The increasing Norwegian ITQ (Transferable IQS) financial bobble

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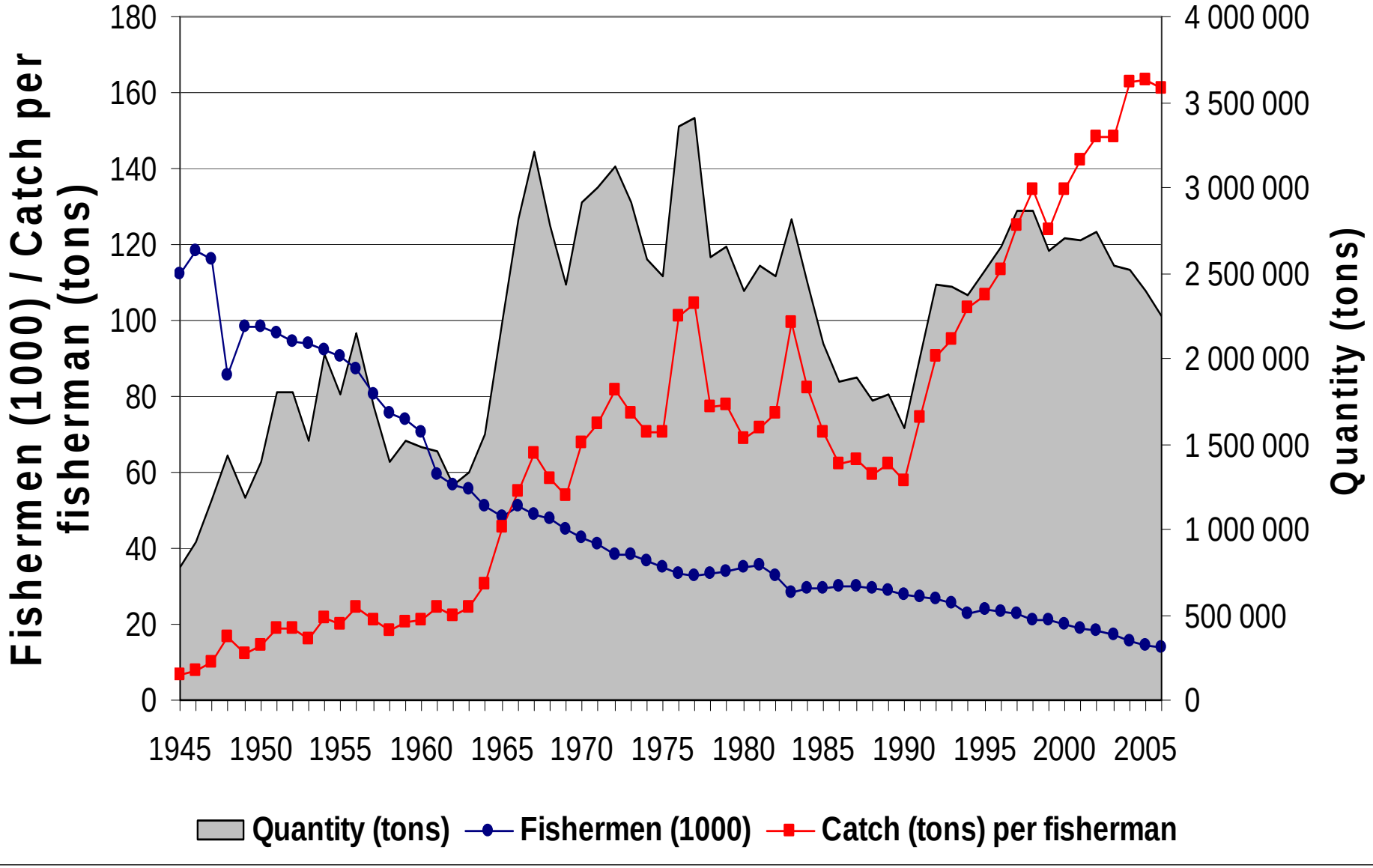
Background: Increased efficiency



Research questions

- Has the Norwegian ITQ regulation increased the added value from fish harvesting?
- Does profitability increase over time after purchasing quotas?
- Are profitability higher among the fishboat owners that have purchased quotas compared to others?

