

The economic viability of small- vs. large-scale fisheries

an example from Mexico

Anna Schuhbauer, Andrés Cisneros-Montemayor
and U. Rashid Sumaila



@acschuhbauer

a.schuhbauer@oceans.ubc.ca

Key messages



- Fisheries are more resilient if economically viable, but this includes more than just financial performance;
- Mexican small-scale fisheries have a better economic viability outlook than large-scale fisheries;
- Large-scale fisheries receive a much larger amount of subsidies;
- Food security and livelihoods should be considered in policy making.



Small-scale fisheries (SSF):

- Important worldwide but politically and economically marginalized;
- Threatened e.g., climate change, privatization.



Economic viability:

- Not only financial viability, especially for SSF which are part of local culture and traditions
- Includes not just the private sector but society.

An active fishery is economically viable when net benefits to society \geq zero.

Outline: Developed concepts of economic viability

1. Financial Viability = net benefits to the private sector (+ subsidies)

Basic Economic Viability = net benefits to society (- subsidies)

2. Extended economic viability: integrates other aspects not just economics.



1. Basic economic and financial viability



- Mexican fisheries as an example;
- Over time (2000 -2012);
- Small- compared to large-scale fisheries.



versus



Key attributes (US\$):

TR = Total Revenue;

TC = Total Cost of fishing;

TS = Total Subsidies.

