Impact of COVID-19 on production and trade direction of high value ‘niche’ crop products in small island countries: A case study of Fiji

PRESENTED BY

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### Introduction: Comparative Advantages: Endowments - Fiji

<table>
<thead>
<tr>
<th>South pacific Island Nation</th>
<th>Located midway between Equator &amp; South pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td>Tropical oceanic type</td>
</tr>
<tr>
<td>Foreign exchange earning sectors</td>
<td>Tourism: 34% (2017) increased to 40% (2020)</td>
</tr>
<tr>
<td></td>
<td>Agriculture: 38% (1963) decreased to 11.85% (2019)</td>
</tr>
<tr>
<td>Natural resources with endowed geographic &amp; climate</td>
<td>❖ Fiji enjoying comfortable position for production of niche crop viz.; Ginger Papaya Kava etc.</td>
</tr>
<tr>
<td>Export destination</td>
<td>❖ Australia, New Zealand, US and Other countries (Germany, Japan, Hawaii, Other PICs etc.)</td>
</tr>
<tr>
<td>Tourism status</td>
<td>❖ COVID badly affected Fiji service sector ❖ Under restrictive situation Fiji primary sector enjoying exporting of the niche crops</td>
</tr>
</tbody>
</table>
Under the COVID-19 Situation Primary Sector

• Attracting the attention of policy makers:
  ❑ For sustainable development in Agri. Export;
    ❖ Needs to protect niche crop producers
    ❖ Needs to create environment (Supply Chain)
    ❖ Needs to place macroeconomic governance
  ❑ Study aiming to analyze the impact of COVID-19 on niche crop production and export potential under Fiji context

• Objectives:
  ❑ Analyze destination wise niche crops imports retention without and with COVID-19 restriction
  ❑ Analyse the direction of export trade for identified niche crop products
  ❑ Analyse destination wise niche crops import quantities prediction
  ❑ Suggest appropriate policy measures
Methodology

• Nature of data ✓ Time series data (2013 to 2020)
• Source of data ✓ Fiji Island Bureau of Statistics (FIBOS)
  ✓ Fiji Agriculture Statistics Unit Economic Planning Statistics Division Min. of Agriculture
• Analytical tools ✓ Markova chain analysis;
  • Estimates Transitional Probability (TP) Matrix ‘P_{ij}’ switches from i^{th} to j^{th} country with passage of time
  • Diagonal ‘P_{ij}’ measures export share retained and indicating loyalty of importing country
  • Algebraically model denoted as;

\[ E_{ij} = \sum_{i=1}^{R} E_{it-1} P_{ij} + e_{jt} \]
Results and Discussions

- Impact of COVID-19 on Destination wise Ginger imports retention

- Other countries (Germany, Nederland etc.) observed stable importers of Fiji’s Ginger and retained original share (66.42%)
- Followed by USA (61.07%) and Australia (26.64%)
- Fiji provided special investment inducements for export- oriented ventures
## Impact of COVID on the direction - Ginger export trade

### TP Matrix without COVID-19 (2013-19)

<table>
<thead>
<tr>
<th>Countries</th>
<th>Australia</th>
<th>New Zealand</th>
<th>USA</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0.2236</td>
<td>0.7764</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>New Zealand</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.5526</td>
<td>0.4474</td>
</tr>
<tr>
<td>USA</td>
<td>0.2687</td>
<td>0.0913</td>
<td>0.5356</td>
<td>0.1044</td>
</tr>
<tr>
<td>Others</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.5422</td>
<td>0.4578</td>
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</tbody>
</table>

### TP Matrix with COVID-19 (2013-20)

<table>
<thead>
<tr>
<th>Countries</th>
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<th>New Zealand</th>
<th>USA</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0.2664</td>
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<tr>
<td>New Zealand</td>
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<td>0.0143</td>
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<td>USA</td>
<td>0.2691</td>
<td>0.1189</td>
<td>0.6107</td>
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<tr>
<td>Others</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.3358</td>
<td>0.6642</td>
</tr>
</tbody>
</table>

