Eating more sustainably by trimming off the excess—what about discretionary foods?

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1. Diets and sustainability

• Well-established link between diets and environmental impact (Goodland, 1997; White, 2000)
• Current consumption patterns also unsustainable from a health perspective (see SDGs)
• Environmental concerns in national dietary guidelines (Netherlands, Sweden, Brazil, USA)
• Implications for food security and inter-generational equity – concept of planetary health (Whitmee et al., 2015)
2. Optimising diets for health & environment

- Optimising for \textit{min} (cost, environmental impact) and \textit{max} (nutrition) (Gephart et al., 2016; Stigler, 1945; Wilson et al., 2013)
- Animal protein comes at a high environmental cost
- \textbf{BUT} often complex and unrealistic recommendations
- Can we make this simpler?
3. Discretionary foods

- Concept of discretionary consumption in economics – non-essential expenditure (Druckman and Jackson, 2010)

- Australian Dietary Guidelines distinguish between discretionary and non-discretionary foods (ABS, 2014)

- Overconsumption of discretionary foods in Australia, especially amongst low income groups (Fayet-Moore et al., 2016; Watson et al., 2016)

- What are their environmental impacts?
4. Environmental impacts of discretionary foods

- Limited existing research but some evidence that the environmental impact could be significant:
  - Non-core foods - 27% of diet-related carbon emissions (Hendrie et al., 2014)
  - Sweets and snacks - 1/3 of life cycle energy (Carlsson-Kanyama et al., 2003)
  - Significant ‘luxus consumption’ in the US (Blair and Sobal, 2006)

- Discretionary versus non-discretionary classification allows more rigorous assessment
- BUT no comprehensive study looking at multiple environmental impacts across different socioeconomic groups
5. Data and methods

**EEIO-LCA indicators**
- Carbon footprint
- Ecological footprint
- Water footprint
- Energy footprint

*Source: Eora MRIO*

**SOCIOECONOMIC DIMENSION**

1. Discretionary vs. non-discretionary food lists
2. Environmental impacts

**Household food expenditure ($)**

**ABS HES 2009-10**
- 126 food & beverage items

**ABS NNPAS 2010-12**
- 117 food & beverage items

**Dietary composition (kJ, g)**

**Environmental ‘foodprints’ (impact per $)**

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6. Results – average discretionary food impacts

- Discretionary foods have significant environmental impacts
- Processed meats, confectionery and alcohol dominate

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7. Results – less discretionary food impacts

Total energy intake = 10 006 kJ/cap/day
Average recommended = 8700 kJ/cap/day
Excess intake = 1306 kJ/cap/day
Only about 325 calories!

Assuming this can be reduced through elimination of discretionary foods....
Total water footprint = -14%
Total energy footprint = -16%
Total ecological footprint = -14%
Total carbon footprint = -13%

Plus further substitutions...

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8. Discussion points

- Discretionary foods have significant environmental impacts
- Substitution with non-discretionary foods usually leads to lower environmental impacts
- ‘Food optimisation’ studies useful but do not adequately tackle this issue
- Discretionary versus non-discretionary argument provides a more nuanced health-driven conceptual framework
- Challenges current *modus operandi* of the food system by re- emphasising non-discretionary food provision
9. Implications and future research

- Less meat plus less discretionary foods - health stealth approach (Hoek et al., 2014)
- Modelling consequences of reduced production and consumption of discretionary foods
- Need to stop these trends fully manifesting themselves in the developing world
- Combination of short-term and longer-term solutions
- Reconsider the role of the food industry
- Issue fundamentally linked to ecological economics principles (Daly, 2007; Jackson, 2009)

