Export orientation towards the regional and international markets: A case of seafood industry in Sri Lanka and the Japanese seafood market

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- Research questions
- Justifications
- Studies – methods and findings
  i. Case study of the export oriented seafood industry in Sri Lanka
  ii. Case study of the Japanese seafood market and the consumption behavior
- Conclusions
- Suggestions for policy implications
Research questions?

**Export oriented seafood industry of Sri Lanka**
- What is the strategic situation of a country?
- What is the present market situation of the main products?
- Are the South Asian exporters geared towards diversification?
- What are factors that affect employee commitment?
- What is the level of compliance on food safety?
- What are the impacts of tsunami on seafood industry?

**Japanese seafood market**
- Do Japanese consumers evaluate seafood based on quality or ethnocentricity?
- Who consume the sushi most?
Justification of the study

- Economic importance to both Sri Lanka and Japan
- Vast potentials exist in Sri Lanka
- Identify the ways to create successful seafood export industry
- Less research focus in Sri Lanka
- Share the experience with international readership
- Consumer behavior of world’s biggest fish market & ideas for exporters
- Suggestions for policy making
Organization of the research studies on export oriented seafood industry of Sri Lanka

- **Situation Analysis**
  - Strategic situation of the country

- **Analysis of firm and products**
  - Prawn exports to Japanese market
  - Tuna processors and Export performance
    - Employee Commitment
    - Compliance on HACCP
    - Impact of tsunami

- **Regional Analysis**
  - Product diversification and Seafood exports of South Asia

Explore the path ways to be the pioneering seafood exporter in South Asia
International business – operations and influences

External influences

Competitive environment
- Major advantage in price, marketing, innovation or other factors
- Number and relative capabilities of competitors
- Competitive differences by country

Physical and Societal Factors
- Political policies and legal practices
- Values, attitudes and beliefs
- Economic forces
- Geographical influences

Operations

Objectives
- Sales expansion
- Resource acquisition
- Diversification
- Competitive risk minimization

STRATEGY

1 Means
1 Modes
- Importing and exporting
- Tourism and transportation
- Licensing and franchising
- Turnkey operations
- Management contracts
- Direct and portfolio investment

2 Functions
- Marketing
- Production
- Accounting
- Finance
- Human resources

3 Overlaying tactical alternatives
- Choice of countries
- Organization and control mechanisms
- Degree of integration among countries’ operations

Daniels and Radebaugh, 1998
1. A case study of export oriented seafood industry in Sri Lanka
i. Evolution of the strategies for betterment of future: A case study of export oriented seafood industry in Sri Lanka

Objectives of the study

- To trace the strategic situation of export oriented seafood industry in Sri Lanka, focusing on how the international market dynamics have influenced the emergence and development of the sector
- To identify the strengths, weaknesses, opportunities and threats of the seafood industry
Research methodology

- primary data gathered from in-depth interviews, focus group interviews of key informants from various sub sectors of fish production marketing chain
- Formulate strategies for the future
Results and Discussion

SWOT analysis:

1. **Strengths** – Strategic geographical situation, significant biophysical resource base, good image, experienced fishers with flexible fishing fleet, relatively large home market, high yields of semi-intensive and extensive production systems.

2. **Weaknesses** – High dependency on prawn and tuna, poor efficiency in catch sectors, limited availability of quality infrastructure, unstable catches, irregular supply, large gap between research and industry, limited working capital, poor market knowledge and sales promotion.
3. **Opportunities** – Exploiting non-traditional species for niche markets, value addition and diversification towards convenience meals, tap the ethnic market, get advantage of SAFTA, re-export, re-processing of Maldivian tuna

4. **Threats** – Falling resource base due to IUU fishing, voice of environmental groups on expansion, neighboring competitors, low interest on HACCP, SAFTAs’ threat to local producers
Five Forces’ Model

1. Threat of substitutes – Economical alternatives of established meat markets
2. Buyer’s power – Adverse economic conditions in main markets, dynamic consumer demand and environmental barriers
3. Competitor rivalry – Many players, slow market growth, high fixed costs, low value addition and differentiation, high exit costs and industry shake out
4. Supplier power – Supplier monopoly, market image, intensity of promotion and steady supply
5. Barriers to entry – High entry costs, legislative barriers, proprietary knowledge and asset specificity

PEST Model

Political
• Political instability; civil war
• Tax policy; income tax-15% for 5 years; 10% tax dividends; unlimited rupee exchange; 15% VAT
• Employment law
• Environmental law;
• Tariff and trade restrictions;

Economic
• Annual GDP growth; Low interest rates-
• Exchange rate and devaluation of currency
• Moderate inflation

Technological
• Research & development; value addition is increasing by 11%
• Automation
• Technology incentives; tax free on imports of agric. equipments, computers, construction machinery & low tax on materials for development
• Rate of technological change is 5.9% (2004)