Data

- Official Norwegian accounts for incorporated enterprises 2005-2007
- Analyze level: Average book values for incorporated owners of fishing enterprises
- Include “Intangible quota assets” & “Other operational income”
  - Opportunity cost=real booked value
- Income changes Cod fisheries +19%
- Income changes Pelagic fisheries: -13%
- Income changes Norwegian fisheries: 5,1%

Table 1: The surveyed Norwegian fishing companies accumulated sales values compared with the first hand sales values (Data: The Norwegian Directorate of Fisheries).

	2005	2006	2007	Change 2005-07
First hand sales values in Norway Billion NOK	11, 66	11, 68	12, 05	3,4 %
The surveyed companies sales in % of first hand value	84 %	87 %	85 %	

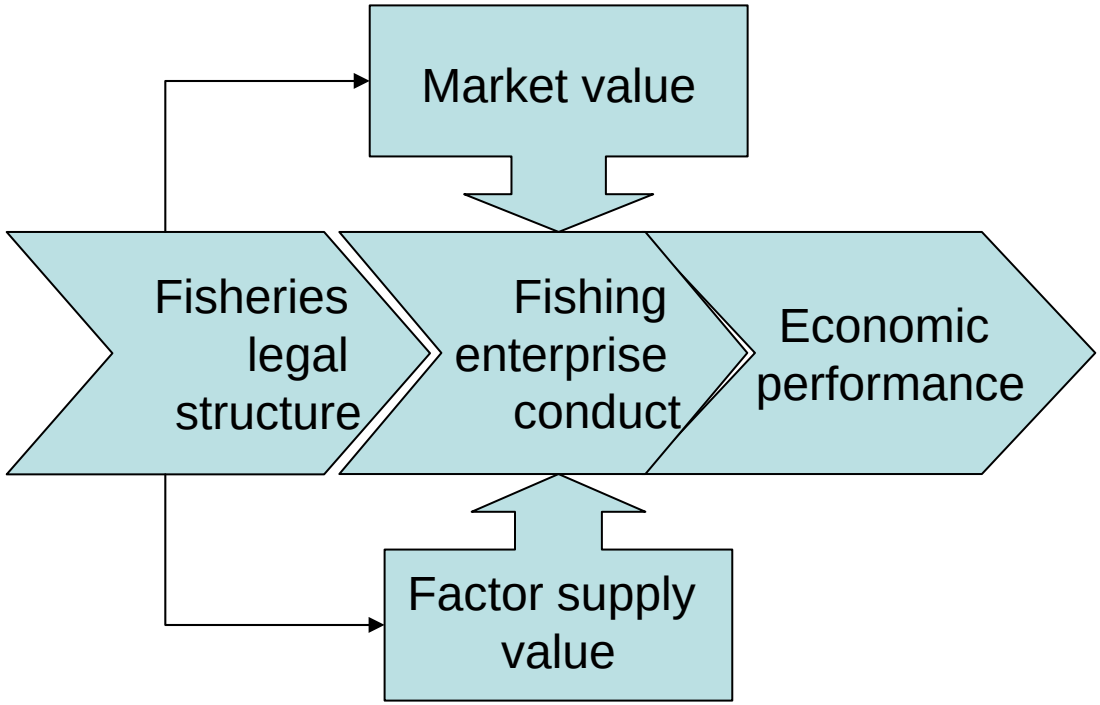
Table 2: Allocation of operational income from all registered fishing companies on owners with specific quota rights.

Year	2005	2006	2007
Accumulated operating income BNOK	10, 82	10, 98	12, 27
Coastal cod vessels <15m	3 %	4 %	4 %
Coastal cod vessels 15-28m	14 %	12 %	13 %
Deep sea long line cod vessels > 28m	7 %	9 %	9 %
Deep sea trawlers	15 %	18 %	16 %
Deep sea pelagic vessels	25 %	20 %	21 %
Other	37 %	36 %	36 %

Holding companies

Analytical perspective

- To generate new knowledge by putting empirical facts together in new ways
- No adjustment of recorded data (e.g. opportunity cost)
- Model assume main relationships to be analyzed
  - Inspired by Industrial economics SCP model



