

Is the fisher labor market flexible (enough)?

A study of employment trajectories of fishers in a French Atlantic coastal region

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The practical problem

- To sail, suppose that this fishing boat needs:

- 1 Skipper,
- 1 Engineer,
- 2 deckhands.



- However, assume that only 1 Skipper and 3 Deckhands are available

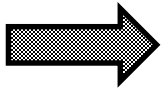
➡ The owner can either hire 1 Engineer or convert a Deckhand into an Engineer

In practice, the problem is similar but more complex (250 vs 750 KW). Therefore, a derogatory system is proposed by the maritime authority (but variable, not flexible, and limited)

Context and issue



- The fishing sector is a significant job provider in many coastal areas (with direct and indirect jobs) (BenDor et al., 2009)
- Fishermen recruitment and retention are becoming a problem in France
- Lack of interest for the sector (Perraudeau et al., 2008)
- Small-scale fisheries need stronger functional flexibility (Allison and Ellis, 2001)



How could the fisher labor market flexibility be enhanced to partly compensate the problem of recruitment and retention faced by this market? → by improving the matching between supply and demand

Data and stylized facts

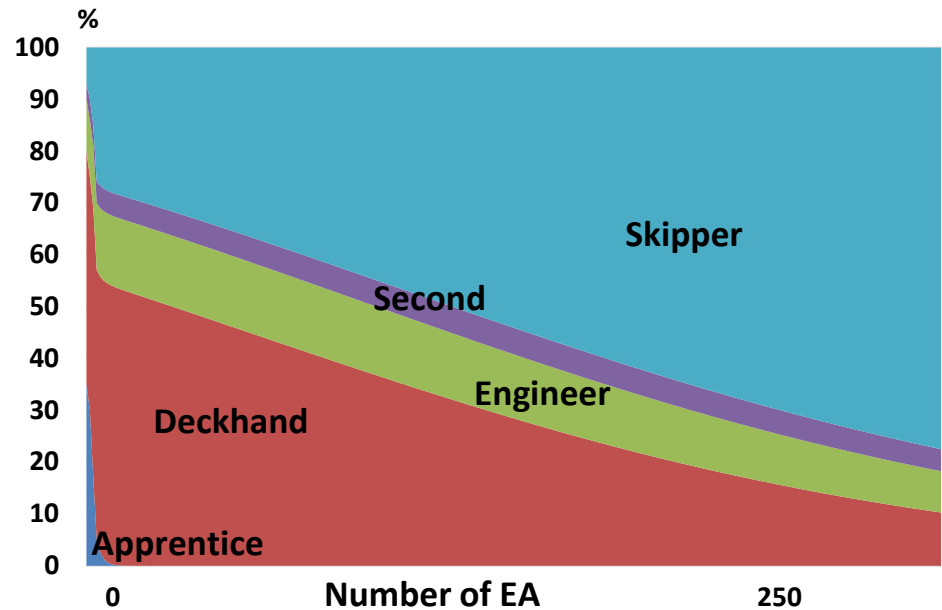
Data : 1,338 employment trajectories of active fishers in 2014 (French region of Pays de la Loire), representing 70,957 observations (for each observation, the fisher's occupation and the duration of employment agreements (EA) are known as well as the fishing category).

Five occupations:

- 44 Apprentices (3,3%)
- 574 Deckhands (42,9%)
- 159 Engineers (11,9%)
- 48 Seconds (3,6%)
- 513 Skippers (38,3%)



Figure 1. Occupations dynamics according to the number of employment agreements (EA)



* Note : Smoothed estimated probabilities (multinomial logit model).

Data and stylized facts

To study the dynamics of employment, we use a transition probability matrix. Each value in Table 1 shows a probability of transitioning from one state to another:

- The transition matrix exhibits strong mobility between fishers' employment agreements, particularly for Engineers and Seconds
- Seconds and Engineers play a pivotal role & strong link between the Deckhands and the Skippers

Table1. Evolution of professional statuses between EA since 2000 (% , N = 39,515)

		Boarding t + 1				
		Apprentice	Deckhand	Engineer	Second	Skipper
Boarding t	Apprentice	*53.9	44.7	1.4	0.0	0.0
	Deckhand	0.0	56.9	12.7	2.6	27.8
	Engineer	0.0	26.6	44.0	4.5	24.9
	Second	0.0	14.8	13.2	19.2	52.8
	Skipper	0.0	22.4	8.4	6.3	62.9

* *key* : 53.9% of Apprentices are on average still apprentices for the following EA. Since 2000, the 370 initial EA of Apprentices were followed by 191 EA of Apprentices ($191 / 370 = .539$), 126 EA of Deckhands, and 4 boardings of Engineers.

Data and stylized facts

- The EA are characterized by a strong variability of durations (mean = 117 days, SD = 281, Min = 1, Max = 6329, Q1 = 8, Q2 = 28, Q3 = 105)
- We retain the occupation with the longest duration for each fisherman and for each year
- We obtain the 'long term' transitions (except for apprentices, the values in the diagonal are higher than in the 'EA' matrix)

Table 2. Evolution of professional status by year (%)

		Year t+1				
		Apprentice	Deckhand	Engineer	Second	Skipper
Year t	Apprentice	37.1	55.6	2.6	4.7	0.0
	Deckhand	0.0	85.7	3.5	3.6	7.2
	Engineer	0.0	15.1	64.7	9.6	10.6
	Second	0.0	9.9	4.1	74.4	11.6
	Skipper	0.0	4.3	1.4	1.5	92.8

Models

- By differentiating all (EA) transitions from the 'long term' (i.e. yearly) transitions, we obtain the 'short term' transitions corresponding to the 'functional flexibility'
- Among the transitions between status, more than 50% of transitions are short term ones.
- The determinants of functional flexibility are then analysed through a probit model

Main results

- Age, boarding duration are conversely related with the probability of short term transitions
- Engineer and Second status increase the functional flexibility
- Functional flexibility is higher in coastal and offshore fisheries than in small-scale fishery

Conclusion

- The fishing industry is yet characterized by a strong functional flexibility (the acceptance may be linked to the share system of payment)
- The Engineer plays a pivotal role in the whole job market organization
- Age is conversely linked to functional flexibility which may raise problems in an ageing fishermen's population
- We intend to differentiate the results by fishing categories in a future study



Thank you for your attention!