Social
• Favorable labor law; Population growth-1.5%; High literacy rate (89%); educated, trained, hard working & motivated labor force
• Emphasis on safety and loyalty
• Labor productivity & real value added man hour is 4.9%
ii. Sri Lankan prawn in Japanese Market: Vehicle for a secure future for Sri Lankan export oriented fisheries industry?
Objectives

- To identify the past and future trends of the Sri Lankan shrimp exports in the Japanese market
- To identify the consumption trends and affecting factors for the consumption of shrimp in Japanese market

Materials and methods

- Data sources: Export data 1990-2003
- Analysis: Time series forecasting (Moving averages with Linear Trend)

\[ F(t+h) = F(t) + F'(t) \left[\frac{(m-1)}{2} + h\right] \]

where \( F(t+h) = \) Forecast time, \( F(t), F'(t) = \) exponential smoothing, \( m = \) length of moving average, \( t = \) actual data, \( h = \) future periods

To analyze the future trends
Expenditure on consumption of Shrimp = b0 + b1 * (Total expenditure on food) + b2 * (Total expenditure on fish) + b3 * (no. of persons/household) + b4 * (Expenditure on pork) + b5 * (Expenditure on beef) + b6 * (Expenditure on chicken) + b7 * (Expenditure on ham and sausages) + b8 * (Expenditure on egg and milk) + b9 * (Expenditure on eat-out)

Findings

Time series analysis of the Sri Lankan shrimp exports to Japanese market & unit price
Findings

- Japan – main market for Sri Lankan prawn and shrimp
- Heavy export competition from neighboring nations
- Analysis showed positive trend in quantity demanded and receiving high prices for Sri Lankan shrimp exports in future
- Low cost of production (US$ 4.56/ Kg) comparing with other Asian competitors except China and has medium overhead cost for production (38.6%)
- Increased diversification and value addition efforts of processors
- Preference on prawns: Food service use – large to medium; families often buy small sized frozen and food processors – small size
- Consumption rises during major national holidays
- Consumers preference is due to freshness, uniformity in size, appearance, price
- Entry barriers and competition from established suppliers

Preference on prawns: Food service use – large to medium; families often buy small sized frozen and food processors – small size

Consumption rises during major national holidays

Consumers preference is due to freshness, uniformity in size, appearance, price

Entry barriers and competition from established suppliers
Expenditure on shrimp consumption by whole market and by cities

Fluctuation of consumption
Japanese shrimp consumption also differs region to region in the country and it shows the direct influence of local culture on their food habits
Expenditure on fish, chicken and eat outs had positive impact on shrimp consumption
Expenditure on beef and no. of household persons had negative impact on shrimp consumption
Forecast on shrimp exports to Japan

Forecast on offering prices
iii. Export performance of small and medium scale Tuna processing industry in Sri Lanka: Can they survive?
Objectives

To investigate the present status of tuna processing industry in Sri Lanka

To analyzes the impact of technological innovation, effort in international business, manager’s perception on obstacles to export and utilization of public instruments on export performance of tuna exporters

Concepts

Technological innovation (Product, Process and Innovation in management)
International business management
Manager’s perceptions about obstacles to export
Utilization of public instruments
Empirical approach

- survey - spring 2004
- **Study locations:** Southern, Western provinces
- Primary data: 10 permanent tuna exporters and 10 sporadic tuna exporters
- **Characteristics of the companies were considered:** 1999-2003
- Companies that export throughout this period - permanent exporters while companies not export regularly - sporadic exporters
- **Data collection tools:** Structured questionnaire, in-depth interviews with key informants

**The model:** \( \text{Int} = \alpha + \beta \cdot \text{expi} + \varepsilon_i \)

Where Int measures the intensity of Technological innovation, International business management, Manager’s perceptions on obstacles to export and Utilization of public instruments

Measure the export intensity
The scale of intensity was measured as follows:

0 – null intensity; 1 – low intensity; 2 – slightly low intensity; 3 – slightly high intensity and 4 – high intensity

Exp is a categorical variable that defines the exporting status of the company

1 - if the firm is a permanent exporter,
0 – sporadic exporter

Econometric estimation:

\[
Pr (Y_i = 1) = \Phi (\beta ' X_i) + \varepsilon_i
\]

t test – to compare the means of two samples: permanent and sporadic exporters
Permanent exporters - more active in product and process innovation, strategic alliances with foreign firms, training of workers in export operations, export promotion in abroad and obtaining loans for financing working capital

Sporadic exporters - more active in strategic alliances with domestic firms and hiring of staff qualified for international business

Both facing greater difficulties in international operation

Utilization of public instrument was not playing significant role

Permanent exporters engaged in export promotion and technological capability enhancing in quality management than the sporadic exporters
## Summary of Scores