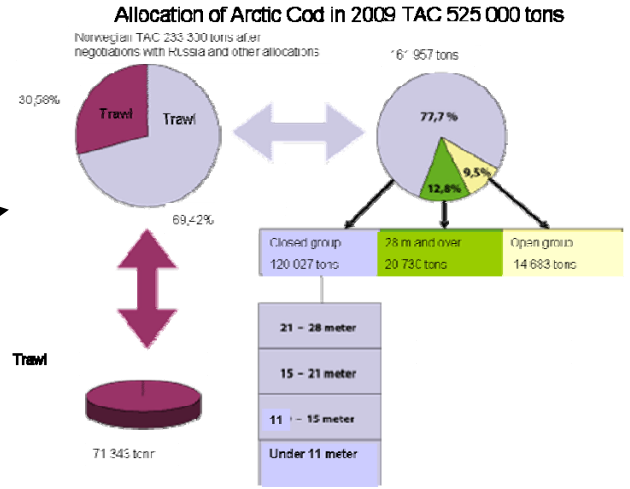
The fishing fleet's legal structure of catching capacity changes

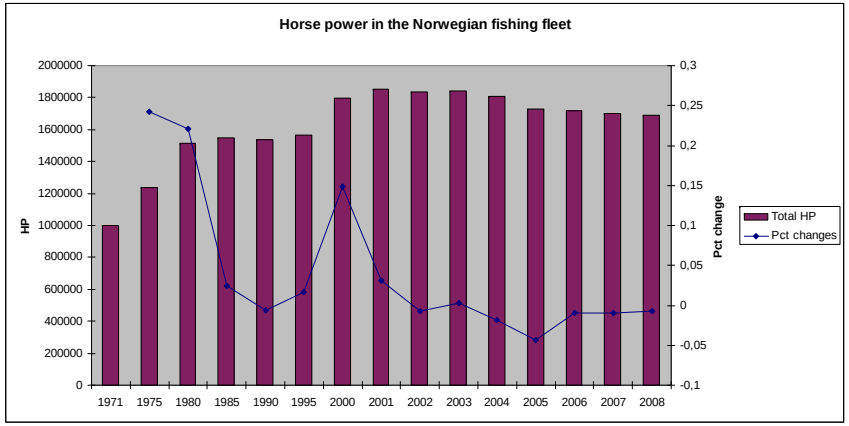
Goals in the fisheries laws
- Fleet profitability
- Coastal employment & settlement

Policy instrument 1: TAC, closing the commons, allocation of IQS & catch control system.

Policy instrument 2: Right to merge IQS- Individual quota shares.

- Fewer vessels, higher IQS per vessel, less capacity (?)
  - 1984: Deep sea pelagic fleet & bottom trawlers
  - 2000: Deep-sea long line fleet over 28 meter
  - 2004: Coastal vessels 15-28 meter
  - 2007: Coastal vessels 11-15 meter
- Limitations:
  - Up to 20% of the quota on the merged vessels are reallocated to their quota group
  - No limitation on engine size
  - Fixed IQS between groups





The fishing fleet's legal structure of catching capacity changes

Policy instrument 3: Rights to lease IQS

- Limited to a share of allocated annual IQS
- All categories of deep-sea vessels
- 2004-2007: Coastal vessels less than 28 meter

Policy instrument 4: Landing obligations

- To specific landing places & regions
- Part of the bottom trawler fleet before 2003
- 2003=>Landing obligations changed to offer obligations

Investment and Performance measures

Investment & operation costs

1) In intangible fish quota assets
   - Economic/resource rent capitalization
   - Relationship between investments in quotas and total income
2) Capitalization of quota values
   - The share of the quota values financed by equity capital
   - The relationship between total income and debt
   - The relationship between Net fixed cost and income
3) Material assets of income
   - The relationship between the value of vessel & equipment and income
4) Operational cost except salaries of income
   - Operational efficiency of income

Performance

5) Return of total capital after financial costs
   - Capital value adding
6) Value adding of total income
   - Return before tax + Salary + Net financial costs.
   - Contribution to National Net Product NNP

