

Making Markets: The development of the Norwegian quota regime. Case: Cod trawl.

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Outline

1. The Norwegian model
2. IVQ/UQ system
 - Development
 - Results
3. Investment in new vessel?
 - Capital costs
 - Stock decrease
4. Summary

1. The "Norwegian model"

- IVQ regime: A bundled system where quotas and vessels are integrated.
- Not an ordinary ITQ regime.
- Aim IVQ:
 - Reduce overcapacity
 - Stable, diversified fleet structure
 - Decentralized ownership: Avoid concentration of quotas to the "privileged few"!

2. IVQ-system

- Development and results

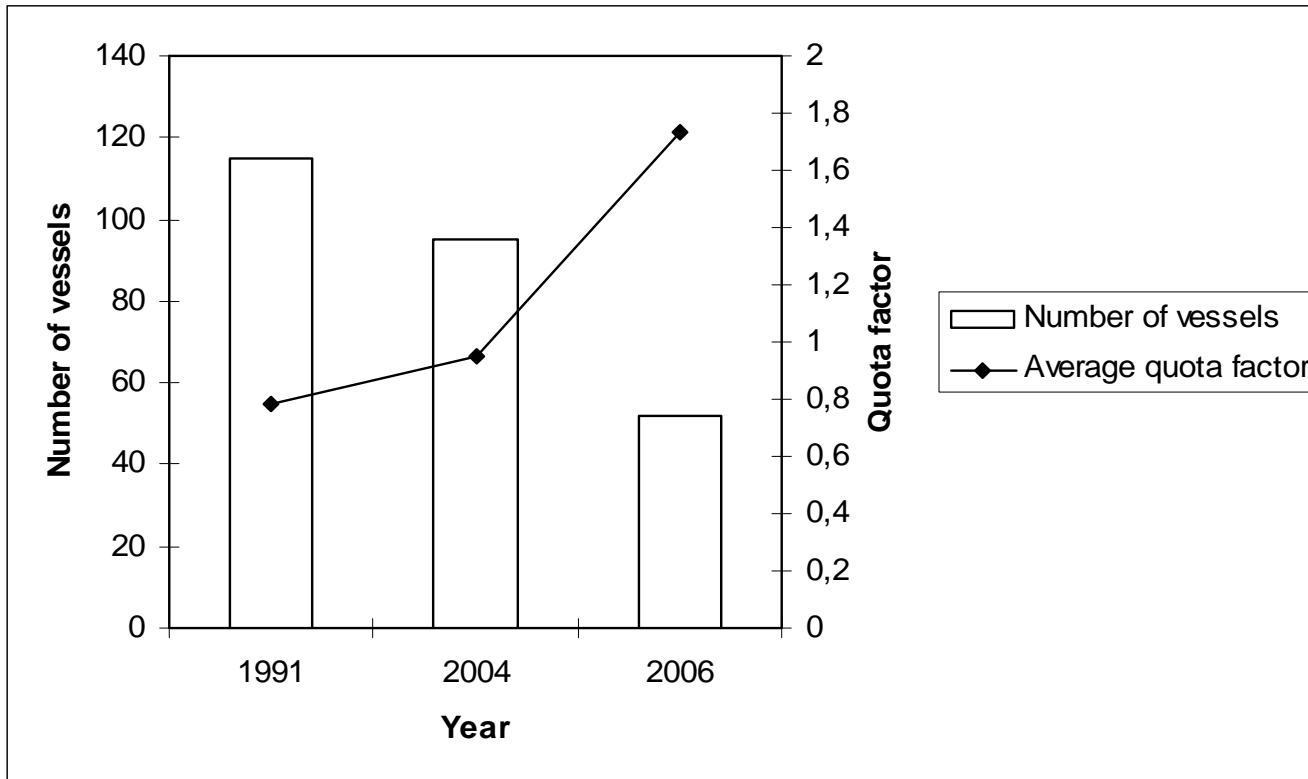
The Unit Quota System, 1984 - 2007.

Year	:	No. of quotas pr. vessel	Duration (years)	No. of quota-markets	No. of vessel
1984-1997:		2	13	3	130 - 109
1997-2004:		3	13/18	3	94
2005-2006:		3	eternal	1	51
2007 -	:	3	25	1	46