<table>
<thead>
<tr>
<th>Particulars of scores</th>
<th>Permanent exporters Max.- Min.</th>
<th>Sporadic exporters Max.- Min.</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Technological Innovation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product innovation (0-16)</td>
<td>16-8</td>
<td>7-1</td>
<td>7.7</td>
<td>5.37</td>
</tr>
<tr>
<td>Process innovation (0-16)</td>
<td>15-10</td>
<td>8-2</td>
<td>8.6</td>
<td>5.18</td>
</tr>
<tr>
<td>Innovation in management (0-16)</td>
<td>13-09</td>
<td>4-1</td>
<td>6.9</td>
<td>4.67</td>
</tr>
<tr>
<td><strong>2. Effort in international business (0-48)</strong></td>
<td>36-23</td>
<td>14-09</td>
<td>21.45</td>
<td>11.07</td>
</tr>
<tr>
<td><strong>3. Manager’s perception on obstacles to export</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal to the firm (0-36)</td>
<td>18-13</td>
<td>26-23</td>
<td>20.2</td>
<td>5.13</td>
</tr>
<tr>
<td>Internal to the country (0-36)</td>
<td>29-20</td>
<td>35-24</td>
<td>26.4</td>
<td>3.53</td>
</tr>
<tr>
<td>External to the country (0-52)</td>
<td>49-30</td>
<td>48-36</td>
<td>45.5</td>
<td>5.79</td>
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<tr>
<td><strong>4. Utilization of public instruments (0-12)</strong></td>
<td>11-05</td>
<td>03-01</td>
<td>5.75</td>
<td>3.89</td>
</tr>
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</table>
Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>St. error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.988a</td>
<td>0.977</td>
<td>0.960</td>
<td>0.10319</td>
</tr>
</tbody>
</table>

a. Predictors: (constant), product innovation, process innovation, Innovation in management, effort in international business, manager perceptions on Obstacles to export and utilization of public instruments. 96% of the export performance of the permanent and sporadic exporters was explained by the considered variables.

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>$F$</th>
<th>significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4.883</td>
<td>8</td>
<td>0.610</td>
<td>57.323</td>
<td>0.000a</td>
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<tr>
<td>Residual</td>
<td>0.117</td>
<td>11</td>
<td>0.011</td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>5.000</td>
<td>19</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

b. Dependent variable: Export status
## Summary of coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Standardized coefficients</th>
<th>t</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(constant)</td>
<td>0.527</td>
<td>1.122</td>
<td>0.286</td>
</tr>
<tr>
<td>Product innovation</td>
<td>0.085</td>
<td>0.477</td>
<td>0.643</td>
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<tr>
<td>Process innovation</td>
<td>0.032</td>
<td>0.130</td>
<td>0.899</td>
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<tr>
<td>Innovation in management</td>
<td>0.539*</td>
<td>2.166</td>
<td>0.053</td>
</tr>
<tr>
<td>Effort in international business</td>
<td>- 0.069</td>
<td>- 0.276</td>
<td>0.787</td>
</tr>
<tr>
<td>Obstacles internal to firm</td>
<td>- 0.081</td>
<td>- 0.533</td>
<td>0.605</td>
</tr>
<tr>
<td>Obstacles internal to country</td>
<td>- 0.011</td>
<td>- 0.129</td>
<td>0.900</td>
</tr>
<tr>
<td>Obstacles external to country</td>
<td>- 0.127</td>
<td>- 1.958</td>
<td>0.076</td>
</tr>
<tr>
<td>Public instruments</td>
<td>0.457</td>
<td>2.257</td>
<td>0.456</td>
</tr>
</tbody>
</table>
iv. Product diversification, will it assure future market for South Asian seafood industry? A case study of the South Asia
Objectives

- To estimate the degree of product diversification in south Asian seafood industry and comprises with regional, country wise and plant wise estimation of **Herfindhal Diversity Index (HDI)**
- To Identify the past, present and future trends of South Asian seafood market

Concepts: **Product diversity**

- Product diversity refers to the degree of relatedness among various product segments (Jacquemin and Berry, 1979)
- Measures: **industry relatedness**
- Locale of study: India, Pakistan, Bangladesh, Maldives and Sri Lanka
Method and findings

- Herfindhal Diversity Index
- Data: seafood export figures in 4 year (2000-2003) period

\[ H = \sum_{i=1}^{n-1} P_i^2 \]

Where \( P_i \) is the proportion of the \( i^{th} \) product relative to the total exports

\[ H = \sum_{i=1}^{n-1} P_i^2 + P_i^2 B + P_i^2 P + P_i^2 S + P_i^2 M \]

Herfindhal diversity index (HDI) for the region; where \( P_i \) is HDI of India, \( PB \) is HDI of Bangladesh, \( PP \) is HDI of Pakistan, \( PS \) is HDI of Sri Lanka and \( PM \) is HDI of Maldives