Results

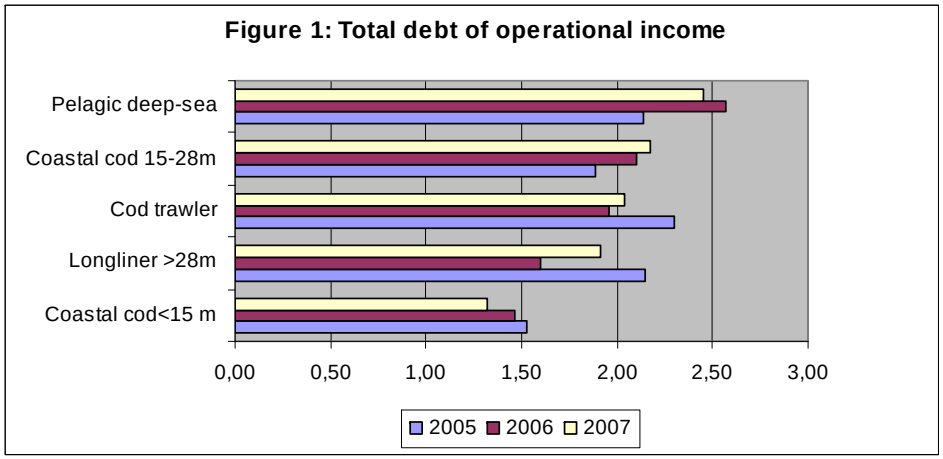
Resource rent capitalization

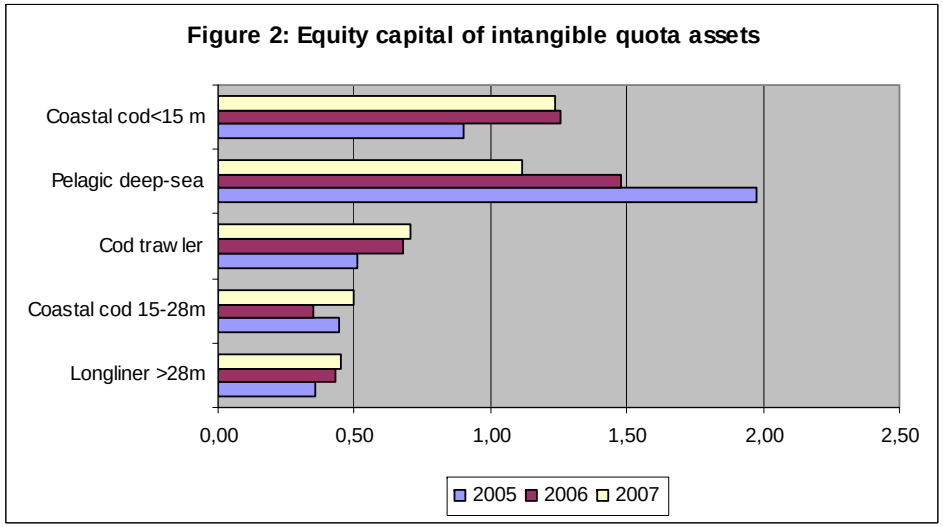
Table 3: Calculated resource rent leakage 2005-2007 i mill NOK. Average value per account * number of enterprises with quota rights in each group

	1.Operating income 2006-07	2. Other income 2006 -07	3. Increased intangible assets (Quota rights) 2005 -07	4. Resource rent leakage (2-3)	
	Mill NOK	Mill NOK	Mill NOK	Mill NOK	Of Income
All accounts	23 251	2 820	3 739	-919	-4 %
Coastal cod<15 m	6 687	589	94	494	7 %
Coastal cod 15-28m	4 669	468	688	-221	-5 %
Longliner >28meter	1 197	403	212	191	16 %
Cod trawler	5 431	142	182	-40	-1 %
Pelagic deep-sea	6 077	290	1 457	-1 167	-19 %
Sum quota enterprises	24 061	1 891	2 619	-728	-3 %

- Assumption: Other income=> mainly from sales and lease of IQS
- RR leakage= Increased intangible assets 2005-07-Other income 2006-2007
- 4% overall resource rent leakage 2006 -2007
  - -19% pelagic deep sea
  - - 5% coast 15-28m
  - + 16% Longliner >28 m
  - + 7% coast <15m

