## Norway's Experience with ITQs: A Rejoinder

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In his comment, professor Knut Heen states the following:

"In his effort to prove and demonstrate that transferable quotas and licenses will improve the profitability of the industry, his use of both indicators and data warrants a comment. Using data from the Directorate of Fisheries in Norway makes it difficult to support Hannesson's conclusion that the transferability of quota and licenses improves the profitability of the fishing vessels."

Much of the analysis in my paper is based on return before tax, excluding financial costs, in percent of invested capital. In my view, this is the most appropriate time series available to gauging the profitability of the industry. Unfortunately this time series is too short to cover the period before the rules of quota trading were liberalized, due to changes in definitions in the accounts published by the Norwegian Directorate of Fisheries. I have therefore resorted to also showing return before tax in percent of revenue. Alternatively, I could have used operating margin in percent of revenue, which is what professor Heen recommends, but the results are qualitatively similar, the main difference is that using the operating margin would shift the curve upwards (see accompanying figure). There is a clear break for the better in both of these time series in the mid-1990s. Professor Heen points out that the steep increase 1994-97 was in part due to an upward jump in the price of mackerel. Other positive developments, such as increasing catches of blue whiting in these years, also played a role. But the increase in profits has been maintained; profits averaged -3 percent of revenues 1980-94, but 11 percent 1995-2010 (using the operating margin would change these numbers to 7 versus 17 percent). This increase would not have been maintained unless access to the industry had been restricted, and I note that professor Heen seems to endorse closed access. Furthermore, the structural rationalization of the purse seine fleet was resumed in 1996, after having stalled in the late 1980s and early 1990s; the number of small purse seiners (less than 6000 hectolitres) fell from 29 in 1995 to 11 in 2010 while the number of large purse seiners has remained much the same (it fell from 74 in 1995 to 69 in 2010). It is likely, to say the least, that this rationalization has been promoted by the more liberal rules for trading in fish quotas introduced in 1996.

I do not think that the cost per unit of effort, which professor Heen reports in some detail, tells us much of interest about the effects of quota trade and fleet rationalization. He defines effort as vessel days and shows that the cost per vessel day has increased considerably. Professor Heen makes no correction for inflation, but that is unlikely to change his results qualitatively. The reason why the cost per vessel day has increased is probably that the boats are now on average larger than they used to be and use more fuel and perhaps other fishing gear. But they also catch more fish, so the rising cost is more than outweighed by larger revenues. From 1994 to 2010 the operating costs of the purse seiners rose threefold, but their revenues rose almost fourfold (by a factor of 3.7 to be exact). Fleet rationalization could easily mean a higher cost per boat, but it also means larger and more productive boats.

Professor Heen points out that in order to correctly calculate the return on capital invested in boats, one should only correct for financial costs associated with investing in boats. True enough in principle, but financial costs are reported only in the aggregate in the accounts at hand. If these data were available, the said correction would shift the return on boats slightly downwards, but we would still

have the difference in return on total capital and on boats only. The point I wanted to illustrate is that the return on total capital looks more normal than the return on boats only. In the long run, the return on total capital in the fishing industry should be the same as in other industries, after correcting for differences in risk. In the quota managed industry a part of the total invested capital is the value of purchased fish quotas while the open access industry invests in boats only and aligns the return on investment with other industries through excessive costs.

Professor Heen does not appear to be against transferable quotas as such, but he objects to the way quotas have been given away for free so that quota holders have been able to enrich themselves by selling out of the industry. He is not alone in having this view, and it is not difficult to sympathize with this in principle. But things look different once we take into account the situation in the industry at the time individual quotas were introduced. The industry was making a loss, and the quotas were seen as an instrument to prevent a further erosion and to help the industry towards normal profitability. Anyone suggesting to sell quotas to the industry or to tax them would have been laughed out of court; any such proposal would not have had the slightest chance to be accepted; the quotas were a hard enough "sell" to the industry even if they were given away for free. Some industry people may have supported the quota regime because it enabled them to avoid bankruptcy and get out without too great a loss. Seen against this background, the windfall gains obtained by the first generation of quota holders were a necessary cost for putting in place a reasonably efficient system of management in the industry.

Some would even contest that this is a cost at all. What did those who sold out of the industry do with their gains? Did they just buy themselves a place in the sun, or did they use their gains to invest in other ventures and diversify their fishing communities? My impression is that the latter certainly is not unheard of, and possibly typical. We should be under no illusion that governments always use taxpayers' money better than the latter would do on their own.



Figure 1: Operating margin and profit before tax for Norwegian purse seiners 1980-2010.