Understanding the Relationship between Production Diversity and Dietary Quality in Smallholder Farm Households in Fiji

Anna Finizio, Sharmina Ahmed, Wendy Umberger

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Understanding the Relationship between Production Diversity and Dietary Quality in Smallholder Farm Households in Fiji

Anna Finizio, Sharmina Ahmed, Wendy Umberger
Global Food Studies, University of Adelaide

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Motivation

Agriculture can be important for shaping nutrition outcomes:

1. Direct consumption of food crops or animals.
2. Income generated from the sale of agricultural goods.
Recent Studies

- Household production diversity and dietary diversity (Herforth, 2010; Jones et al, 2014; Kumar et al, 2015; Malapit et al, 2015)
- Household production diversity and child and infant dietary diversity (Kumar et al, 2015; Malapit et al, 2015)
- Access to agricultural markets have greater positive effects on household dietary diversity than increased production diversity (Sibhatu et al, 2015).
- Women’s empowerment (Jones et al, 2014; Malapit et al, 2015)
Motivation

Pacific Island Countries:
- Nutrition transition: *Trade in food* (Evans et al, 2001; Hughes and Lawrence, 2005; Thow and Snowdon, 2010)
- Obesity and diabetes epidemic

Fiji:
- Nutrition transition: *Shift from local to imported* (Hone, 2003; Hughes, 2003; Thow and Snowden, 2010; Snowden et al, 2010)
- Diabetes the main cause of death in 2014 (Fiji Ministry of Health, 2015)
- Agriculture generates income for approximately 65% of Fijians (Fiji Ministry of Agriculture, 2009)
Data

- PARDI Retail Transformation Study 2013-2014
  - Farmers in evolving horticultural value chains in Fiji
- Partnered with Ministry of Agriculture Fiji, University of South Pacific and UN Women Fiji.
- 600 Rural Agricultural Households
- Both male and female of the household interviewed
  - Female survey
- 79 different food categories across a mix of 10 types of retail formats.
Research Question

- What is the association between production diversity and household diet diversity (as a measure of diet quality) in rural agricultural households in Fiji?
Empirical Strategy

We estimate the following reduced form regression:

\[ \text{diet diversity}_{hh_i} = \alpha + \beta \text{ production diversity}_{hh_i} + \varepsilon_i \]

Empirical Model:
\[ \text{diet diversity}_{hh_i} = \alpha + \beta_1 \text{ Permanent crop count}_{hh_i} + \beta_2 \text{ Temporary crop count}_{hh_i} \]
\[ + \beta_3 \text{ Crop and livestock count}_{hh_i} \]
\[ + \beta_4 \text{ Crop and livestock and fish count}_{hh_i} \]
\[ + \beta_5 \Delta \text{ in income from horticulture}_{hh_i} \]
\[ + \beta_6 \Delta \text{ in income from other agriculture}_{hh_i} \]
\[ + \beta_7 \text{ Sale to modern market}_{hh_i} + \varepsilon_i \]
## Key Findings

<table>
<thead>
<tr>
<th>Production Diversity Variables</th>
<th>Impact on Diet Diversity</th>
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</thead>
<tbody>
<tr>
<td>Permanent Crops</td>
<td>Vegetables, Fruits and Dairy</td>
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<tr>
<td></td>
<td>Fats</td>
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<tr>
<td>Crop, Livestock and Aquaculture</td>
<td>Fruits</td>
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<tr>
<td>Income from horticulture</td>
<td>Vegetables, Fruits and Grains</td>
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<tr>
<td>Sale to Modern Markets</td>
<td>Vegetables, Fruits and Dairy</td>
</tr>
</tbody>
</table>
Robustness Check

Control Variables:
1. **Market Accessibility:**
   - The effect of access to a more diverse diet via market accessibility.

2. **Gender**
   - The role of women in household diet quality and food security.
   - Variables: Agriculture, Income and Food Purchasing

3. **Socio-economic Status**
   - Household Size, Ethnicity, Education, Location
Conclusion

- Production diversity in Fijian rural agricultural households is positively associated with diet quality:
  - Increased consumption
  - Income from horticultural produce

- The sale of produce to modern markets affects the consumption of healthy foods by the household.
Thank you!
anna.finizio@adelaide.edu.au