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

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Outline

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2. IVQ/UQ system
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   - Results
3. Investment in new vessel?
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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

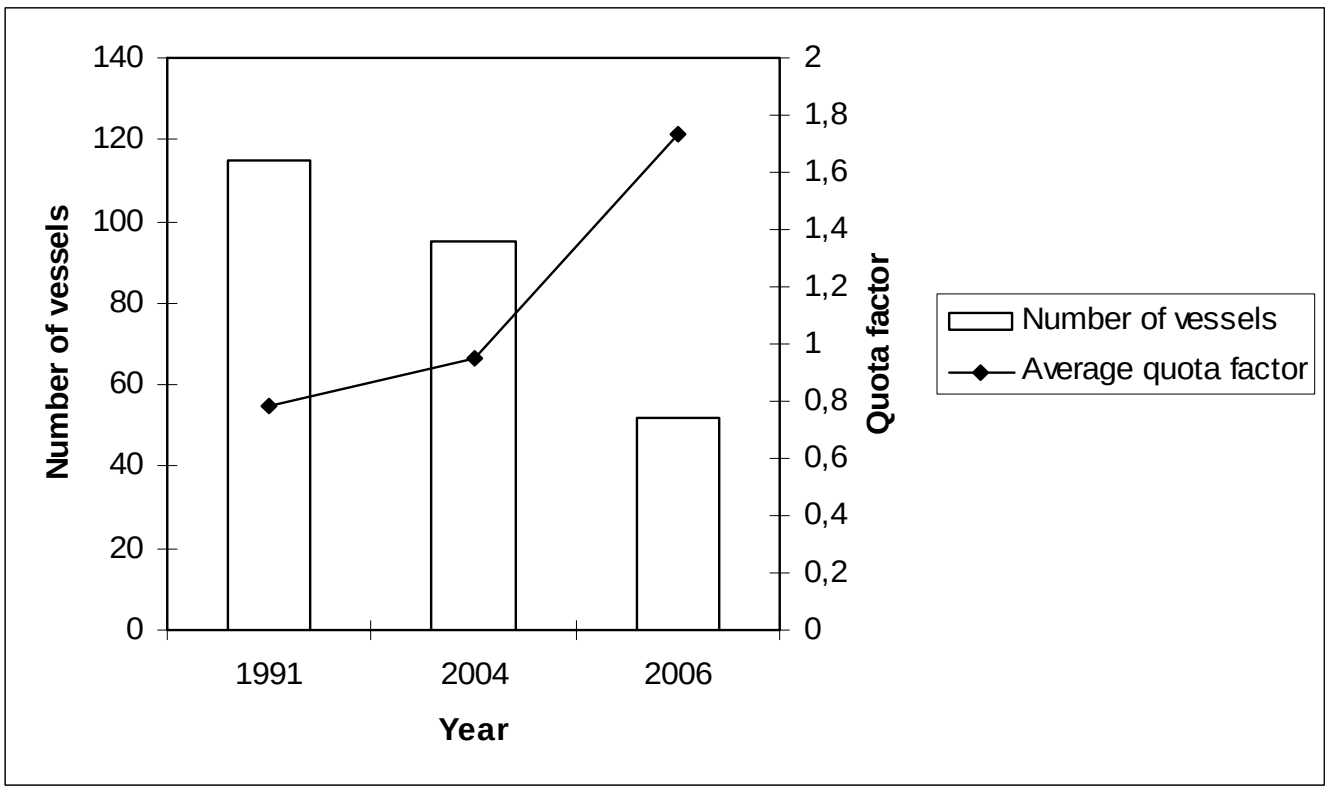
The Unit Quota System, 1984 - 2007.

