Comments on a Note on Optimal Effort in the Maldivian Tuna Industry

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Abstract *Reasons are given why spatial differences in travel costs for tuna boats fishing in the same region may be of little significance in the Maldives. Claims are made that the fishing ground concept is of limited value in the case of a migratory species such as tuna and that there are practical difficulties in implementing the Campbell and Lindner tax/subsidy scheme, which in practice could give rise to a deadweight social loss. Furthermore, in the absence of empirical quantification, Campbell and Lindner give no real guide to optimal fishing effort policy in the Maldives.*

Campbell and Linder (1989) claim in "A Note on Optimal Effort in the Maldivian Tuna Industry" that our model (Sathiendrakumar and Tisdell 1987) should be extended to take account of the cost of travel of fishing boats. We do not object to such an extension but we feel that Campbell and Lindner may exaggerate the importance of such an extension in the case of the Maldivian tuna industry.

Because of sociocultural factors and lack of ice, tuna boats stay away from their village only for the day. Furthermore, practically all the boats stay away from the whole day and on average travel similar distances in search of tuna schools. So travel costs for all boats in a region are similar. Some days they might find a tuna school quickly, allowing them time to follow another school, and on other days they might spot only one school. But they all return the same day. This is why we have taken the average fuel cost and average repairs and maintenance cost to estimate the total operating cost.

It should be noted that there are not (fixed) fishing grounds for these migratory species, in contrast to the case of many of the Atlantic fisheries. It can, therefore, be misleading to think in terms of separate fishing grounds in the case of migratory tuna as Campbell and Lindner seem to do.

Furthermore, fishers from one region never go to another region for fishing in the Maldives, because to do so they have to get special permission from the atoll chief of the area where they are going to dock their boats for the night if it is not their own atoll. But to allow for differences in "ground" quality we have divided the Republic into three regions and worked out the optimal level of tax for these regions (the assumption being that in all these regions the tuna fishers operated within 25 km of the atoll reef.) But for administration purposes we have worked out a uniform level of tax for the Republic as well, even though the earlier level (for three different regions) will be more economically efficient, if there are no added administrative and socioeconomic costs.

As for the proposed fuel subsidy, if the only constraint on the movement of fishing boats to distant areas is fuel cost, then a fuel subsidy might encourage the exploitation of distant areas. But this raises another question: How is this subsidy going to be implemented, especially when it is in the fishers' interest to claim the subsidy by claiming that they have operated in distant waters, whereas in actual fact they might be fishing in the coastal waters. This might result in the cost of implementation exceeding the benefits resulting in a deadweight social loss as a result of this policy.

Finally, it is of concern to us that Campbell and Lindner give no empirical quantification of the extent of welfare losses that may arise in the Maldives from failure to take account of the differences in travel costs that they mention. Their contribution is purely theoretical and there is no solid evidence to indicate whether such welfare losses are miniscule or quite large. So we can certainly support their final comment that before their "tax/subsidy scheme could be introduced additional research on travel costs would be required."

References

Campbell, M. F., and R. K. Lindner. 1989. A note on optimal effort in the Maldivian tuna fishery. *Marine Resource Economics* 6:173–176.

Sathiendrakumar, R., and C. A. Tisdell. 1987. Optimal economic fishery effort in the Maldivian tuna fishery: An appropriate model. *Marine Resource Economics* 4:15–44.