The index: 0 = complete diversification and 1 = complete specialization

 Measure the level of diversification

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Country wise seafood exports (MT) and Diversity

Years

MT

0% 50% 100%

2000 2001 2002 2003

Herfindhal Diversity Index

2000 2001 2002 2003
Regional diversity index improved from 0.402 in 2000 to 0.286 in 2003; Most significant in India; Worst case is Maldives; All exporting nations move towards positively to the diversification Degree of product diversity among individual plants was changed slightly

- Small and medium size plants were less diverse
- In contrast large plants were more diverse
- Plants processing for EU and USA were less diverse than the Asian markets including Japan
v. The involvement of female labor in seafood processing in Sri Lanka: Impact of organizational fairness, organizational commitment and supervisor evaluation on employee commitment
Objectives

- To identify the socio economic background of the female laborers in processing industry
- To explore the impact of organizational fairness, organizational commitment and supervisor evaluation on the female employee commitment in seafood processing industry

Concepts

- **Evaluation of supervisor** - The degree to which one supports or endorses a leader (Schappe, 1996; Alecander and Ruderman, 1987)
- **Organizational Commitment** - Measure of affective commitment an opposed to normative or continuance commitment
- **Organizational Fairness/Justice** –
  - **ii. Procedural Justice** (Moorman 1991): Degree to which job decisions included mechanisms; employee voice and appeals process
  - **iii. Interactional Justice** (Leventhal, Karuzan and Fry (cf. Moorman, 1991): Fairness of the interactions between manager and employee that enacted the formal procedures
Materials and methods

Study location and sample: 50 randomly selected female employees of the 10 seafood processing firms

Primary data - Structured Questionnaire based on Likert type, seven-point response format, ranging from 1-Strongly disagree to 7-strongly agree

Hypothesis Testing

H1 - Organizational Justice has positive impact on the organizational commitment
H2 - Supervisor evaluation has positive impact on the organizational commitment (the degree of fairness of supervisor perception will affect the commitment measures)

Measure the level of impact
Findings

- Socio Economic characters of the sample:
  - Majority of the employed women: age range 25-29, un married and having completed their secondary education
  - Female domination in lower grade jobs are high (Male: Female=2:10 in Prawn & 4:10 in Tuna processing plants)
  - Quality control and administrative grade’s ratio is 2:1 and CEO positions are overwhelmingly held by males

<table>
<thead>
<tr>
<th></th>
<th>Mean score</th>
<th>SD</th>
<th>Minimum score</th>
<th>Maximum score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributive justice</td>
<td>25.02</td>
<td>3.37</td>
<td>18.00</td>
<td>33.00</td>
</tr>
<tr>
<td>Procedural Justice</td>
<td>16.06</td>
<td>4.18</td>
<td>9.00</td>
<td>23.00</td>
</tr>
<tr>
<td>Interactional Justice</td>
<td>13.34</td>
<td>6.73</td>
<td>41.00</td>
<td>63.00</td>
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<tr>
<td>Commitment scale</td>
<td>50.02</td>
<td>6.73</td>
<td>41.00</td>
<td>63.00</td>
</tr>
<tr>
<td>Supervisor evaluation Scale</td>
<td>24.04</td>
<td>2.73</td>
<td>19.00</td>
<td>30.00</td>
</tr>
<tr>
<td></td>
<td>Distributive justice</td>
<td>Procedural Justice</td>
<td>Interactional justice</td>
<td>Commitment scale</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------</td>
<td>--------------------</td>
<td>-----------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Distributive justice</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedural Justice</td>
<td>--------</td>
<td>--------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactional Justice</td>
<td>--------</td>
<td>0.655**</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>Commitment scale</td>
<td>0.607**</td>
<td>0.407*</td>
<td>--------</td>
<td>0.670**</td>
</tr>
<tr>
<td>Supervisor evaluation scale</td>
<td>0.608**</td>
<td>0.509**</td>
<td>0.626**</td>
<td>0.670**</td>
</tr>
</tbody>
</table>

Bivariate Correlation between organizational fairness scales, supervisor evaluation scale and commitment scores {**Correlation is significant at the 0.01 level (2-tailed)}

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SEB</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational justice</td>
<td>0.399</td>
<td>0.092</td>
<td>0.531*</td>
</tr>
</tbody>
</table>

Multiple Regression Analysis for the affect of organizational fairness on commitment (p= 0.001)
vi. Compliance on HACCP and export penetration: An empirical analysis of the seafood processing firms in Sri Lanka
Objectives

- To find out the impact of HACCP, level of sanitation, labor, capital and traceability on export penetration of the seafood export business
- To draw implications about the impact of food safety regulations (HACCP) on corporate success of seafood processors

Methodology

- Study location - 50 seafood processing firms in South, West and North-west coast of Sri Lanka (26 EU approved establishments)
- Data collection tools – Structured questionnaire, interviews, observations