Basic Economic Viability

$$NB_t^S = TR_t^S - TC_t^S$$

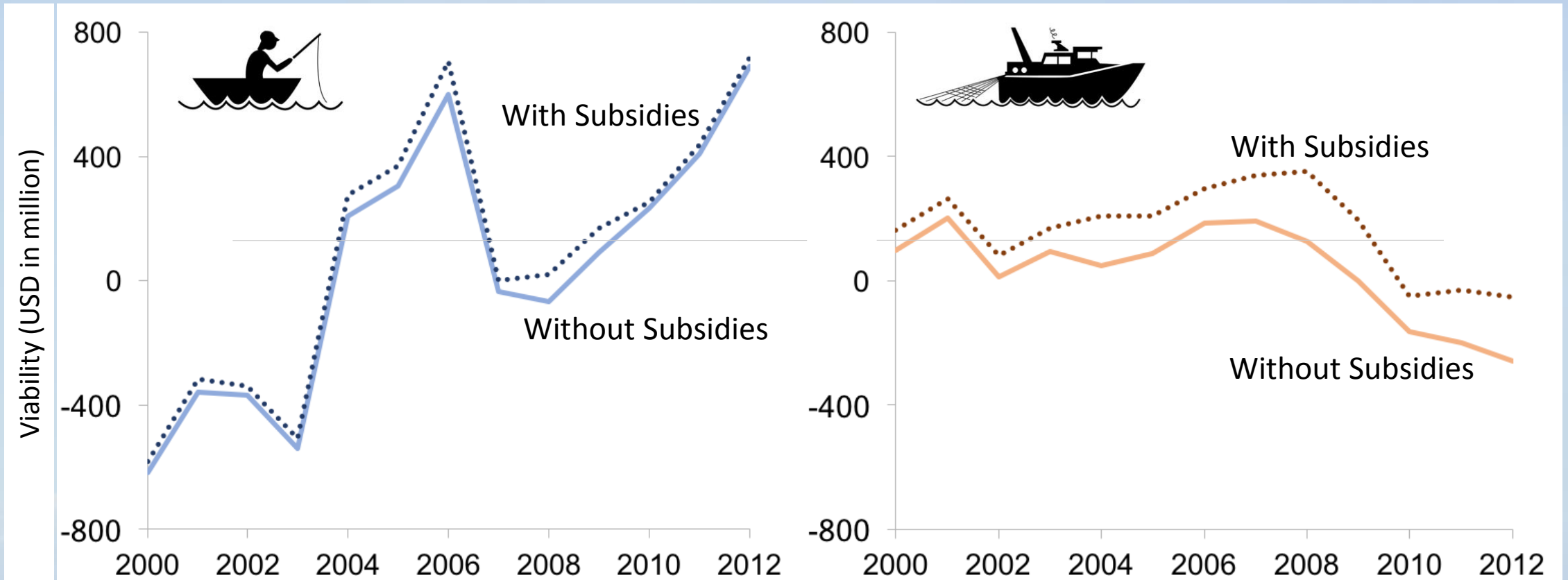
Financial Viability

$$NB_t^P = TR_t^P - TC_t^P + TS_t$$

Results: Basic economic and financial viability over time

Small-scale

Large-scale

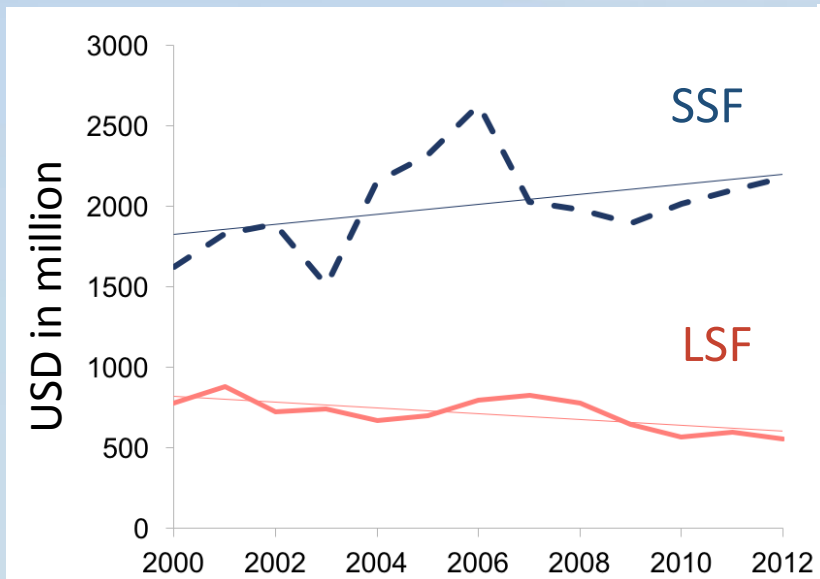


Financial Viability: $NB_t^p = TR_t^p - TC_t^p + TS_t$

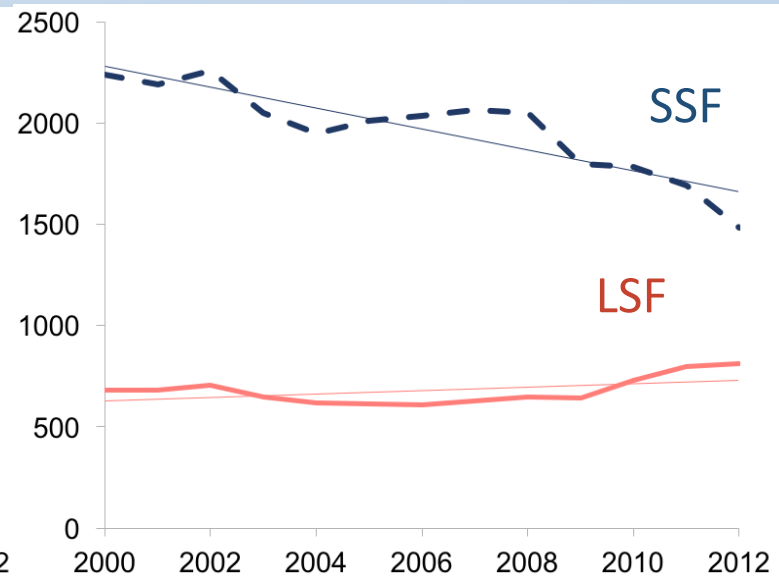
Basic Economic Viability: $NB_t^S = TR_t^S - TC_t^S$

