ASSESSING ECONOMIC PERFORMANCE AND CAPITAL PRODUCTIVITY IN THE FISHERIES SECTOR - THE CASE OF FISHING VESSELS IN BRITTANY (FRANCE)

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INTRODUCTION

- Indicators of the economic performance of fishing vesselsare frequently computed in many countries.
- Usually, measures of economic performance are based on the return on capital invested. However, several measures of capital value exist, according to the economic information available.
- In this paper, we use different types of information to assess capital value and economic performance of fishing vessels.



INTRODUCTION

- On the one hand, field surveys provide technical and financial information on the main components of fishing capital (vessel, engine, electronics, and storage equipment).
- On the other hand, book values are given in bookkeeping databases. Both sources of information on fishing capital are used for the same set of vessels, namely the commercial fishing fleet of the French region of Brittany.
- Based on these two sources, several measures of economic performance can be produced.
- The measures of performance obtained are presented, and the differences between them are then discussed.



Definition of economic and financial indicators



Short term economic a	and	l financial performance
Gross revenue	=	Landings value
Operating costs	П	Fuel, gear, maintenance, repairs
Labour costs	=	Crew payments
Value added		Gross revenue – Operating costs
Gross surplus	Ш	Gross revenue – Operating costs– Labour costs
Long term economic a	nnd	financial performance
Full equity profit	Ξ	Gross surplus – depreciation costs
Net profit		Full equity profit – opportunity cost
Profitability measure		
Return on capital	=	Full equity profit / capital value
Capital productivity n	nea	asures
Capital productivity		Gross revenue / capital value
Capital productivity		Value added / capital value
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Table I: Brittany professional fishing fleet, year 2003

	Brittany (%	6 of populati France)	on in	France (number of boats)			
	Active	Passive		Active	Passive	Total	
Fleet segments	gear	gear	Total	gear	gear		
< 12 m	47%	35%	39%	917	1790	2707	
> 12 m	42%	44%	42%	939	289	1228	
Total	45%	36%	40%	1856	2079	3935 🤇	

Source: Ifremer (2004)





CASE STUDY AND REPRESENTATI VENESS OF SAMPLES

Table II: Common sample, year 2003 (number of boats)



 \square Active < 12 m \square Passive < 12 m \square Active > 12 m \square Passive > 12 m

Figure 1. Comparative structure of fleet in Brittany and common sample by length class and main gear

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Table III: Technical parameters, common Sample, 2003

Fleet segments	Number of boats	Age in 2003 (years)	Length (m)	Tonnage (tjb)	Engine power (kw)	Crew
		21.3	11.9	19.6	167	2.9
All units	77	2.4	2.9	1.5	1.0	1.6
		22.0	9.3	8.8	107	1.8
< 12 m	48	2.4	5.7	2.4	1.8	2.0
		20.2	16.1	37.4	267	4.5
>12 m	29	2.3	4.6	2.2	1.7	2.9





SHORT-RUN ECONOMIC PERFORMANCE

Figure 2. Gap between estimations of landings value, value added and gross surplus for the entire common sample, (Bookkeepping – field survey, as a % of field survey)



SHORT-RUN ECONOMIC PERFORMANCE < 12 meters

Figure 3. Gap between estimations of landings value, value added and gross surplus for the sub-sample under 12 meters, (Bookkeepping – field survey, as a % of field survey)



SHORT-RUN ECONOMIC PERFORMANCE > 12 meters

Figure 4. Gap between estimations of landings value, value added and gross surplus for the sub-sample above 12 meters, (Bookkeepping – field survey, as a % of field survey)

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Depreciation rules in fisheries :

- The fiscal regime : Fishing companies France can use the geometric system for new and second hand vessels too. In these conditions, a company can fully depreciate its vessel in 6 years, whereas estimated economic lifetime usually is above 20 years.
- The economic perspective : Hedonic price models have been used to estimate Capital value (gross and net). Physical variables such as vessel size, fleet, type of hull and year of purchase are explaining variables. Hence, a depreciation rate of 16% is applied the first year and a constant rate of 4% the following periods.



Consequences of different depreciation regimes :

- Fiscal depreciation is higher than estimated depreciation due to a life duration limited to 6 years.
- Fiscal depreciation is higher than estimated depreciation due to implicit value of fishing rights included in second hand vessel prices (Guyader et al., 2003)





Figure 9. Decomposition of gross surplus for the subsample under 12 meters (a), and the sub-sample above 12 meters (b)

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Figure 5. Gap between estimations of gross capital value (Model value – Bookkeepping, as a % of Bookkeepping)

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- Different measures of fishing capitalvalue : Book value, insurance value, estimated values. If capital is considered here exclusively as a stock, the analysis requires an assessment of capital flows.
- In certain circumstances, financial results can beconsidered as irrelevant to measure performance of fishing boats. This is the case with small boats where "non-wage labour is a major input" [Boncoeur et al, 2000)]
- The fiscal regime in fisheries plays a crucial role in the dynamics of investment. Financial and economic indicators have to be clearly separated to avoid misinterpretation from fiscal rules (depreciation).
- According to measures of fishing capital value, capital productivity can change. In addition, another problem must be addressed in the valuation of capital in the fishery industry, the value of intangible assets. By instance, fiscal depreciation is based on physical and non-physical value in the case of second-hand vessels (if individual fishing rights do not exist).