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

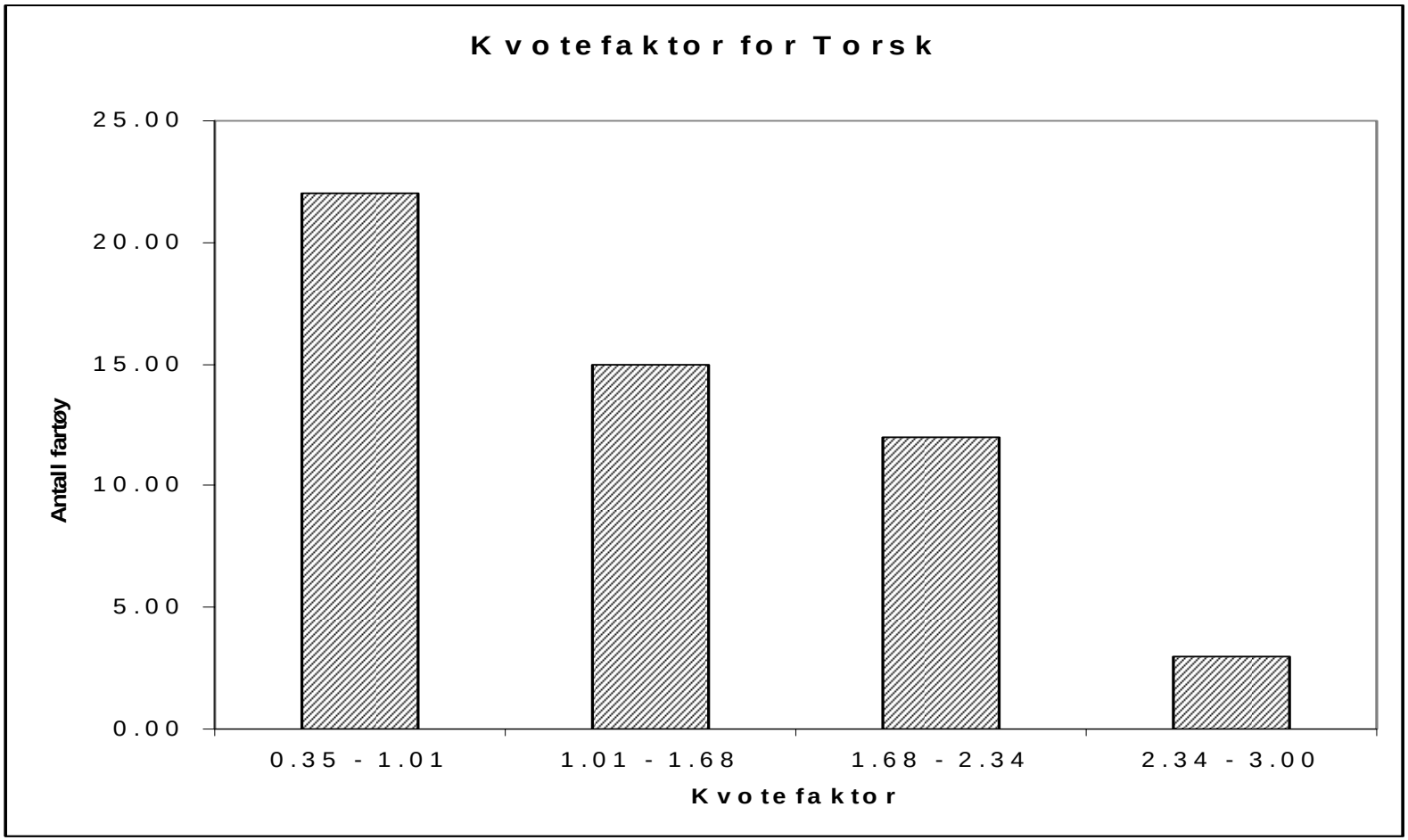
Number of vessels, 1988-2007

Cod Trawl	Number of vessels			
Length groups	**1988**	**2005**	**2006**	**2007**
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**