Results of key attributes

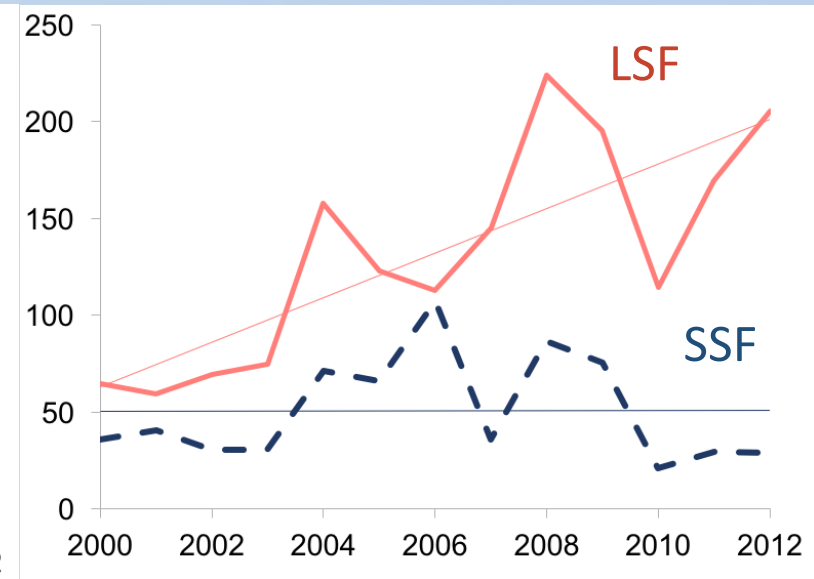
Total revenue



Total costs



Subsidies



Average basic economic and financial viability

Averages 2000 – 2012
USD in million



Total Revenue	2,011	711
Total Cost	1,969	678
Basic Economic Viability	42	33
Subsidies	51	132
Financial Viability	93	165

What does this mean?



- Inequity of subsidies distribution impacts economic viability;
- Reduced fishing effort in SSF -> increase in economic viability;
- Important to consider small- and large-scale fisheries separately.





2. Extended economic viability

- Pure quantitative measures alone not always sufficient to achieve sustainable policies;
- Broaden economic viability and assess more than just total revenue, total costs and subsidies;
- Selected 8 attributes which were assigned a minus or plus based on results;
- Score allocated in direct comparison small- to large-scale,
 - i.e., if attribute for SSF was considered better than LSF -> SSF + and LSF -



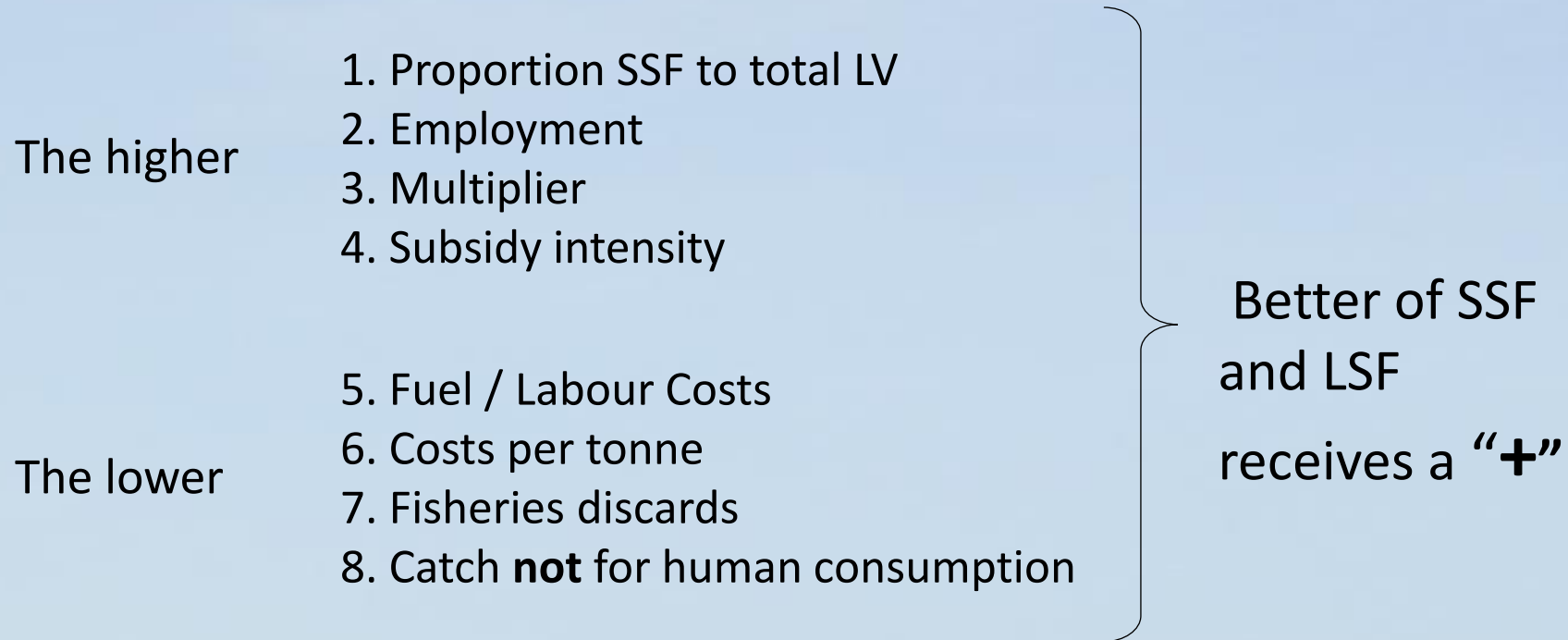
vs.