THE END
## Appendix – dietary energy intake across income quintiles

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Non-discretionary Energy</th>
<th>Discretionary Energy</th>
<th>Mean Daily Dietary Energy Intake (kJ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest income quintile</td>
<td>7730kJ</td>
<td>35%</td>
<td>7730kJ</td>
</tr>
<tr>
<td>2nd income quintile</td>
<td>8207kJ</td>
<td>36.3%</td>
<td>8207kJ</td>
</tr>
<tr>
<td>3rd income quintile</td>
<td>8521kJ</td>
<td>36.8%</td>
<td>8521kJ</td>
</tr>
<tr>
<td>4th income quintile</td>
<td>8752kJ</td>
<td>35.9%</td>
<td>8752kJ</td>
</tr>
<tr>
<td>Highest income quintile</td>
<td>9056kJ</td>
<td>34%</td>
<td>9056kJ</td>
</tr>
<tr>
<td>Capital cities</td>
<td>8527kJ</td>
<td>34%</td>
<td>8527kJ</td>
</tr>
<tr>
<td>Other cities &amp; rural areas</td>
<td>8513kJ</td>
<td>38.2%</td>
<td>8513kJ</td>
</tr>
<tr>
<td>Boys (aged 2-18)</td>
<td>8636kJ</td>
<td>38.6%</td>
<td>8636kJ</td>
</tr>
<tr>
<td>Men (aged 19+)</td>
<td>9955kJ</td>
<td>36.2%</td>
<td>9955kJ</td>
</tr>
<tr>
<td>Girls (aged 2-18)</td>
<td>7334kJ</td>
<td>38.4%</td>
<td>7334kJ</td>
</tr>
<tr>
<td>Women (aged 19+)</td>
<td>7420kJ</td>
<td>32.6%</td>
<td>7420kJ</td>
</tr>
<tr>
<td>Average</td>
<td>8522kJ</td>
<td>35.4%</td>
<td>8522kJ</td>
</tr>
</tbody>
</table>

### Notes
- Discretionary energy includes foods such as snacks, fast foods, and sugary drinks.
- Non-discretionary energy includes foods such as vegetables, fruits, and lean meats.

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Appendix – dietary energy intake across income quintiles

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Appendix – average discretionary food impacts

a. Blue Water

b. Total Energy

c. Ecological Footprint

d. CO₂-e

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Australian context

• Overweight and obesity now at 63% (AIHW, 2012)
• Direct costs of diet-related disease at $21bn a year (Colagiuri et al., 2010)
• Overconsumption of processed foods, especially by poorer socioeconomic groups (Dixon and Isaacs, 2013)
• Health and sustainability not compatible with ‘productionist’ National Food Plan (Caraher, 2013; Trevena et al., 2014)
• Unhealthy diets can be sustainable and healthy diets can be unsustainable if everyone was eating that way
• Vegetarian and vegan diets still uncommon (1-2% of population) (Lea et al., 2006; Ruby, 2012)
Motivation - Current AAS project

AIM: Can everyone eat healthily AND sustainably?

• Avoiding burden shifting
• Account for spatial and socioeconomic diversity
• Develop ‘foodprint’ indicators
• Develop bespoke dietary recommendations
• Test recommendations and develop scenarios
**Methods and datasets**

- **Environmental status**
  - ‘Foodprints’ (EE-MRIO)
    - Carbon
    - Ecological
    - Water

- **Household Food expenditure ($)**
  - ABS HES 2009-10
  - MOSAIC consumer data

- **Dietary composition (kJ, g, nutrients)**
  - ABS NNPAS 2010-12
  - Diet Quality Index

- **Health status**
  - ABS AHS 2010-12
    - BMI
    - Chronic disease

- **‘Foodprint’ indicators**
IElab as the hub for research on diets, health and sustainability

ABS NNPAS – 117 food & beverage items (quantity/nutrition data)

IElab – IOPC (1284 X 1284) (economic & environmental data)

Mosaic/ABS HES – 126 food & beverage items (monetary data)

Quantity
Energy
Nutrients

SPATIAL & SOCIOECONOMIC DIMENSION

NSW
VIC
QLD
SA
WA
TAS
NT
ACT

Agri-food 198 X 198

AUS
RoW

Eora MRIO (344 X 344) (RoW and more extensions)

Nutrition-oriented 72 X 72

FD ($)

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