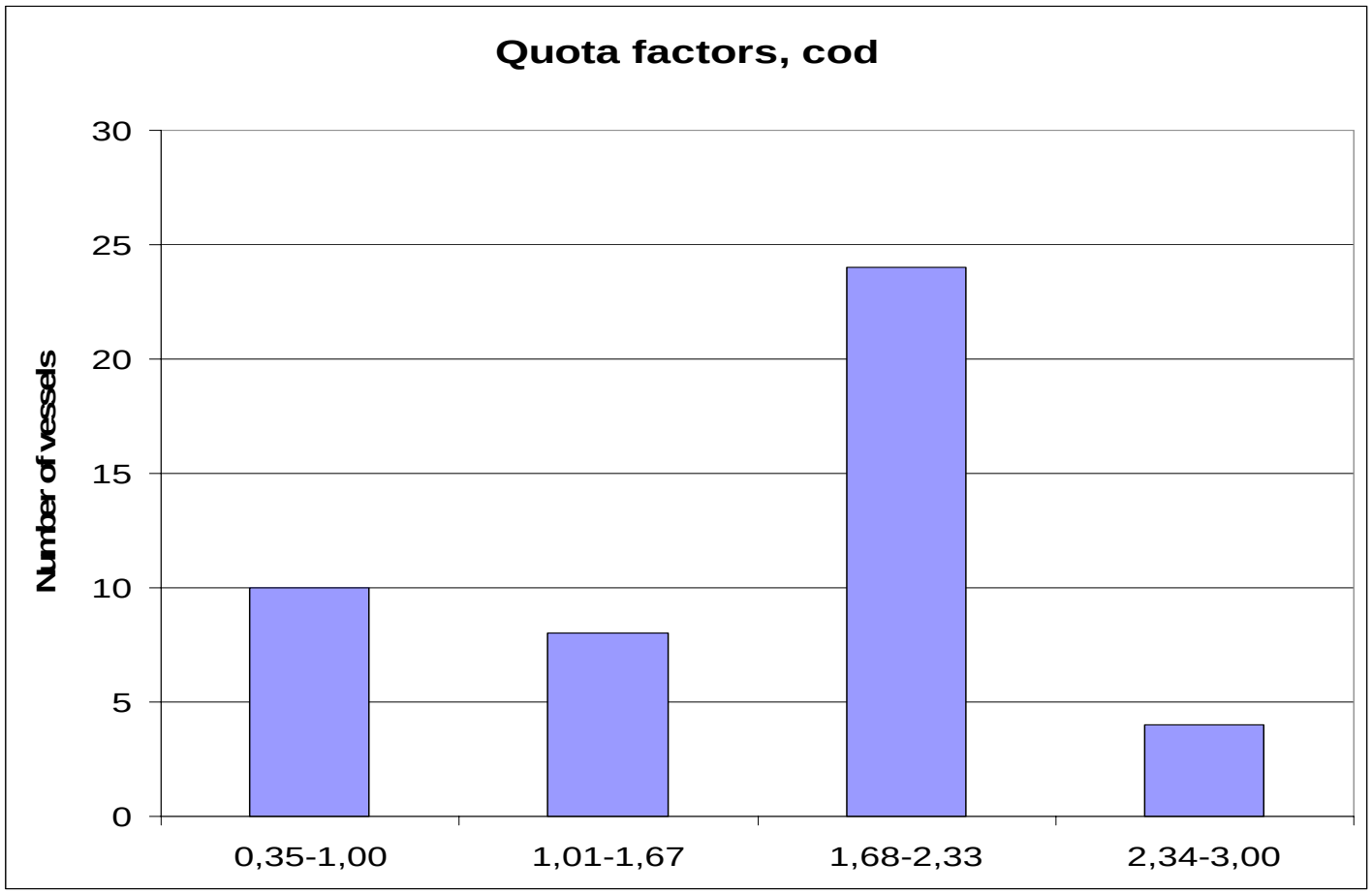
Number of trawlers and average quota-factors per vessel, 1991 – 2006.



Quota factors per vessel, 2006.



Quota factors per vessel, 2007



Age of fleet

Building year		Number of vessels
1969 – 78	:	11
1979 – 87	:	8
1988 – 96	:	11
1997 – 07	:	16
Total	:	46

- **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:

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

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?