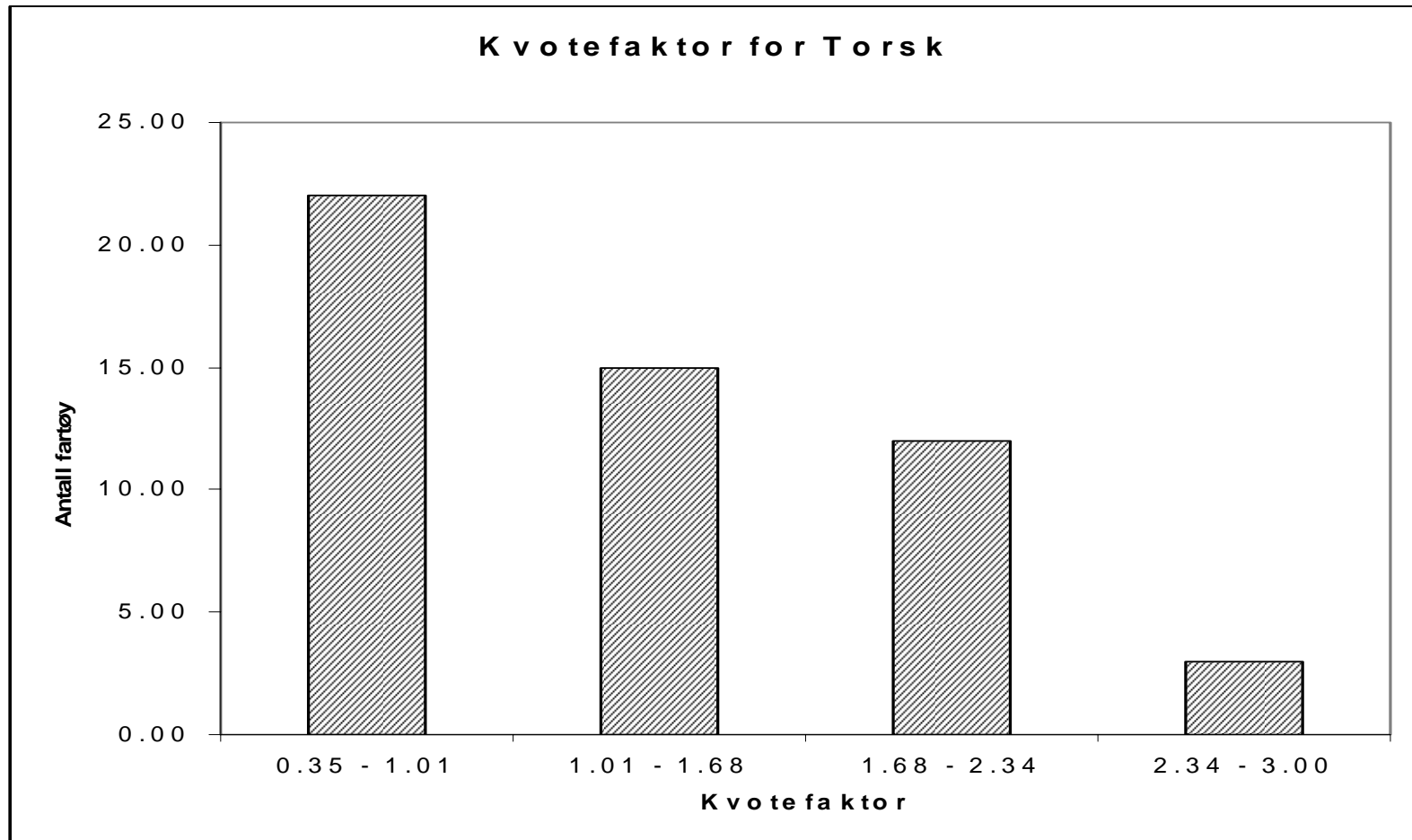
Number of vessels, 1988-2007

Cod Trawl	Number of vessels			
	1988	2005	2006	2007
Length groups				
L= 28 - 39,9 m	23	21	5	4
L= 40 - 49,9 m	53	34	18	18
L= 50 - 59,9 m	24	28	20	18
L>60 m	9	11	8	6
Sum	109	94	51	46