- Others (54.22%)
- Others (10.44%)

Fiji adapted American Spice Trade Association (ASTA) stipulations

(55.26%)
(26.87%)
(9.13%)
(37.86%)
(60.71%)
(33.58%)
Ginger - Export Quantity Prediction

- Potential Importers After 2021:
  - Adaption of ASTA stipulations
    - Preserved ginger export increase by 50.00%
  - Other countries (Germany, Netherlands) import increase by 21%

- Reduction in Imports After 2021:
  - Australia and New Zealand prefer to buy from (China)
Impact of COVID on Destination wise Papaya imports retention

- Australia considered as stable importer of Fiji’s Papaya (73.89%)
  - Australia’s household consumption amounts more than 18%
- Second stable importer - New Zealand (70.42%)
- Third stable importer - USA (56.97%) prefers Var. Global Crown (Brazil)
Impact of COVID on the direction - Papaya export trade


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<th>USA</th>
<th>Others</th>
</tr>
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<tbody>
<tr>
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### TP Matrix With COVID-19 (2013-2020)

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<th>USA</th>
<th>Others</th>
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<tbody>
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<tr>
<td>Others</td>
<td>0.2431</td>
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<td>0.6960</td>
<td>0.0000</td>
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</tbody>
</table>

- **Australia:**
  - Peak demand for papaya matches – Fiji Supply months June – August
  - Net Papaya Importer

- **New Zealand:**
  - Retained share (70.42%) – Gained - Australia & Others

**Others**

- (100%)
- (37.73%)
- (29.58%)
- (23.95%)
- (24.31%)
- (6.08%)
Papaya – Export Quantity Prediction

• Australia:
  ❖ Increased importation with COVID-19 situation & remain stable importer
  ❖ Increase in Papaya popularity household consumption increase by 18%
Impact of COVID-19 on Destination wise Kava imports retention

- Except for other countries & Australia import retention increased with COVID-19 situation
- **USA:**
  - Most stable import retainer (96.64%)
- **Australia:**
  - After COVID greatly reduced import retention (80.06%)
Impact of COVID-19 on the direction – Kava export trade


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<th>Others</th>
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</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0.9334</td>
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<tr>
<td>New Zealand</td>
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<tr>
<td>USA</td>
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<tr>
<td>Others</td>
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<td>0.0121</td>
<td>0.9248</td>
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</table>


<table>
<thead>
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<th>USA</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Others</td>
<td>0.0130</td>
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<td>0.0407</td>
<td>0.8818</td>
</tr>
</tbody>
</table>

- **USA:**
  - With COVID-19 situation emerged most stable importer (96.64%)
- **Australia:**
  - With COVID-19 situation lost to others (19.94%)
People in USA consider Kava as solution for addressing general anxiety disorder (GAD)

Australia restricting Kava import

New Zealand reduced import and adjusted with importation from Tonga
Conclusion

Ginger (With COVID-19):

❖ Following ASTA USA predicted importation would sharply increase (2024)
❖ Similar trend as well observed with Others (Germany, Netherlands)
❖ With China’s stiff competition New Zealand predicted importation would sharply declines (2022) and gradually rises (2024)
❖ For exporting to New Zealand; supply chain to be stabilized with increased production level

Papaya (With COVID-19):

❖ With prevailing Australian & New Zealander preferential attitude importation predicted relatively stable (2024)
❖ For taking prevailing comparative advantages supply chain to be stabilized

Kava (With COVID-19):

❖ Considering as GAD drink USA predicted importation would sharply increase (2024)
❖ Tonga supply to New Zealand importation need to be monitored till 2024

With prevailing COVID-19 situation Fiji’s foreign exchange earnings from primary sector improved an to be supported by suitable policy actions