Attributes of extended economic viability



1. Proportion SSF to total landed value
2. Employment - total number of fishers
3. Multiplier – total economic impact
4. Subsidy intensity – amount of subsidy per fisher
5. Cost structure – ratio of fuel to labour costs
6. Costs per tonne of catch
7. Fisheries discards
8. Catch **not** for human consumption

Attributes of extended economic viability



Results will show possible impacts on economic viability.

Extended economic viability score

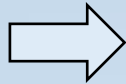
Attributes		
1. Proportion SSF to total landed value	+	-
2. Employment = number of fishers	+	-
3. Multiplier = economic impact	+	-
4. Subsidy intensity – amount of subsidy per fisher	-	+
5. Cost structure = fuel / labour costs	-	+
6. Cost per tonne of catch	-	+
7. Fisheries discards	+	-
8. Catch not for human consumption	+	-
Total score Extended Economic Viability	2	-2
Basic Economic Viability (M USD)	increasing	decreasing
Extended Economic Viability impact on Basic Economic Viability	+ +	- -

Impact on economic viability



Fuel / Labour Costs: the lower the better

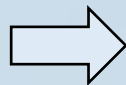
- Higher fuel efficiency
- More spent on labour



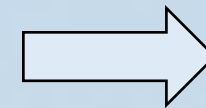
Ecosystem: less pollution
Economic: reduced costs
Social: higher wages

Not for human consumption: the lower the better

- More fish for eating
- Higher prices



Ecosystem: Lower catch
Economic: Reduced costs or
higher revenue
Social: Food security/sovereignty



Economic
viability



What does this mean?



- Inclusion of attributes from social, ecosystem and economic dimensions;
- Results show small-scale has a better prospect than large-scale;
- Attribute results show where weaknesses are:
 - Focus on these attributes to improve economic viability.



Key conclusions

- Economic viability allows to include more than just financial performance;
- Underlying dynamics of economic viability include:
 - ❖ Distribution of subsidies, prices, fuel efficiency, fishing effort, discards.



To improve economic viability of small-scale fisheries we need to:

1. Use fisheries subsidies to improve monitoring and enforcement;
2. Regulate fishing effort and improve fishing technologies;
3. Focus on food security, employment and ecological factors;

Improving drivers of economic viability would help prepare SSF to tackle threats they face.