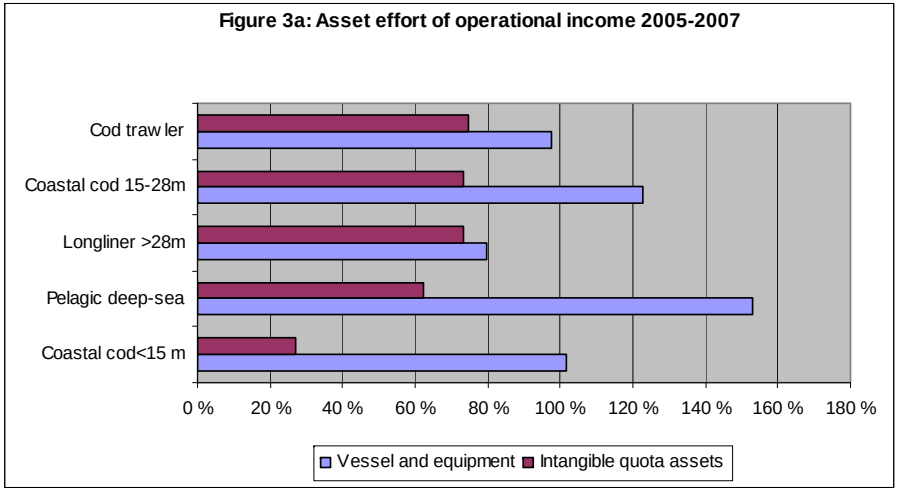
Merging IQSs =>Investments=> More debt

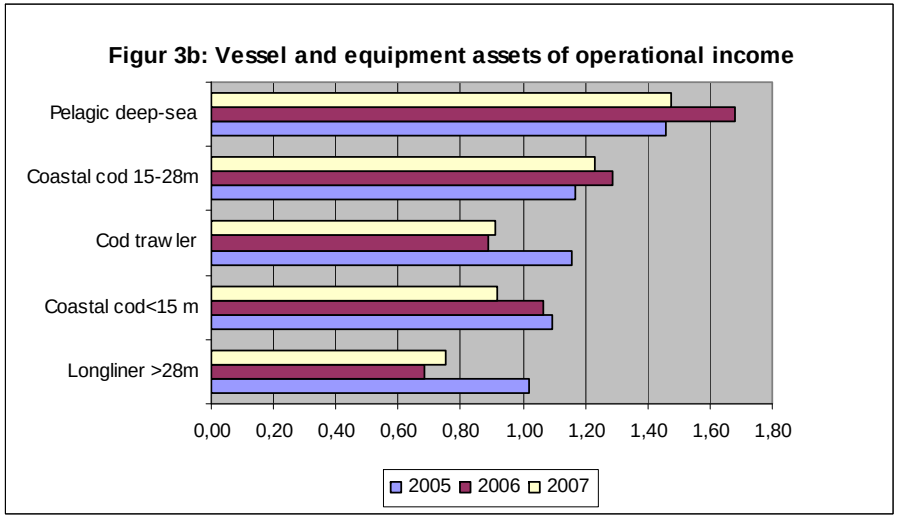




- Owners of vessel allowing to merge IQS
  - Increasing debt of income when income increases
    - Vessel+ part of quota asset financed with 100% debt
  - Equity capital less than quota value
  - =>Decreasing solidity
- Owners of vessel allowing to lease IQS
  - Lower debt
  - Higher equity capital of income
  - Increasing solidity

