SEAWEED CONSUMPTION IN FRANCE: WHICH MARKET TOOLS FOR WHICH CONSUMER?

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World’s production of seaweed (Mt) (FAO, 2014)
Seaweed consumption in France: which market tools for which consumer?

The main producing countries in Europe (*NETALGAE*, 2012)
Seaweed consumption in France: which market tools for which consumer?

Use of seaweed in global (left) and in Europe (right) (CEVA, 2010)

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Seaweed consumption in France: which market tools for which consumer?
Objectives:
Investigate French consumer perception of and purchase habit and intentions for seaweed products.
✓ **Pre-survey**

✓ **The questionnaire design:**

  Face-to-face interviews in June-July 2013 in seven major cities (Rennes, Paris, Lille, Strasbourg, Bordeaux, Lyon, Montpellier)

  Representative sample of the French population

  Five mains parts:

  1. **P1** Eating habits
  2. **P2** Seaweed consumption
  3. **P3** Seaweed knowledge
  4. **P4** Seaweed perception
  5. **P5** Certification sensibility

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Five mains parts

The database:

Around 30 questions
825 questionnaires

534 kept for analyse
## VARIABLES USED TO ANALYZE SEAWEED CONSUMPTION AND LABEL PERCEPTION

### Eating habit
- Curiosity
- Meat-based diet
- Cooking habit (food and seafood)
- Seafood consumption

### Seaweed Perception
- Knowledge on seaweed
- Preferences on production process
- Product perception

### Socio-demographics factors
- Age
- Gender
- Marital status and presence of children
- Household income level (Less than 1500 E/month, 1500-2999E/m, 3000-4999E/m, 5000 E/m and +)
Variables used to analyze seaweed consumption and label perception

“Have you ever consumed edible seaweed? (Food products with seaweed as ingredient – excluded gelling agent and food supplement)” (Yes / No)

Seaweed consumption

- Yes: 61.42%
- No: 38.58%

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VARIABLES USED TO ANALYZE SEAWEED CONSUMPTION AND LABEL PERCEPTION

“Have you ever consumed edible seaweed? (Food products with seaweed as ingredient – excluded gelling agent and food supplement)” (Yes / No)

“Have you ever eaten one of those products? (Based on products pictures)” (Never / at home / outside)

Seaweed salad / Sushi / Seaweed soup

Bread-Pastry-Pasta / Seaweed Tartar or Marinade / Fish rillettes with seaweed / Cheese with seaweed / Chips-Snaking / Seaweed side dish / Seaweed condiment / other
“Have you ever consumed edible seaweed? (Food products with seaweed as ingredient – excluded gelling agent and food supplement)” “Have you ever eaten one of those products? (Based on products pictures)”

**Seaweed consumption**

- No 38.58%
- Yes - J 25.84%
- Yes - A 34.08%
- Yes - F 1.50%

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“If seaweed products were implemented with a label, for the same price, would you choose…” (rank the choices)

An **environmental label (E)** guaranteeing the use of technics environmentally friendly and the marine resources conservation (e.g. Organic)

A **quality label (Q)** guaranteeing a constant quality taste (e.g. Label Rouge)

A **fair label (F)** guaranteeing minimal income and fair working conditions to workers

A **health label (H)** guaranteeing seaweed free of toxics substances

**No label (N)**
**Seaweed consumption:**
- Probit (consumer versus non-consumer)
- Multinomial probit (consumer J, consumer A, non consumer)

**Labels Preferences:**
- Multinomial probit with random effect
  
  **Random Utility fonction**
  
  $U_{kj} = V_{kj} + \epsilon_{kj}$
  
  $V_{kj} = X_k \beta_j + Y_j g_j + \varphi_j$

  With
  - $X_k$ vector of Socio-economics characteristics of consumer k
  - $Y_j$ vector of characteristics of product j
  - $\varphi_j$ random intercept for each label $L=\{E,Q,F,H,N\}$
  - $\epsilon_{kj}$ standard error iid

  And
  
  $\Pr(R_i) = \frac{e^{V_{k1l1}}}{\sum_{r=1}^{5} e^{V_{k1l1}}} \frac{e^{V_{k1l2}}}{\sum_{r=2}^{5} e^{V_{k1l2}}} \frac{e^{V_{k1l3}}}{\sum_{r=3}^{5} e^{V_{k1l3}}} \frac{e^{V_{k1l4}}}{\sum_{r=4}^{5} e^{V_{k1l4}}} \frac{e^{V_{k1l5}}}{\sum_{r=5}^{5} e^{V_{k1l5}}} ; R_i=\{l1,l2,l3,l4,l5\}$

  the rank probability

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Seaweed consumption:

Probit

- Age is negatively linked seaweed consumption (strong marginal effect)

- Having children at home is positively linked seaweed consumption (weak marginal effect)

- Being used to cook seafood products increases the probability to consume seaweed products (weak marginal effect)

- Being seafood consumer increases the probability to be seaweed consumer (strong marginal effect)
Seaweed consumption:

Probit

- Being attentive to the price decreases the probability to consume seaweed products (weak marginal effect)

- See yourself as curious on food is positively linked with the probability of seaweed consumption (strong marginal effect);

- Eating few meat is positively linked with seaweed consumption (weak marginal effect)
Seaweed consumption:

Probit

- Ø

- People from Rennes and Paris are more likely to consume seaweed products (weak marginal effect)
○ **Labels preferences:**

- **Fixed effects:**
  - Being an all seaweed products consumer leads to have a preference for the environmental label;
  - Being a woman leads to have a preference for environmental and health label;
  - Being a one person household leads to have a preference for label over no label;
  - Having children at home decreases the preference for any labels.
Labels preferences:

Random effects:
- The variance of the random effect for environmental label compared to no label is higher than the variance for any other label compared to the no label suggesting a greater distance between the environmental label and the no label than between any other label and the no label;

- The variance of the random effect for fair trade label compared to no label is the smaller;

- The positively correlation between environmental label and any other label suggests a proximity between the environmental label and others labels (stronger for health label)

- Health, Fair Trade and Quality label are negatively correlated, the health and the fair trade labels being farthest.
Conclusion

- General profile of seaweed consumers in France with distinction on products inspiration.

- Overview of preferences on labelling scheme

- Forecast:
  - New specifications for multinomial probit with random effect
  - Look at the preferences on seaweed products names
Thank you