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## RESEARCH BRIEF

# Understanding Livelihoods of Artisanal Fisheries in Marine Protected Areas in the Colombian Caribbean

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- Small-scale fisheries play a significant role in providing income and food security to a vast number of households in the developing world.
- Typical economic models do not consider the fact that small-scale fishing households make simultaneous decisions on consumption (eating fish) and production (catching fish). As a different type of model, “household production models” reflect the fact that fishing households eat some of the fish they catch, as well as selling some of it.
- Using this type of model, we try to understand how fishing households are affected by key economic variables such as wages, costs, productivity, and the abundance of the resource being harvested.
- The model is tested using surveys from fishing households in Barú, a village in the Colombian Caribbean.
- Based on the model and the data, we analyze different possible policies. We found that the promotion of livelihood activities other than fishing can simultaneously improve households’ wellbeing and protect natural ecosystems.

Small-scale fisheries in the developing world guarantee the subsistence and nutrition of millions of households that typically are very vulnerable and dependent on natural resources. Both the sale and consumption of fish provide income and food security to many of these families. However, we know little about how these households make decisions and, therefore, it is not an easy task to formulate policies that will be effective in both improving their wellbeing and protecting the fishing resources.

In order to better understand the livelihoods of small-scale fishing households, we develop a model that considers the simultaneous decisions about fishing and consuming fish. We determine the role of key variables in the decision-making process of fishing households. These variables include the prices of fish and other goods, the wages a fisher could earn doing alternative work, the costs of fishing, the technology used in fishing, and the abundance of fish.

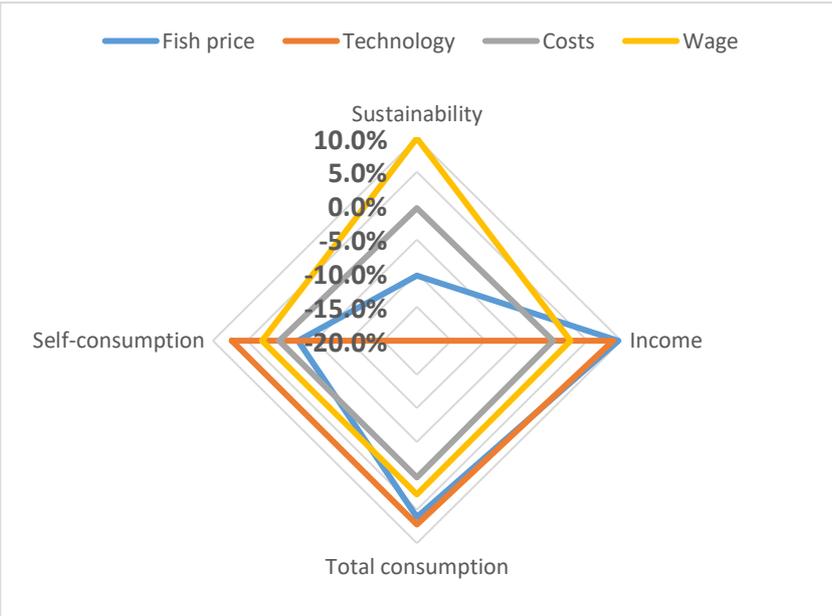
The model is tested using data from Barú, a fishing village in the Colombian Caribbean located within the limits of a marine national park. Protected areas such as marine parks often results in conflicts that threaten social and environmental sustainability. We simulate how different policies would affect the wellbeing of local fishing communities and the fishing resources. We found that promoting income-generating activities other

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than fishing might generate a win-win scenario, reducing the exploitation of resources while improving the standard of living of local communities located around strategic zones for biodiversity conservation, such as marine protected areas.



*Figure 1 Effects of different policies on key variables of fishing households wellbeing and sustainability*



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