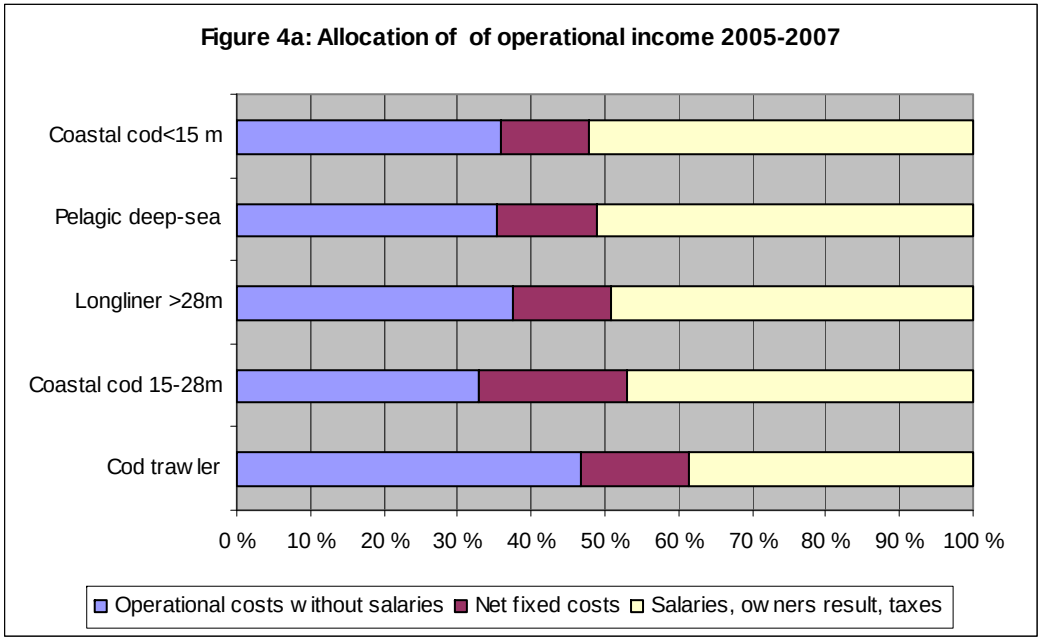
⇧IQS=> ⇧Investments





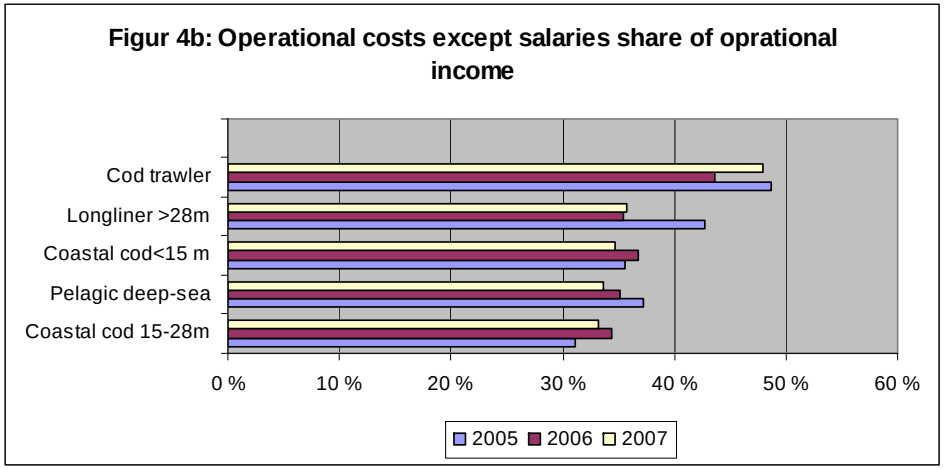
- Owners of vessel allowing to merge IQS
  - Quota assets increased to 60-75% of operational income
  - Capital in vessel & equipment assets *do not* decrease according to policy objectives
  - Total capital effort of income higher compared to enterprises with only leasing rights
- Owners of vessel allowing to lease IQS
  - Quota assets <30% of operational income

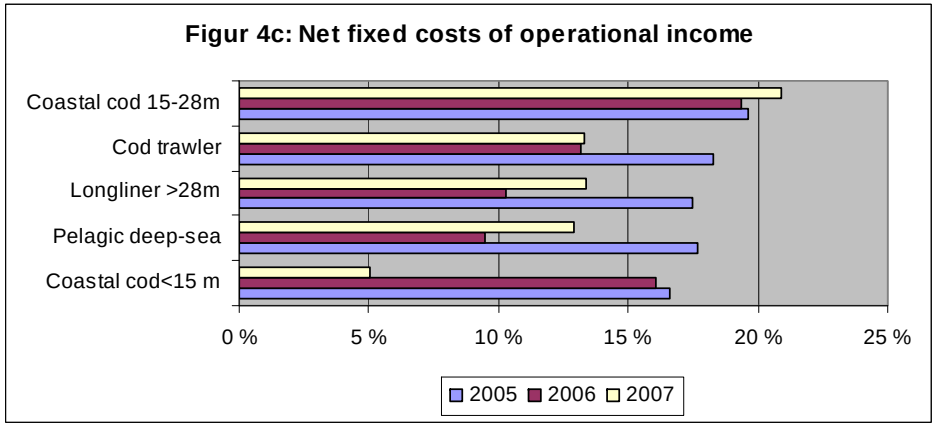
Most efficient: Owners of smallest vessel allowing only to lease IQS rights