Measures:

- **Status of HACCP**: scale (0-3) and calculated by adding binary variables
  1 – if the company responded positively or 0 otherwise
  2 – Company has participated HACCP training
  3 – Company has implemented HACCP and documentation

- **Level of sanitation was define by using Dummy variables**
  SANI 1 – Plant requires minor modification
  SANI 2 – Plant requires major modification

**Construct the export penetration index**
Theoretical framework

Prices are function of the quality attributes, \( p = f(q) \). the firms supply for \( Yi \) as function of quality attributes, inputs prices \( w \), and fixed inputs \( k \),

\[ Yi = f(q, w_i, k) \]

Dependent variable \( Yi \) is the quantity of the product sold in international market \( i \),

An export penetration index (EPI) defined by Featherstone and Uhm (1993) is as follows;

\[ EPI = \frac{X}{Y} \]

Where, \( X \) is the total export and \( Y \) is the total production

The empirical model to be estimated is as follows (modified from Zaibet, (2001));

\[ EPI = f(\text{HACCP}, \text{Sanitation}, \text{Labor}, \text{Capital}, \text{Traceability}) \]
### Results of the OLS model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter</th>
<th>“t” statistic</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.377</td>
<td>5.504</td>
<td>0.000</td>
</tr>
<tr>
<td>HACCP</td>
<td>0.288</td>
<td>1.268</td>
<td>0.212</td>
</tr>
<tr>
<td>Labor</td>
<td>0.054</td>
<td>0.293</td>
<td>0.771</td>
</tr>
<tr>
<td>Capital</td>
<td>0.213</td>
<td>0.990</td>
<td>0.328</td>
</tr>
<tr>
<td>SANI 1</td>
<td>0.201</td>
<td>1.605</td>
<td>0.116</td>
</tr>
<tr>
<td>SANI 2</td>
<td>-0.001</td>
<td>-0.012</td>
<td>0.990</td>
</tr>
<tr>
<td>Traceability</td>
<td>0.488</td>
<td>1.982</td>
<td>0.054</td>
</tr>
</tbody>
</table>

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>Standard Error of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.867&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.752&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.716</td>
<td>0.115</td>
</tr>
</tbody>
</table>

<sup>a</sup> – Predictors: (constant), Traceability, Labor, SANI 1, SANI 2, Capital, HACCP  
<sup>b</sup> – Dependent Variable
### Correlations among variables (Pearson correlation)

<table>
<thead>
<tr>
<th></th>
<th>EPI</th>
<th>HACCP</th>
<th>Labor</th>
<th>Capital</th>
</tr>
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<tbody>
<tr>
<td><strong>EPI</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>HACCP</strong></td>
<td>0.824**</td>
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</tr>
<tr>
<td><strong>Labor</strong></td>
<td>0.368*</td>
<td>0.228</td>
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<tr>
<td><strong>Capital</strong></td>
<td>0.609 **</td>
<td>0.510 **</td>
<td>0.856 **</td>
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<tr>
<td><strong>SANI 1</strong></td>
<td>-0.089</td>
<td>-0.043</td>
<td>-0.207</td>
<td>-0.320</td>
</tr>
<tr>
<td><strong>SANI 2</strong></td>
<td>-0.587</td>
<td>-0.707 **</td>
<td>-0.130</td>
<td>-0.305</td>
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<tr>
<td><strong>Traceability</strong></td>
<td>0.785 **</td>
<td>0.867 **</td>
<td>0.221</td>
<td>0.547</td>
</tr>
</tbody>
</table>

**  Significance at 0.001 level (1-tailed)  
*  Significance at 0.005 level (1-tailed)

- HACCP, Capital and traceability have high positive impact
- Labor has little impact on export performance (EP)
- SANI 1 and 2 has negative impact on export performance
- All EU approved plants have their own HACCP plan for each product type
- Exporters to Asian market have low interest on HACCP plan
vii. Forefront of recovery: A sub sector analysis of the post tsunami seafood export industry in Sri Lanka
Objectives

- To identify the impact of tsunami on seafood industry of Sri Lanka
- To formulate sub-sector analysis for the sustainable livelihood of the stakeholders of the seafood industry of south of Sri Lanka

Concepts

- Sustainable Livelihood Approach (SLA) and Sub-sector Analysis (SA)
- Aim of the SA is examine more closely at the changes that have taken place after the disaster
- Livelihood assets pentagon is used as a visual tool to present information about people’s access to assets and the interrelationships
- capital assets: human, social, physical, natural and financial

Evaluate the level of capital assets of fishers, traders and export-processors
Methodology