Thanks

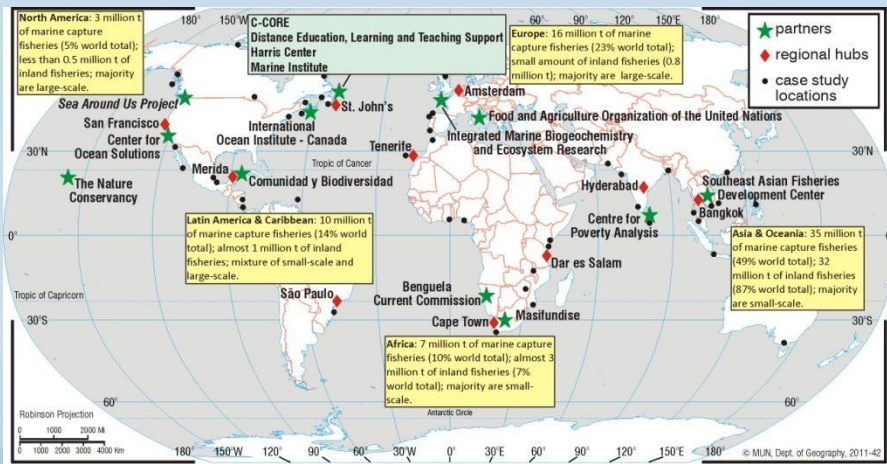
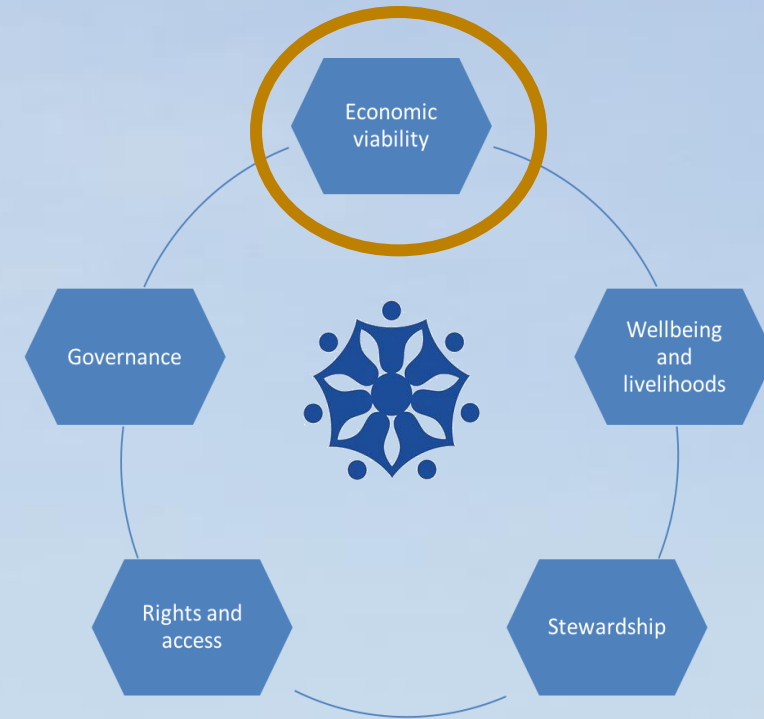
- Dr. William Cheung and Dr. Ratana Chuenpagdee
- Too Big To Ignore, OceanCanada and CFRN;
- Sea Around Us;
- Miguel A. Cisneros-Mata, Marcia Moreno-Báez;
- IOF students, staff and post docs.



Additional Material



- ❖ Elevate the profile of SSF;
- ❖ Argue against their marginalization in policies;
- ❖ Conduct research, build capacity and influence policies.

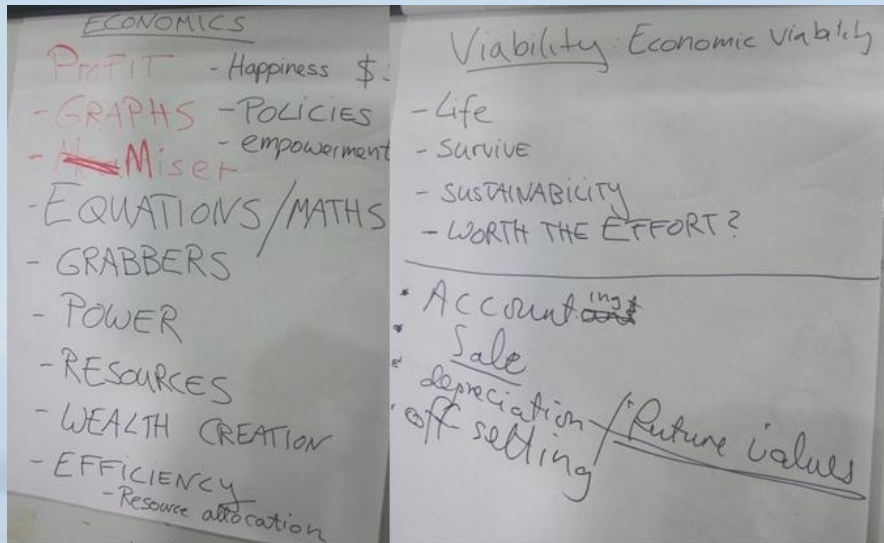


Understanding and improving economic viability will help prepare SSF withstand threats they face.

Identifying and defining attributes of economic viability

Through:

- Workshops;
- Discussions;
- Conferences;
- Literature review.



Attribute based framework including 13 economic and socio-economic attributes.