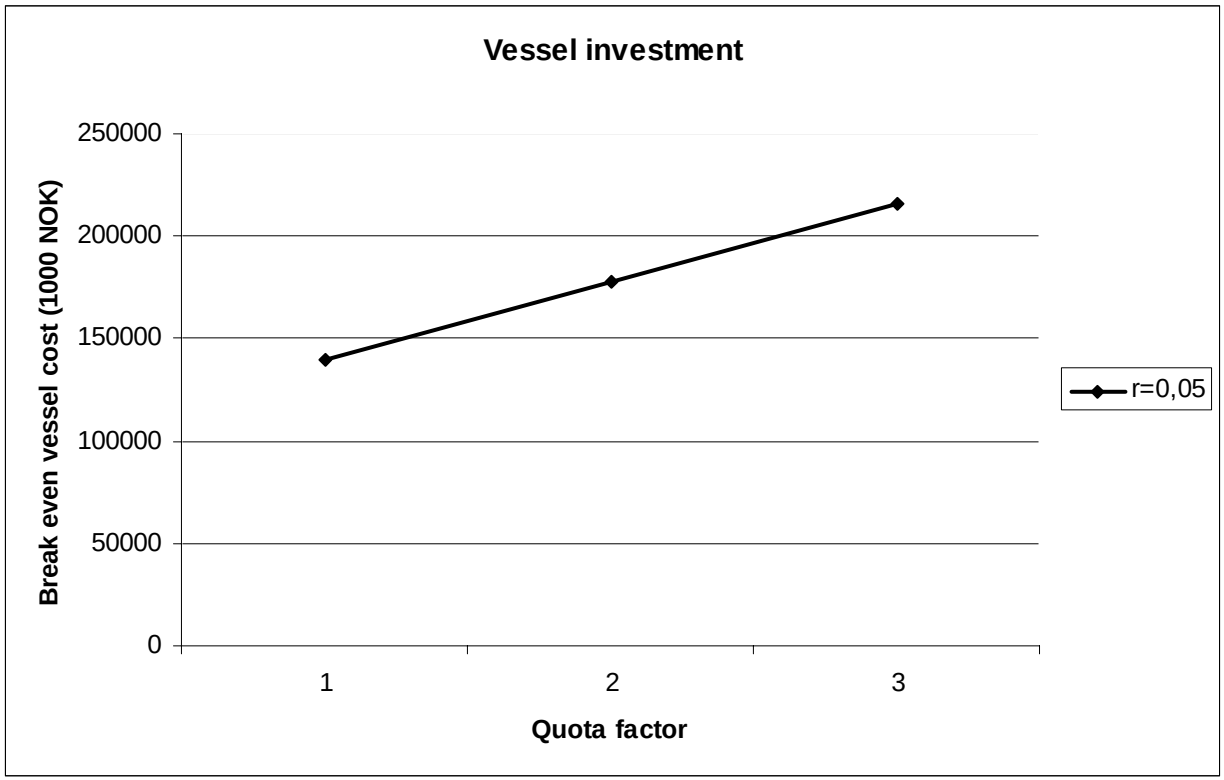
Assumptions

- 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

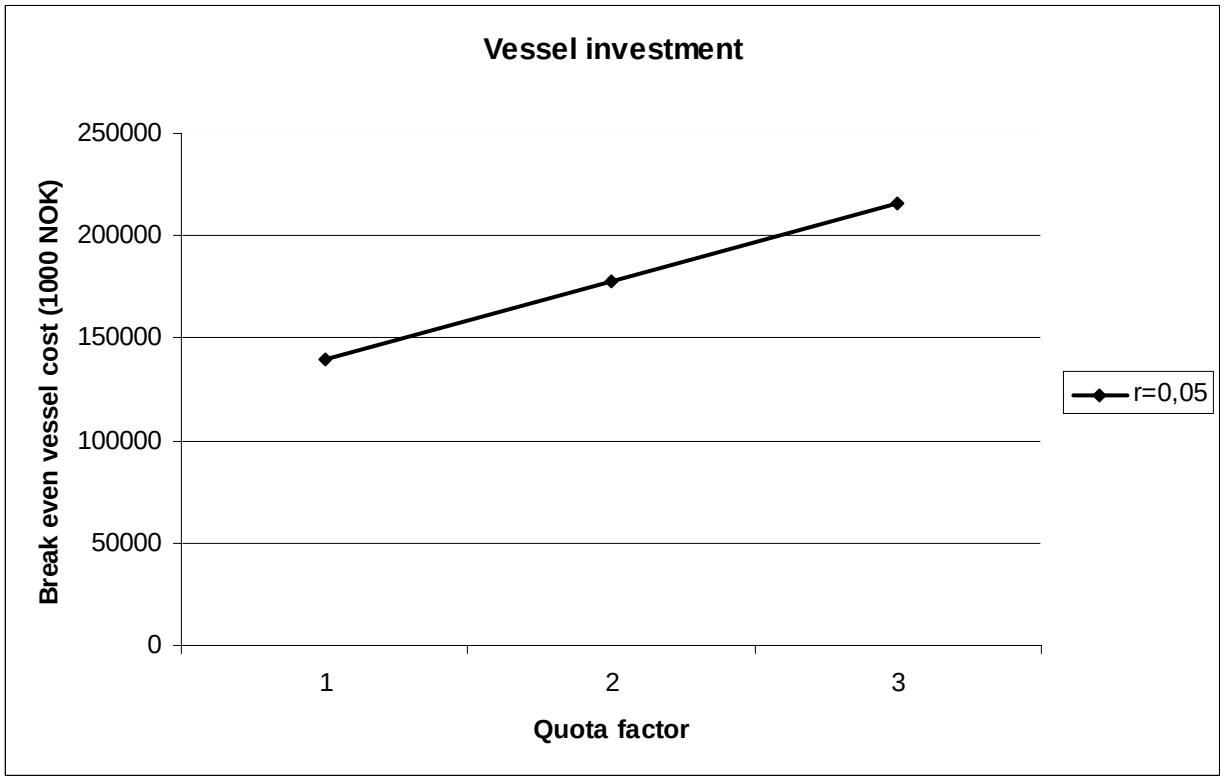