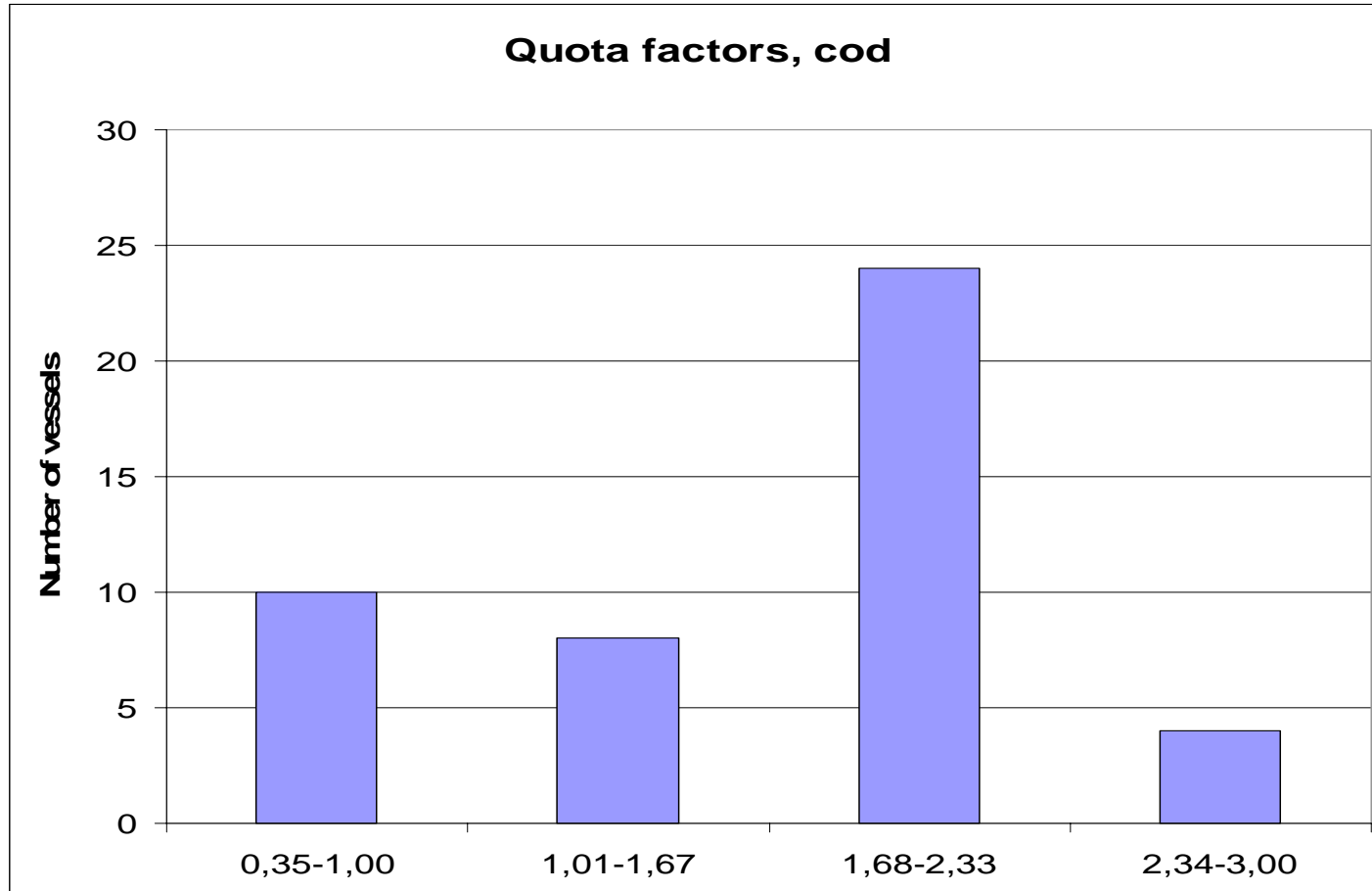
Number of trawlers and average quota-factors per vessel, 1991 – 2006.



Quota factors per vessel, 2006.



Quota factors per vessel, 2007



Age of fleet

- | <u>Building year</u> | | <u>Number of vessels</u> |
|----------------------|---|--------------------------|
| 1969 – 78 | : | 11 |
| 1979 – 87 | : | 8 |
| 1988 – 96 | : | 11 |
| 1997 – 07 | : | 16 |
| <u>Total</u> | : | <u>46</u> |
- **About 40% of the fleet is more than 20 years old!**

Summary: Norwegian IVQ model

- Huge concentration of quota ownership
- Severe changes in fleet structure
- High transaction costs (TC)
- Same result as an ITQ model (except for TC)?

Quota factor (QF) and Quota base, cod trawlers,
2006:

• <u>QF</u>	<u>1.0</u>	<u>1.8</u>	<u>3.0</u>
• Cod	639	1166	1917
haddock	340	621	1020
• saithe	633	1858	1899
• <u>saithe</u>	<u>1190</u>	<u>1190</u>	<u>1190</u>
• <u>Total:</u>	<u>2802</u>	<u>4835</u>	<u>6026</u>

3. Investment in new vessel?

- Old fleet
- What quota factor is required to invest in new vessel?
- Does present quota regime promote:
Cheap small or large expensive trawlers?
- Diversified trawler fleet in the future?