- Most cost efficient & value adding of income

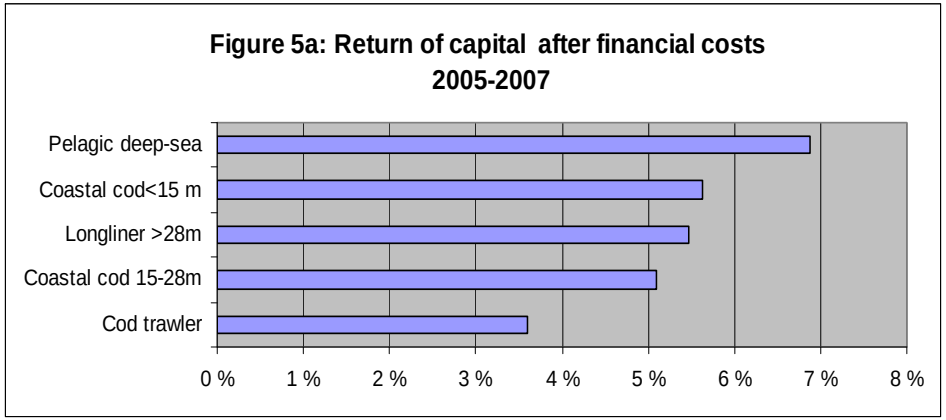
Cost/income

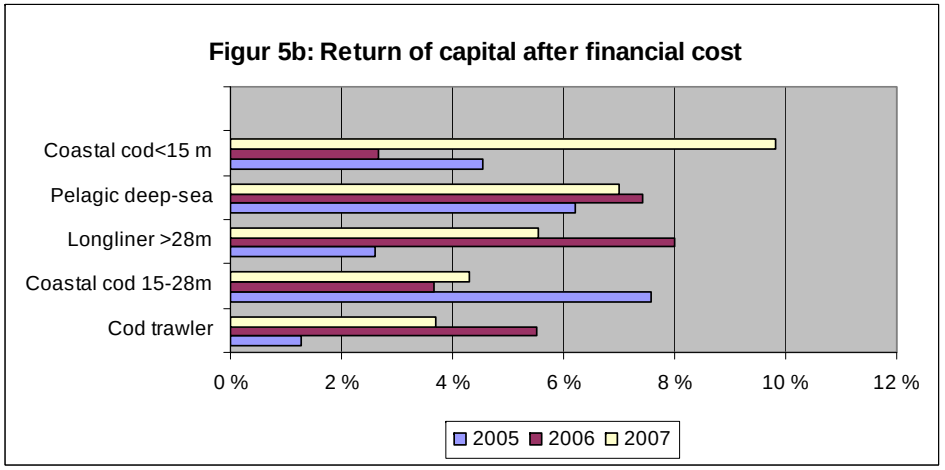




- Smallest fishing vessel owners with IQS leasing rights
  - Medium operational cost of income
  - Lowest fixed costs of income in to of three years
- Fishing vessel owners with IQS merging rights
  - Higher fixed costs for enterprises with newly merging rights (15-28m)