Scenario1: Capital costs

- 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

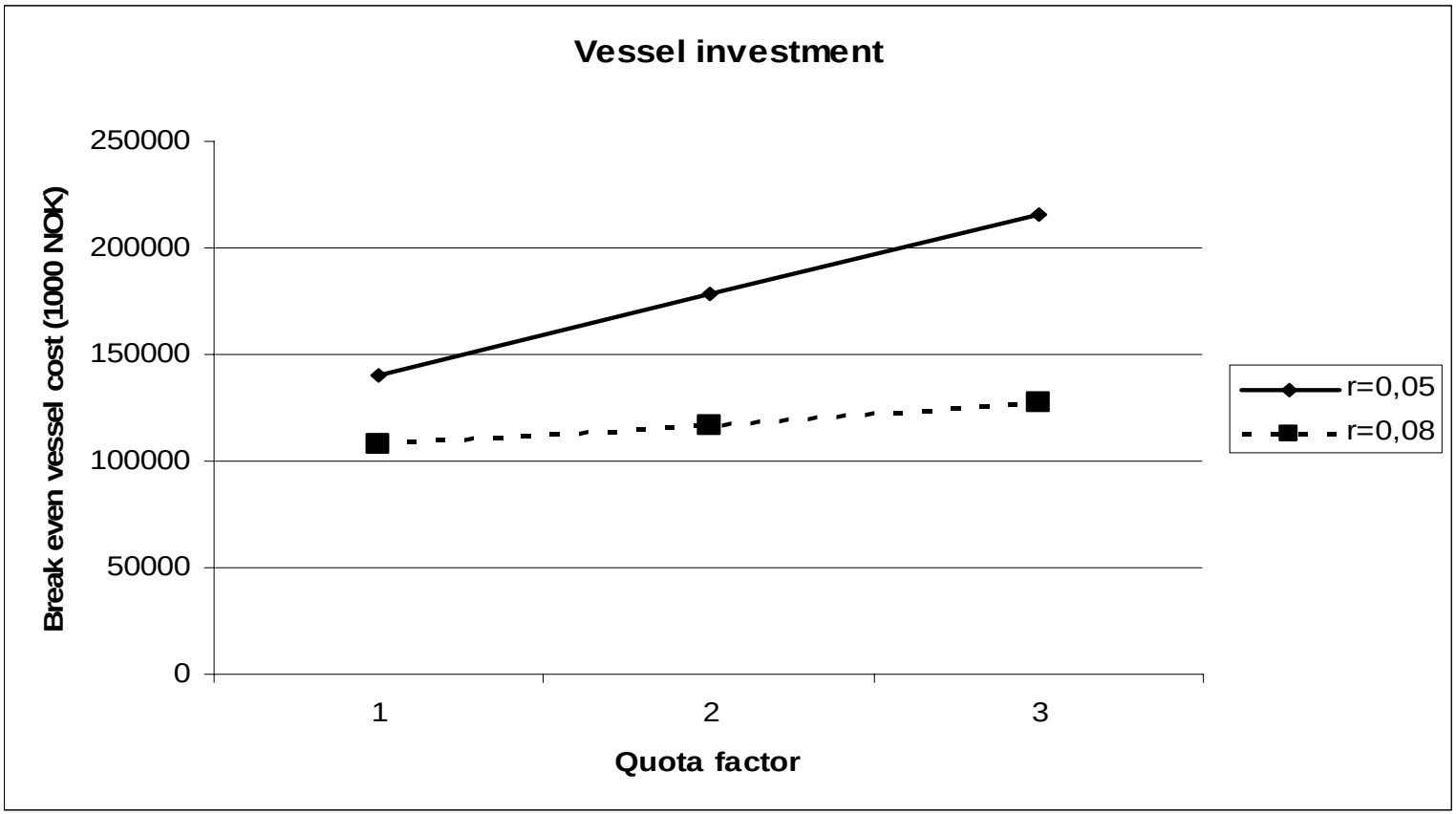
How expensive vessel? (discount rate=0,05)