Analysis of key attributes



Scope:

- From 2000 to 2012
- Regions: National, Pacific and Atlantic

Sources:

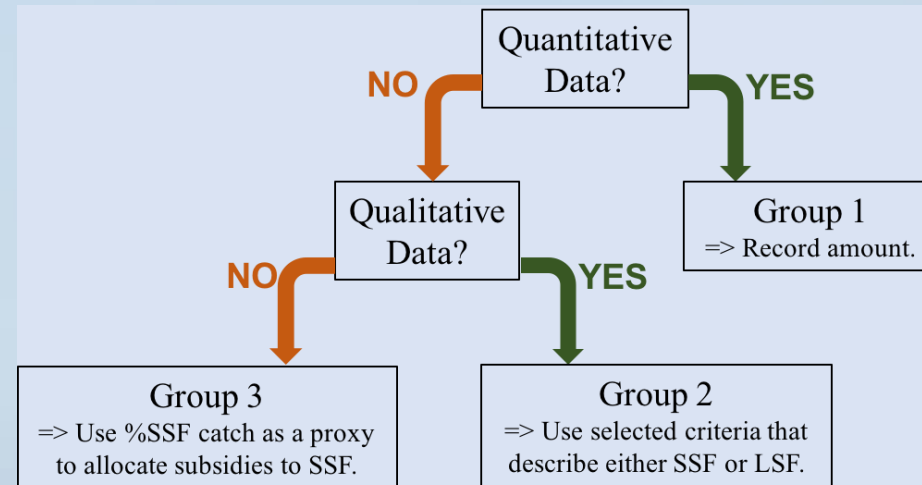
- FERU, SAU, Literature, Mexican fisheries reports, OECD reports, FAO, Case-studies.

1. Total Revenue (\$) = Landings x Ex-vessel price
2. Total Cost of fishing (\$) = variable costs + fixed costs
3. Subsidies

Analysis of key attributes



3. Assessing Total Subsidies (\$)



Underlying dynamics

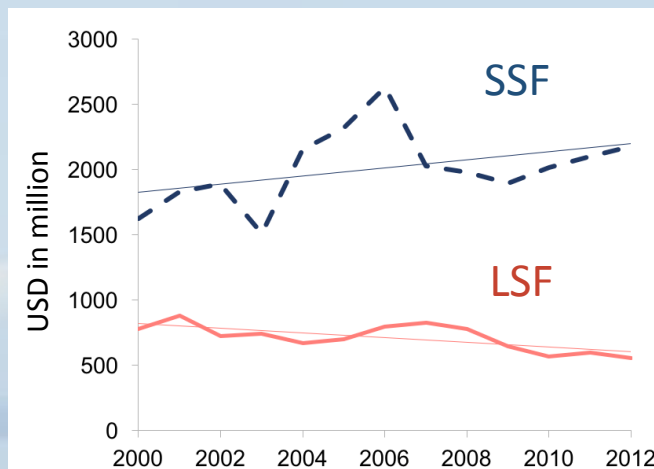


- Stable catch;
- Decrease in effort;
- Fuel prices stable.

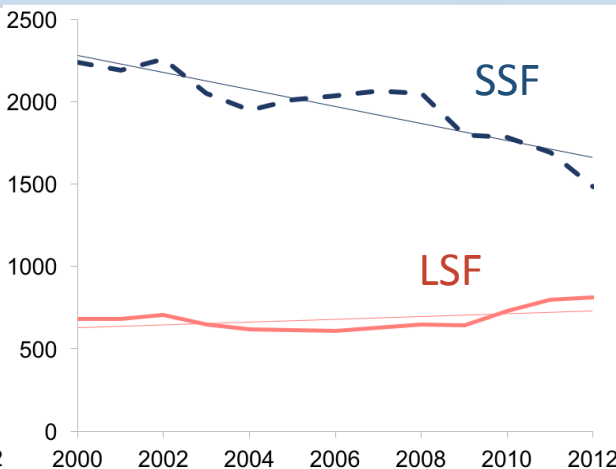


- Increase in catch;
- Decrease in effort;
- Fuel prices increase.

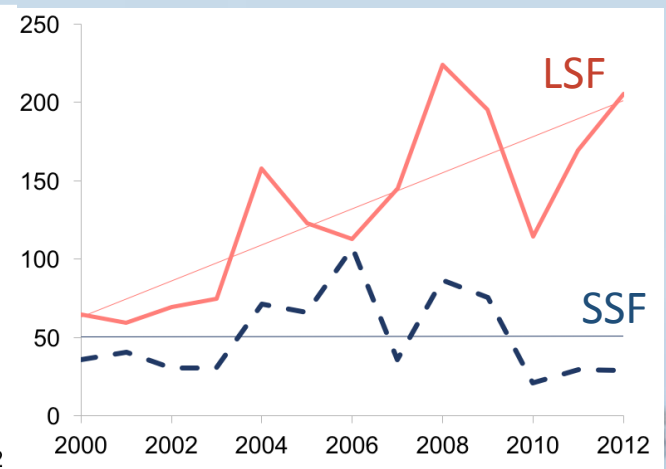
Total revenue



Total costs



Subsidies



Policy advancement



- United Nations Sustainable Development Goals;
- FAO voluntary guidelines for securing sustainable small-scale fisheries;
- UNCTAD agreement to reduce capacity-enhancing fisheries subsidies.