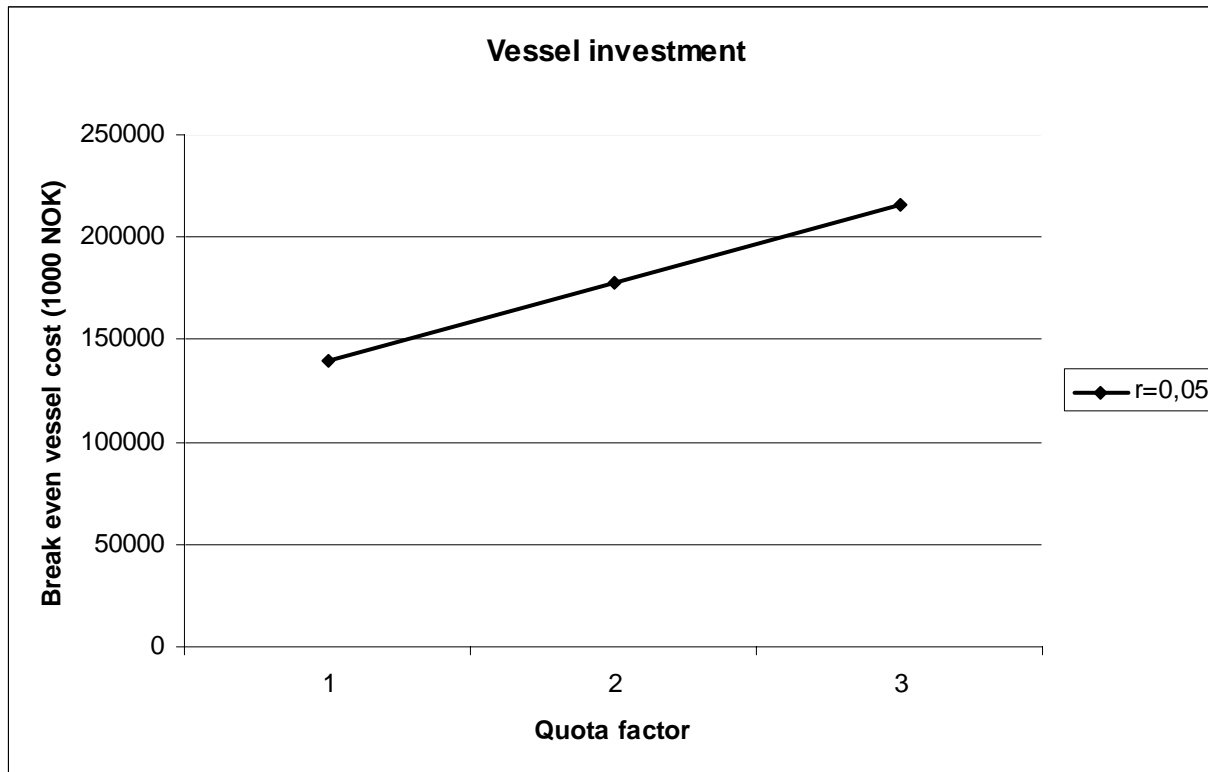
Assumptions

- Present quota price
- Present sharing rule (boat-fishermen)
- Average 2005 costs
- Average resource base
- Financing by net capital =zero
- No demands on return on equity

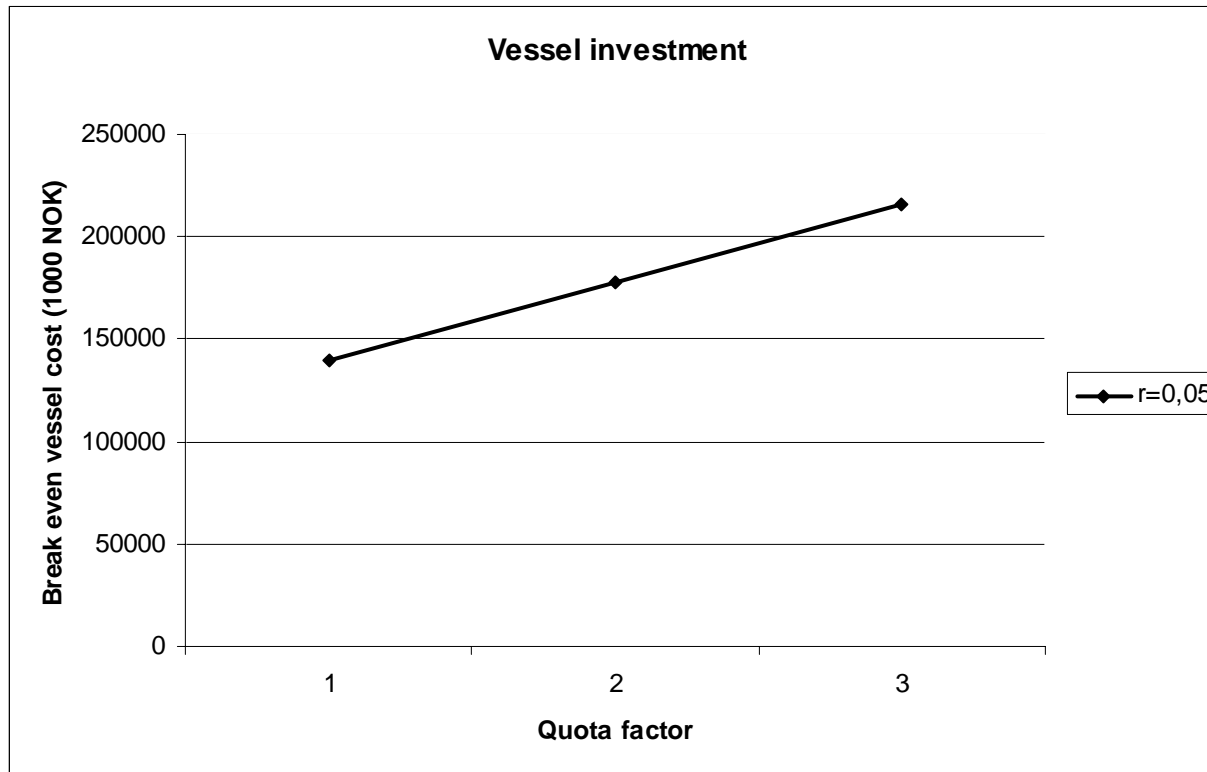
Scenario 1: Capital costs

- Initial holding: 1 QF
 - Invest in new vessel, no quota investment
 - Invest in new vessel and 1 QF
 - Invest in new vessel and 2 QF