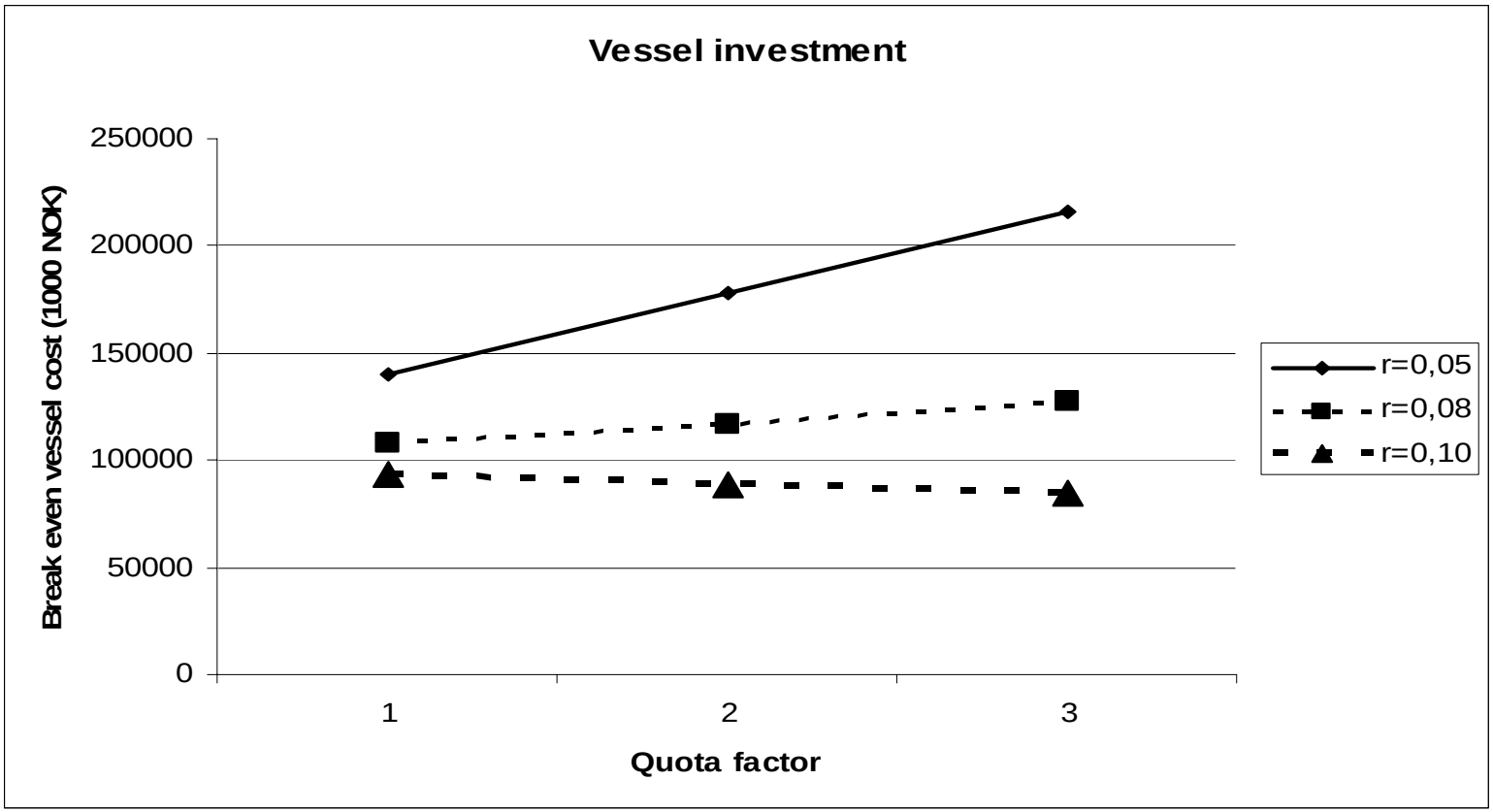
Various capital costs



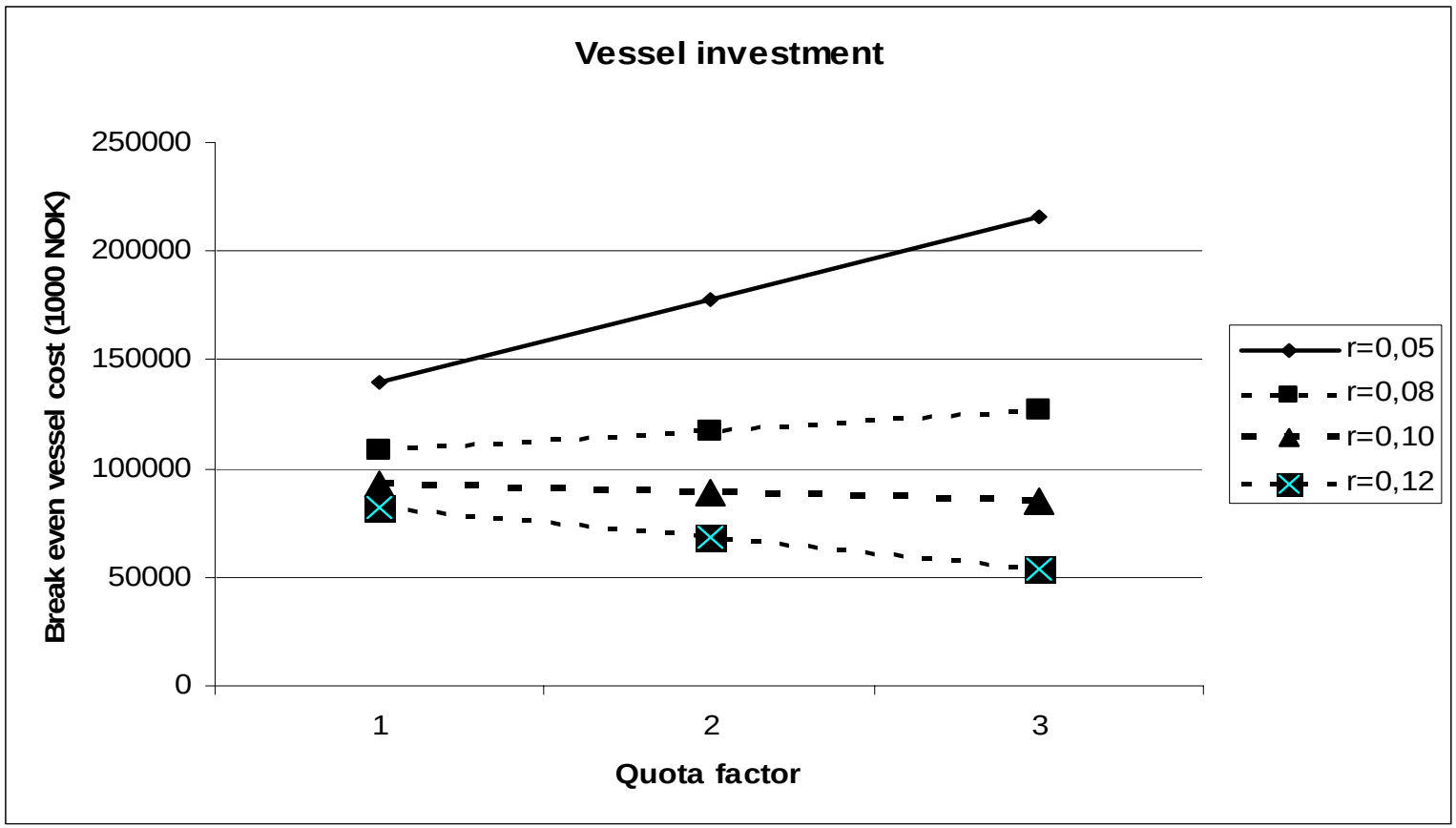
r=0,08


Vessel investment
Break even vessel cost (1000 NOK)
250000
200000
150000
100000
50000
0
1
2
3
Quota factor
r=0,05
r=0,08