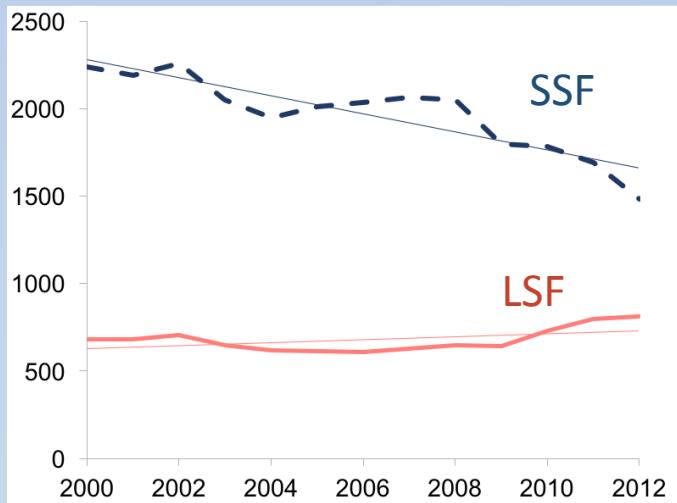
Results from this study helps to fill knowledge gap in SSF research to possibly help achieve goals.

Data quality and caveats

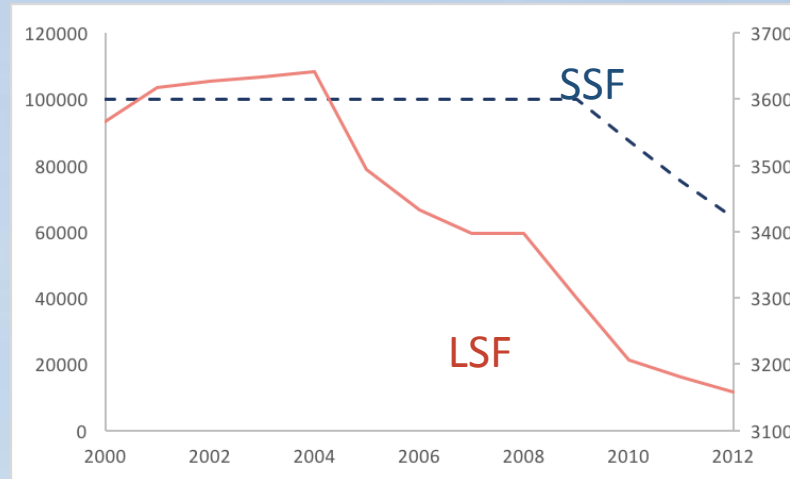
- Data quality and access to data needs to be improved;
- Statistical analysis to be carried out with more data;
- Weighing attributes depending on importance;
- Complexity of small-scale fishing sector might not be represented adequately;
- Carry out local studies to verify national data and results.



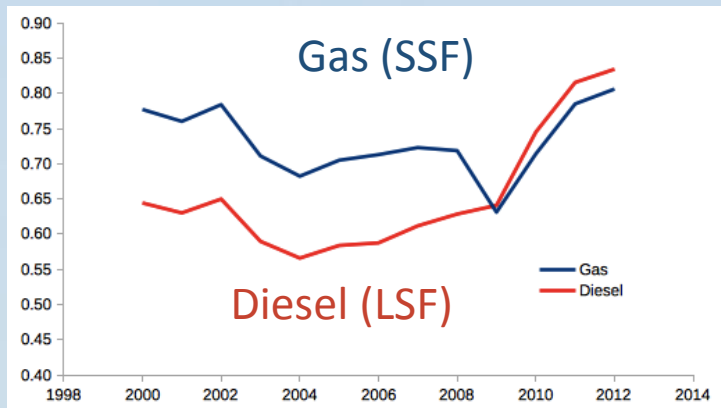
Total costs



Fishing vessels



Fuel prices



Landings