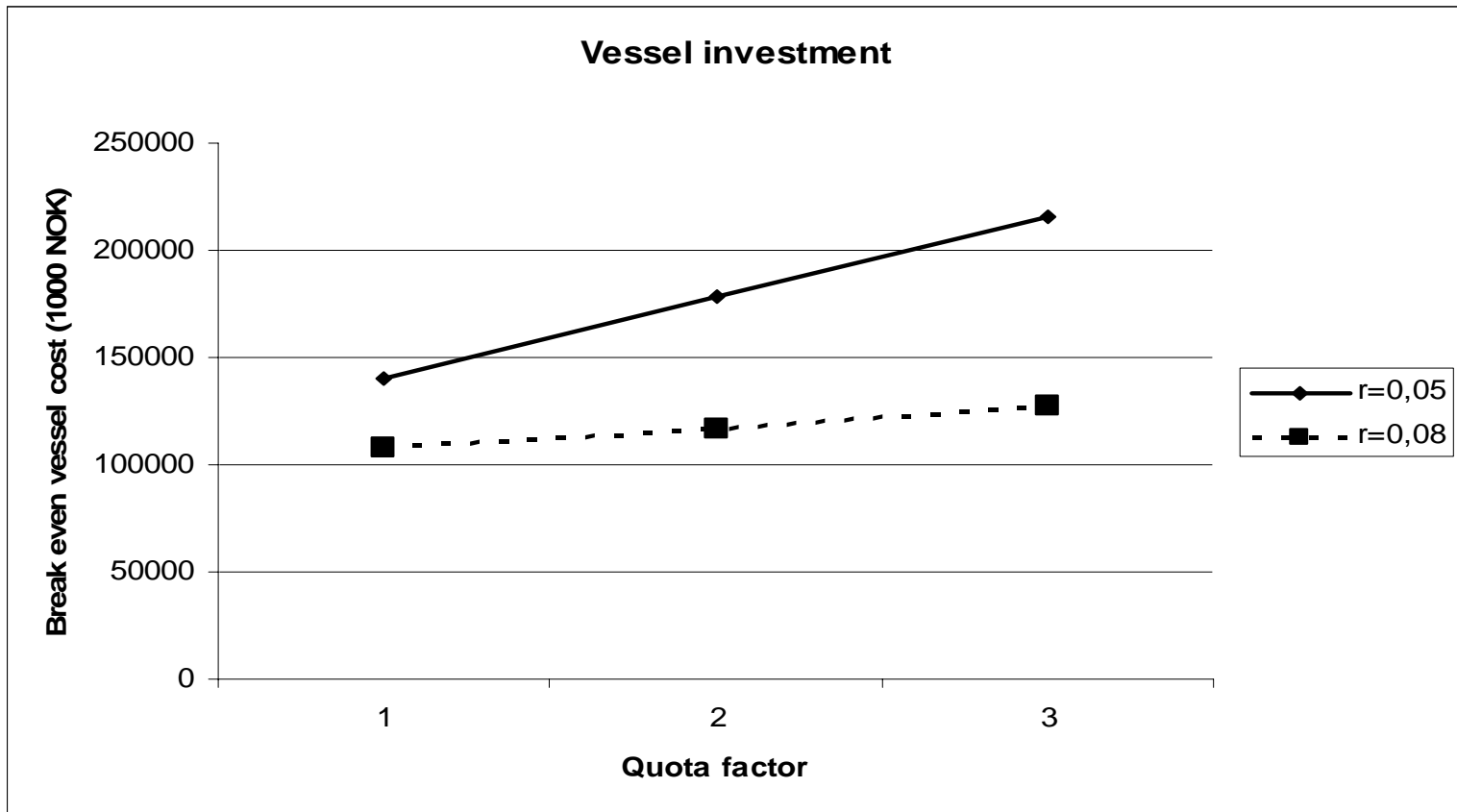
How expensive vessel? (discount rate=0,05)



