear or weak prior rights (WA, Russia, Estonia)

ITQ auctions in Estonia and Russia (2001-3)

- Introduced (2001) some years after having allocated ITQs by grandfathering
- Motivation: Raise government revenue
- Abandoned in 2003
- Reason: Didn´t work well
  - Greatly reduced industry profits, less competitiveness
  - Industry opposition
  - Industry collusion and even boycots of the auctions
  - Very fluctuating auction prices
  - Auction markets didn´t clear (at the reservation price)

Initial allocation of ITQ-rights: - Broad pattern -

- If prior rights holders (i.e. fishers) exist
  ⇒ Grandfathering
- If weak or no prior rights
  ⇒ Administrative allocations or auctions

Special taxation of ITQs - Global Pattern -

1. Payment for management costs (cost recovery)
   - Common in ITQ fisheries
   - Usually small (1-3% of revenues)
   - Usually insufficent to pay for all managment costs (1/3 to ½)
2. Net taxation (on top of normal income taxes)
   - Very rare
   - Namibia, Falkland
     (Countries with a limited tax base)

Why is special taxation rare?

- Economic reasons
  - Economically distortionary (=> reduces GDP)
    - In the fishing industry
    - Between industries
    ⇒ May not even increase overall tax collection
  - Reduces international competitiveness
- Socio-political reasons
  - Opposed by the fishing industry
  - In many respects unfair
  - Often legally questionable

Main points: Summary

1. Important that ITQs be high quality property rights
2. High quality ITQs work
   - Economically & biologically
   - Provide basis for self-management
   - Provide basis for optimal joint use of marine resources
3. Perceived drawbacks can be countered
4. Allocation of rights is almost always by grandfathering
5. Special taxation of ITQs is rare