- Study locations - 9 villages of three districts (Galle, Matara and Hambantota) of southern coastal province in summer 2005
- Stratified random sampling: 3 main strata (producers, traders, exporters)
- 30 respondents from each stratum and 10 respondents for each stratum from each district
- Main data collection tool - the structured questionnaire
- Four point rating scale was used to evaluate the statements under the each sub-section of the questionnaire
- Rating scales for positive statements were 3 - high, 2 - medium, 1 - low and 0 - not at all and vice versa for negative statements

Findings

- Fish producers – 100% is male, 67% is married, 67% - G.C.E.O/L, 26% - G.C.E. A/L, 90% permanent employees
- Traders – 94% is male, 76% is married, 40% - G.C.E.O/L, 27% - G.C.E. A/L, 63% permanent employees
- Exporters – 97% is male, 67% married, 20% - G.C.E.O/L, 43% - G.C.E. A/L, 37% - graduate and diploma, 63% permanent employees

29/01/2007
An analysis of the sub-sector participants (mean scores)

<table>
<thead>
<tr>
<th>Variable (Possible Score)</th>
<th>Producers/ Fishers</th>
<th>Traders</th>
<th>Export-processors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human capital (0 - 18)</td>
<td>6.17</td>
<td>6.43</td>
<td>6.43</td>
</tr>
<tr>
<td>Social capital (0 -27)</td>
<td>16.83</td>
<td>17.81</td>
<td>17.84</td>
</tr>
<tr>
<td>Natural capital (0 -12)</td>
<td>11.47</td>
<td>5.87</td>
<td>5.87</td>
</tr>
<tr>
<td>Financial capital (0 -18)</td>
<td>3.97</td>
<td>5.63</td>
<td>5.63</td>
</tr>
<tr>
<td>Physical capital (0 - 24)</td>
<td>9.82</td>
<td>5.27</td>
<td>5.27</td>
</tr>
<tr>
<td>Shocks (0 - 3)</td>
<td>2.72</td>
<td>2.67</td>
<td>2.67</td>
</tr>
<tr>
<td>Trends (0 - 3)</td>
<td>2.14</td>
<td>2.63</td>
<td>2.62</td>
</tr>
<tr>
<td>Seasonality (0 - 3)</td>
<td>1.37</td>
<td>1.84</td>
<td>1.83</td>
</tr>
<tr>
<td>Policies (0 - 3)</td>
<td>2.87</td>
<td>2.47</td>
<td>2.47</td>
</tr>
<tr>
<td>Institutions (0 - 3)</td>
<td>2.03</td>
<td>2.37</td>
<td>2.37</td>
</tr>
<tr>
<td>Processes (0 - 3)</td>
<td>2.57</td>
<td>2.37</td>
<td>2.37</td>
</tr>
<tr>
<td>Livelihood strategies (0 - 3)</td>
<td>1.23</td>
<td>1.83</td>
<td>1.83</td>
</tr>
</tbody>
</table>
Social relationships were severely damaged

- Human capital: fishers, traders and export-processors equal
- Social capital: traders and export-processors high but fishers low
- Physical capital: fishers very high compared to traders and processors
- Financial capital: fishers very low compared to traders and export-processors
- Natural capital: Fishers high compared to traders and export-processors
- Establishment of 100m buffer zone made big burden to all sub-sector participants
- Tsunami and its’ destruction were the biggest shock
- Unlimited and unmanaged distribution of fishing fleets and gear may cause extra pressure on fish stocks and can be negative shock in long term
- Policies and institutional changes made significant impact on fisher’s livelihood
2. A case study of the seafood consumption trends in Japanese market

Japanese fish consumption, production and trade trends, 1960-2000

*Volume of fish (million Tons)*

Year

- Export
- Import
- Production
- Consumption
Presentation chronology: Case study of the seafood consumption trends and consumer behavior in Japanese market

Consumer behavior on Imported vs domestic seafood

Sushi consumption Trends in Japanese market
Characteristics of the Consumer

- Age
- Gender
- Level of education
- Resident environment
- Ethnocentricity
- Attitudes, values, norms
- Foreign Exposure
- Occupation

Characteristics of the Consumer

Daniels and Radebaugh, 1998
Intention to purchase

Consumer Characteristics

Features Of Imported Seafood

Perceived quality
Price
Country of Origin
Other product attributes (labeling, packing, promotion)

Proposed model

PERCEIVED VALUE
PURCHASE INTENTION
ACTUAL PURCHASE
i. Regional preferences in the Japanese seafood consumption: An empirical analysis of consumer purchasing behavior on domestic vs imported seafood
Objectives

- To compare the consumer evaluations of various attributes of seafood products of imported vz domestic origin
- To analyze the regional variations in evaluation of domestic vz imported seafood
- To explore the phenomenon of economic ethnocentrism and its effects on domestic purchasing behavior