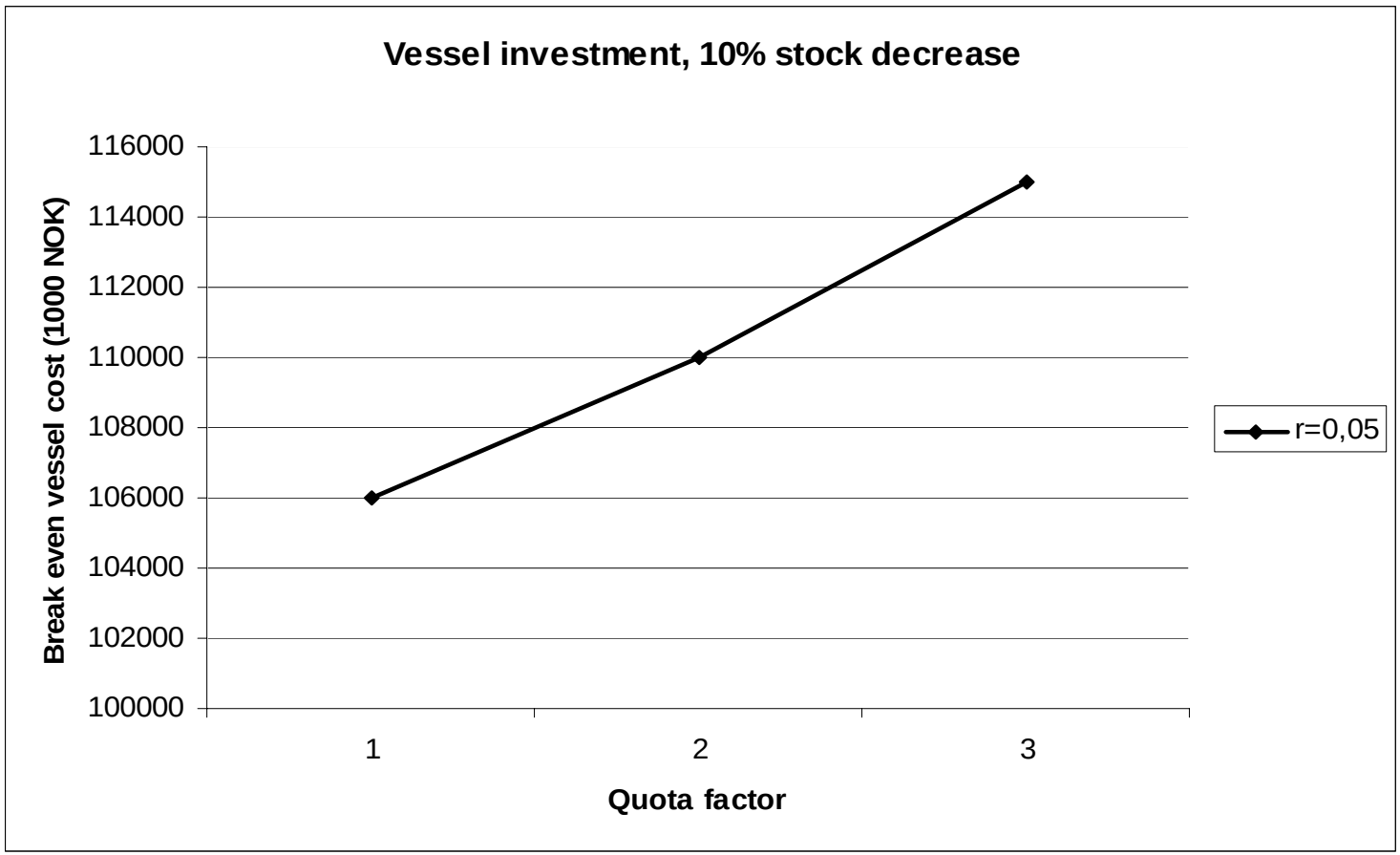
r=0,10


Vessel investment
Break even vessel cost (1000 NOK)
250000
200000
150000
100000
50000
0
1
2
3
Quota factor
r=0,05
r=0,08
r=0,10

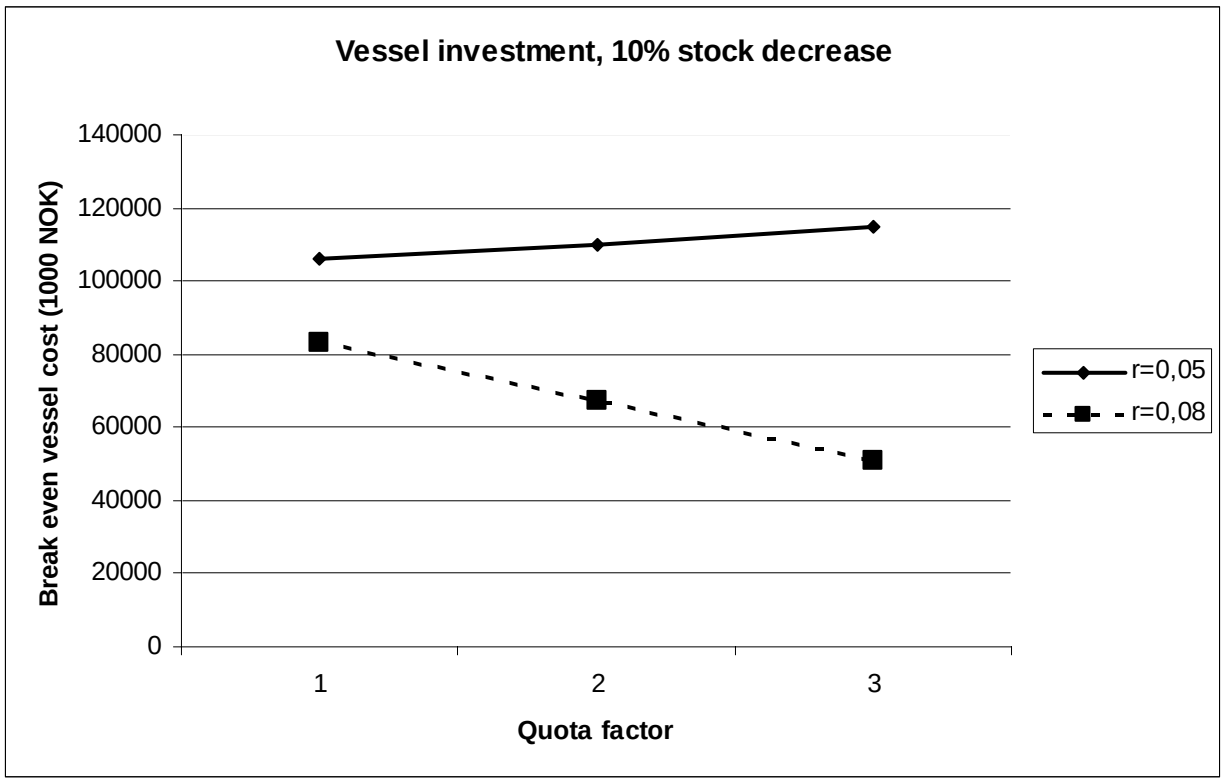
r=0,12


Vessel investment
Break even vessel cost (1000 NOK)
250000
200000
150000
100000
50000
0
1
2
3
Quota factor
r=0,05
r=0,08
r=0,10
r=0,12

Scenario 2: Stock decrease



r=0,08


Vessel investment, 10% stock decrease
Break even vessel cost (1000 NOK)
140000
120000
100000
80000
60000
40000
20000
0
1
2
3
Quota factor
r=0,05
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?