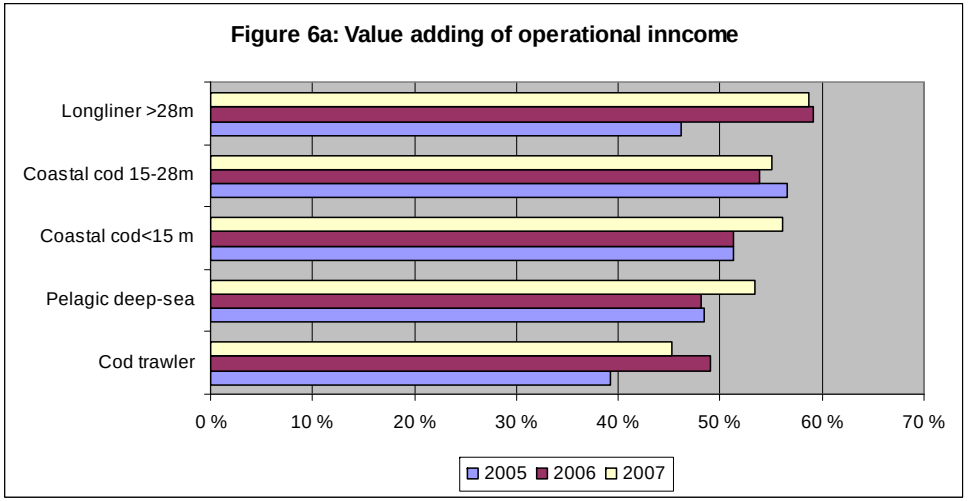
Performance: Capital value adding

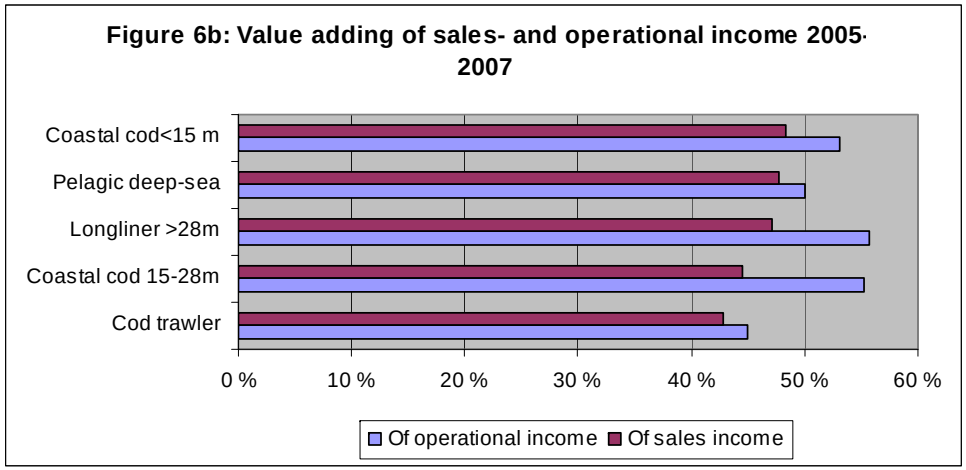




- Highest:
  - Pelagic deep sea
- Cod fisheries
  - Highest & increasing:
    - Smallest coastal vessels with IQS leasing rights
  - Lowest:
    - Deep sea trawlers loaded with merged IQS

Performance: value adding of income





- Sources for increased value adding
  - 19% increasing catch values of in cod fisheries
  - Increasing “Other operational income”: =Leasing & sales of IQS
  - Pelagic: Financial income from funds made <2005

Are investments in IQS profitable?

Table 4: Average differences in booked intangible values (IQS values) in percentage points 2005-2009:
Enterprises without booked intangible IQS values – enterprises with booked intangible IQS values

		Quota rights cod fisheries >62 N				Pelagic quota right
	All	Coast <15m	Coast 15-28m	Longline >28m	Trawl	Deep sea
Value adding of operating income	2 %	4 %	9 %	6 %	-6 %	1 %
Result before tax of operating income	23 %	1 %	15 %	20 %	-4 %	4 %
Result before tax of total capital (capital value adding)	4 %	3 %	13 %	18 %	-1 %	2 %
Total intangible assets of operational income	-85 %	-45 %	-82 %	-85 %	-92 %	-91 %
Total intangible assets of total debt	-35 %	-45 %	-34 %	-43 %	-44 %	-37 %
Total assets of operational income	13 %	-65 %	-121 %	-96 %	-6 %	-26 %
Total material assets of total debt	3 %	18 %	20 %	12 %	19 %	28 %
No accounts with intangible assets	*582*	*126*	*133*	*31*	*20*	*39*
No accounts without intangible assets	*793*	*72*	*87*	*4*	*8*	*23*

- Investments in IQS in the Norwegian system have not been more profitable compared to profitability without such investments
  - Except trawlers where merging of IQSs more have taken place in the same enterprises outside the open market.

Conclusion

- The Norwegian ITQ regulation has not increased the added value from fish harvesting 2005-2007
  - When fishing rights are traded in the open market, the resource/economic rent are pulled out by seller
  - The fishing fleet owners increase debt and decreases profitability and solidity
  - High fixed costs increases the bankrupt risk when catches and market prices varies, which are normal in fisheries
    - High risk in 2009 : The cod prices in Norway have decreased 30%!
- Profitability does not increase over time after purchasing quotas
  - The profitability among the fishing companies that have purchased IQS are lower compared to those who do not have purchased IQS
- Short term leasing and merging of IQSs without changing ownership of permits seems to be a flexible solution to improve profitability and value adding
- Value adding of TACs can be improved by moving IQSs to vessel groups with marginal better value adding of revenues.