Concepts

- Country of origin - Country image is the overall perception of consumers form of products from a particular country (Nagashima (1970); Roth and Romeo (1992); Parameswaran and Pisharodi (1994)
- Ethnocentrism - The beliefs held by consumers about the appropriateness, indeed morality of purchasing foreign made products (A’dorno et al., (1950); Shimp and Sharma (1987))

Hypothesis

H1 - Positive relationship between consumer ethnocentrism and intention to buy domestically produced seafood
H2 - Negative relationship between consumer ethnocentrism and imported seafood product judgment
Study locations – Hiroshima (126), Osaka(108) and Tokyo (122)

Self-administered structured questionnaire & in-depth interviews

Structure of the questionnaire: Part i = socio-economic information, preferences of seafood buying behavior

Part ii: 10 item Country of Origin Scale (evaluations of various product attributes with respect to a seafood origin (Parameswaran and Pasioli (1994))

10 items of spread over 3 dimensions (general country attributes, general product attributes and specific product attributes)

Country of Origin Scale consisted of a 5 point Likert-scale where 1 = not at all to 5 = most appropriate
Part iii – 10 item CETSCALE (Shimp and Sharma (1987)) and psychometrically validated a scale, which measures perceptions of the appropriateness of buying domestic vs imported seafood products.

Based on the composite scores (possible scores 10-50); respondents were categorized:
- >10 - <29 = low levels of consumer ethnocentrism,
- 30 = mid level and
- >31 - <50 high level of consumer ethnocentrism.

Measure consumer evaluation of product attributes and ethnocentricity.
<table>
<thead>
<tr>
<th></th>
<th>Fresh (Whole fish)</th>
<th>Fresh (sliced)</th>
<th>Frozen</th>
<th>Canned</th>
<th>Dried fish</th>
<th>Smoked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Expiry</td>
<td>Date of Expiry (100)</td>
<td>Date of Expiry (100)</td>
<td>Price (82)</td>
<td>Price (86)</td>
<td>Quality (92)</td>
<td>Date of Expiry (93)</td>
</tr>
<tr>
<td>Price</td>
<td>Price (78)</td>
<td>Price (78)</td>
<td>Date of Expiry (76)</td>
<td>Origin (79)</td>
<td>Price (86)</td>
<td>Price (81)</td>
</tr>
<tr>
<td>Quality (color</td>
<td>Quality (color of</td>
<td>Origin</td>
<td>Date of Expiry (76)</td>
<td>Origin (57)</td>
<td>Quality (75)</td>
<td></td>
</tr>
<tr>
<td>of eyes &amp; gills)</td>
<td>flesh) (69)</td>
<td>(74)</td>
<td>(74)</td>
<td>(74)</td>
<td>(75)</td>
<td></td>
</tr>
<tr>
<td>Traceability</td>
<td>Traceability (61)</td>
<td>Traceability (63)</td>
<td>Traceability (68)</td>
<td>Date of Expiry (52)</td>
<td>Traceability (68)</td>
<td></td>
</tr>
<tr>
<td>Origin</td>
<td>Origin (54)</td>
<td>Packaging (61)</td>
<td>Contents (63)</td>
<td>Packaging (32)</td>
<td>Origin (58)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Comparative analysis of COO effects

Hiroshima

Osaka

Tokyo

Cumulative sample

- Sold in many countries
- Quality of packing
- Traceability
- HACCP certified
- Good reputation

Imported  Domestic

0 1 2 3 4 5

0 1 2 3 4 5
## Ethnocentrism and Domestic purchasing behavior

<table>
<thead>
<tr>
<th>Location</th>
<th>Total ethnocentric Score on the CETSCALE (mean)</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiroshima</td>
<td>25.85</td>
<td>18</td>
<td>37</td>
<td>5.2</td>
</tr>
<tr>
<td>Tokyo</td>
<td>27.70</td>
<td>17</td>
<td>48</td>
<td>6.19</td>
</tr>
<tr>
<td>Osaka</td>
<td>27.05</td>
<td>19</td>
<td>38</td>
<td>5.39</td>
</tr>
<tr>
<td>Cumulative</td>
<td>26.87</td>
<td>17</td>
<td>48</td>
<td>5.59</td>
</tr>
</tbody>
</table>
ii. An analysis of demographic and behavioral patterns related to sushi consumption: A case study of the Hiroshima Prefecture
Objectives

- To analyze Japanese consumers’ sushi consumption habits
- To find out the impact of demographic characteristics on sushi purchase decisions and attitudes towards sushi
- To explore the strategic behavior of the sushi businesses in Japan

Method

- Location – Hiroshima prefecture
- Sample – 108 randomly selected consumers
- Data collection tool – structured questionnaire
- Sample profile – 57% female; 43% male; 85% married, age: 41-50 – 26% and >51 – 45%; education level - 47% high school and 39% graduates; employment – 43% fulltime and 39% part time
Three main types of sushi restaurants were identified