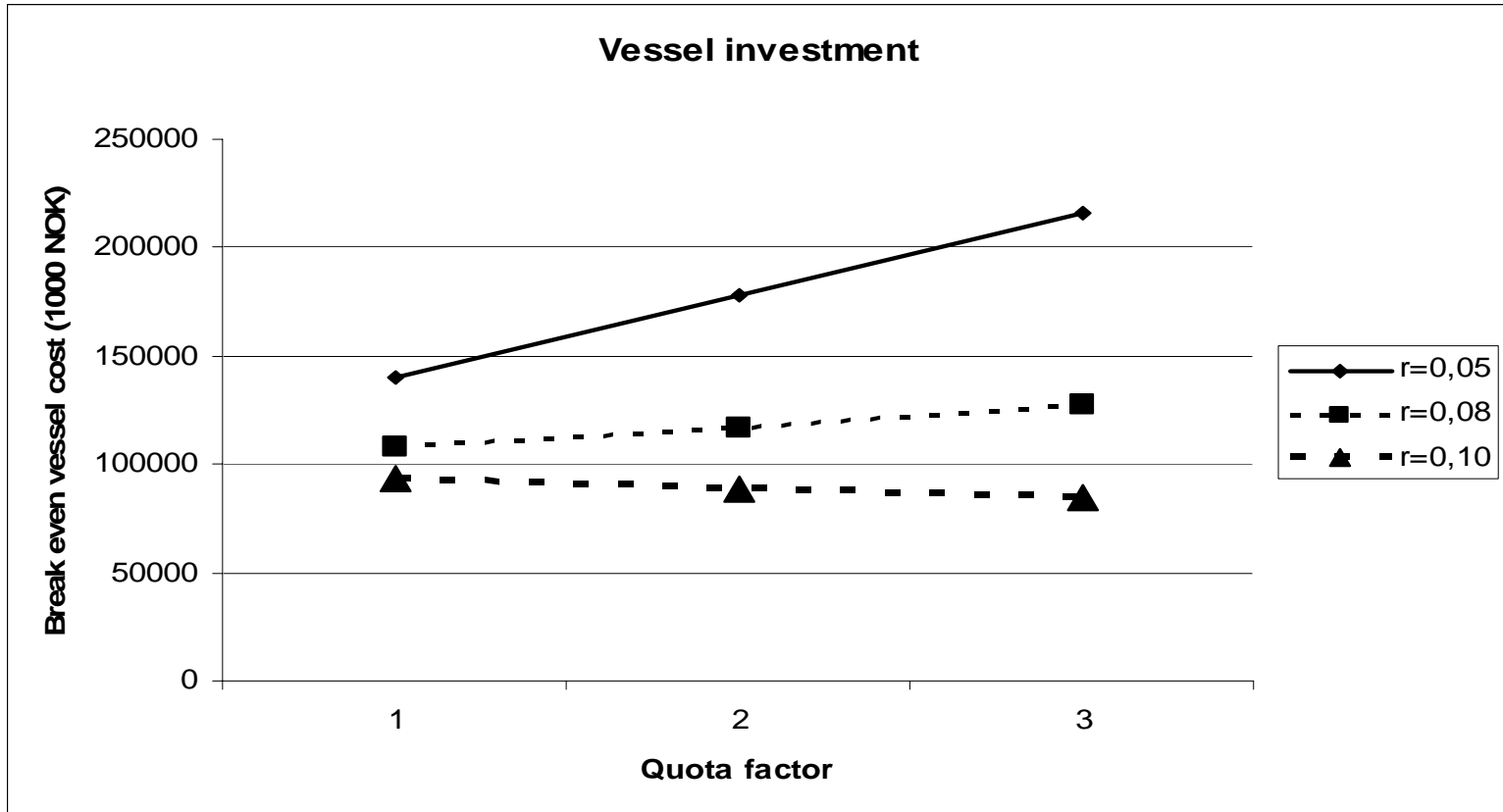
Various capital costs



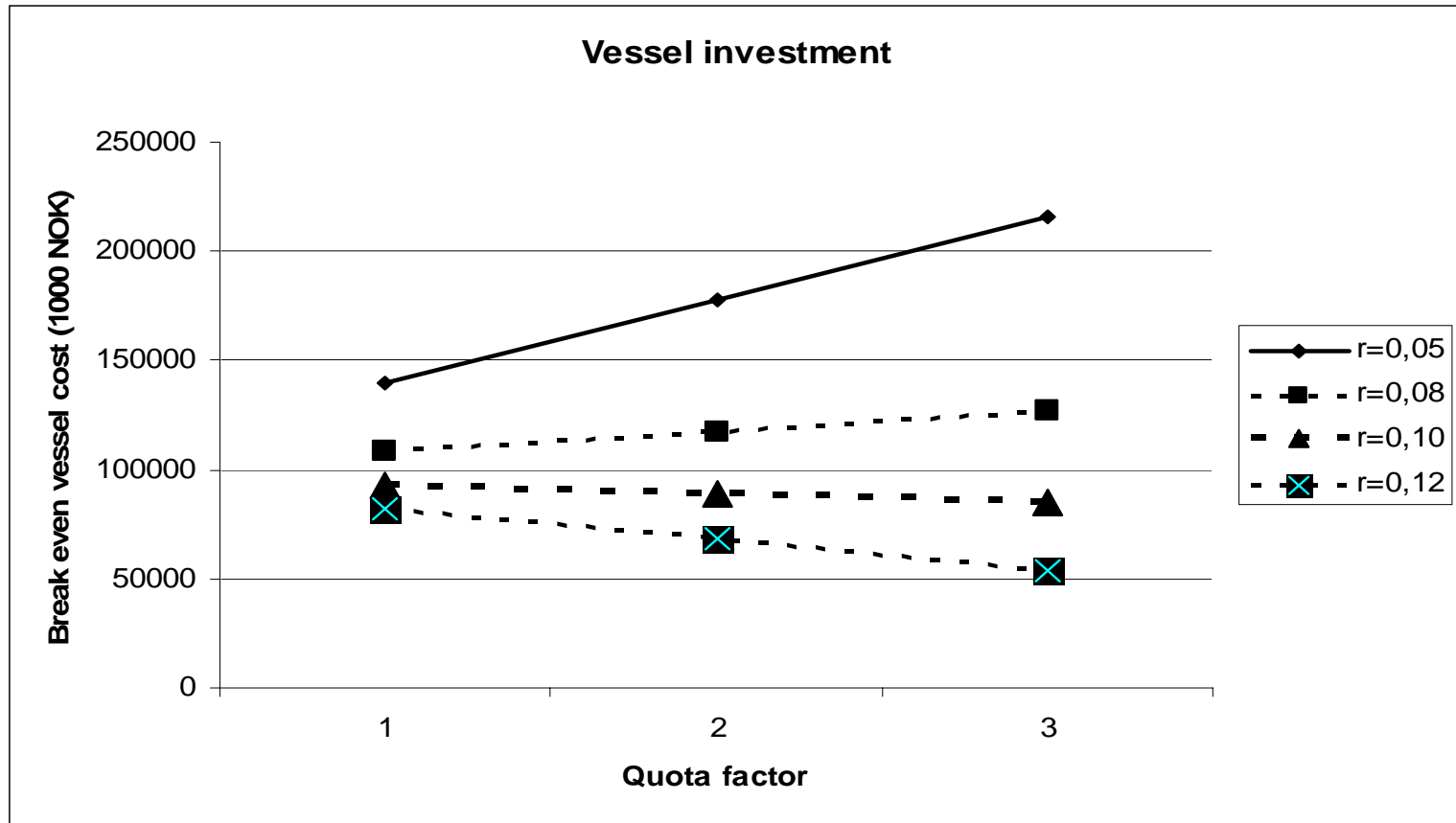
$r=0,08$



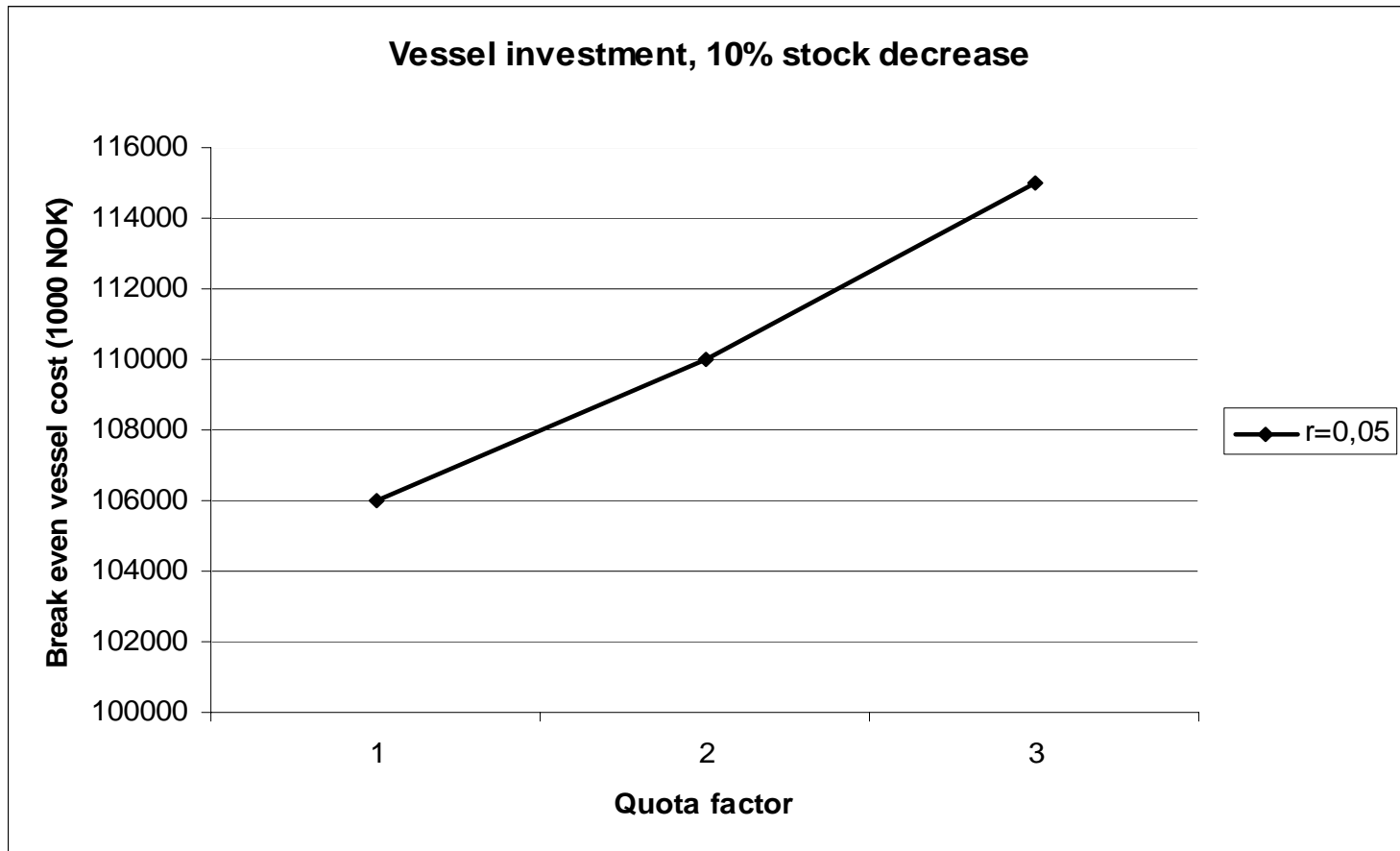
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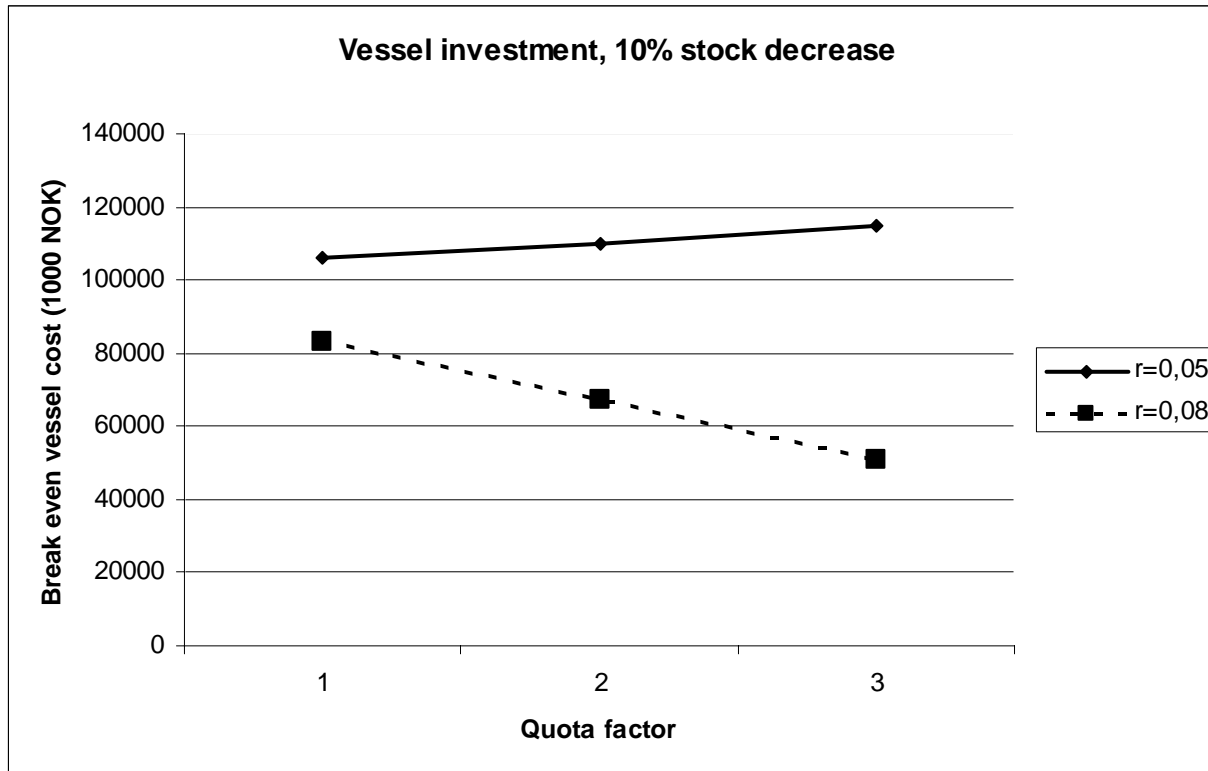
$r=0,12$



Scenario 2: Stock decrease



$r=0,08$



4. Summary

- Larger vessels, higher fixed costs (capital costs)
- Fluctuating resource requires high share of variable costs
- Trend in trawler fleet the complete opposite!

- The individual vessel quota system does not secure a diversified trawler fleet, but high transaction costs
- Maximum quota factor?
- Same system in coastal fleet from 2004: Same result in few years?