1. Traditional Japanese style sushi bar / Sushi Tei
2. Rotational sushi bar / Kaiten sushi
3. Take away style sushi shop / Mottecaeri sushi

- But, most popular for sushi is Super-markets
- Home delivery system also available
Frequency of sushi consumption by gender, education and civil status

- >8 times/Month
- 4-8 times/Month
- once/Month
- No response
Consumer preferences
When purchasing sushi

Consumer preferences
Of sushi for different Occasions by gender
Factors affecting for the sushi purchase

Most preferred and Frequently purchasing sushi

- Freshness
- Price
- Attractiveness
- Special use
- Domestic fish
- No opinion
- Different taste
- Nutrition
- Personal expertise
- Prestige
- Value for money
- Advertising
- Domestic fish
- Nutrition
- Attractiveness
- Price
- Freshness

Most preferred and Frequently purchasing sushi

- Tuna
- Flatfish
- Eel
- Octopus
- Salmon
- Shrimp
- Squid
- Crab

Most preferred and Frequently purchasing sushi

- Tuna
- Flatfish
- Eel
- Octopus
- Salmon
- Shrimp
- Squid
- Crab

29/01/2007
Technology and chain restaurants have changed the sushi business

Traditional sushi bars need strategies for dynamic market

Expansion of Rotational sushi bars; through chain operations, competitive pricing, applying original Japanese menu concepts to a fast food format

Youth (between 21-30 years) prefer modern sushi restaurants with special offerings

Older age groups (>51 years) prefer traditional sushi restaurants

Sushi is less prominent than other meals of ordinary Japanese people

The evolution of sushi restaurants is two pronged;

i. Fashionable club-like restaurants

ii. Brightly lit family restaurants

Culinary cross-fertilization between east and west cuisine has created new combinations of sushi
Conclusions: Case study of Sri Lanka

- Seafood industry’s disproportionate importance
- Structural problems hurdle in the way
- Sri Lankan shrimp producers have greater comparative advantage
- Critical problems for shrimp exports are international price fluctuations, capital scarcity, poor distribution network, natural calamities, low value addition, poor infrastructure, international regulations
- Future possibilities towards prepared and cooked meals
- Process and product innovation have positive impact on export performance
- Public instruments have non significant impact on export performance
- Permanent and sporadic exporters suffer from the obstacles outside the country
Conclusions (ctd.,)

- To overcome barriers - South Asian producers have to diversify both markets and product mix
- Joint venture between India, Sri Lanka and Maldives to mobilize common resources
- Supervisor evaluation has positive impact on organizational commitment
- Organizational fairness is influencing trust in management, intention to stay or leave, evaluations of supervisors, conflict/harmony and job satisfaction
- Commitment improves the motivation, creativity, and satisfaction of workers
- The level of HACCP compliance, no. of employees, capital, and traceability positively correlated to the export penetration index
- Sanitation (SANI 1 and 2) negatively correlated to the EPI
Conclusions (ctd.,)

- India, Pakistan and Sri Lanka have a strong position in implementing HACCP and others are progressing

- Sub-sector analysis: overall capital building capacity of traders and export processors were better than the fishers

- Policy changes and institutions have negative impact on fisher’s social capital building

- Better livelihood strategies of export-processors help to rehabilitate faster compared with producers and traders
Conclusions: Case study of consumer behavior of Japanese market

- Cultural sensitivity and ethnocentrism haven’t direct impact on consumer evaluations and evaluation based on product attributes
- Importers have to pay much attention on product attributes rather than cultural barriers and domestic producers have to improve the level of product attributes
- Consumer ethnocentrism and intention to buy domestic seafood has positive relationship
- Sushi consumption patterns in Japan seem to closely reflect the evolution of the household’s life cycle
- Sushi is consumed once a month as an ‘expensive treat’ for special occasions
- Older age females prefer sushi meals most
- Ready to eat sushi packs of supermarkets are convenient, and economical and price conscious consumers prefer supermarkets most
Suggestions: Case study of the seafood industry of Sri Lanka

- Diversification of markets and products
- Value addition and value creation efforts
- Market oriented product mix for Just-in -time purchase
- Strengthen the market infrastructure and supportive services (public instruments)
- Tap the regional market through SAFTA
- Fair treatment for employees and rewards should based on employee commitment
- Rehabilitation should based on “need analysis”
- Vertical cooperation and integration among the stake holders in seafood production marketing chain
- Strengthen the local entrepreneurs in fisheries

29/01/2007
Suggestions: Case study of consumer behavior in the Japanese seafood market

- Low ethnocentric Japanese market demanding quality, regular supplies, Valued, unique convenience seafood meals
- Domestic seafood suppliers have to be competitive with international supplies
- Sushi bars have to cater the demand of both young and Aging population
- Campaigning to improve consumer know-how on food safety and labeling is essential
Thank you very much for being here to share my research experiences.