Measuring Food Away From Home in National Household Surveys
Should we care?

Gabriela Farfán, Renos Vakis

October 29, 2015
Why measure FAFH?

- FAFH on the rise

% from energy intake coming from FAFH

% of food consumption coming from FAFH
Definitions - What is FAFH

What to measure?

- Food prepared away from home (meals and snacks)
  - consumed at home
    - purchased
      - grocery store
      - local market
      - take-out
    - received in-kind
      - social program
      - another household
  - consumed away from home
    - purchased
      - commercial establishment
      - school
      - work
    - received in-kind
      - employer
      - social program
      - another household

Measurement issues to consider

- Recall period
- Respondent
- What information to collect (frequency, quantity, cost)
- Locations (restaurant, school)
- Events (lunch, dinner, snack)
- Uniformity of content (not all meals are created equal)
- Seasonality

Source: adapted from Smith and Frankenberger 2012
State of the world

- 90 out of 100 surveys collect some information on FAFH (Smith et al. 2014)

Out of the 90 surveys with FAFH:

- 24% capture FAFH in one line
State of the world

- **90 out of 100** surveys collect some information on FAFH (Smith et al. 2014)

Out of the 90 surveys with FAFH:

- **35%** account for snacks
State of the world

- **90 out of 100** surveys collect some information on FAFH (Smith et al. 2014)

Out of the 90 surveys with FAFH:

- **17%** collect information at individual level
Research agenda

State of the world:

- FAFH rising
- Poor measurement in household surveys

• **Relevance**: importance of accounting for FAFH in welfare analysis

• **Design**: how to measure FAFH in household surveys?
Plan

• **Relevance:** FAFH and welfare analysis
  – Evidence from Peru
    • Accounting for incidence of FAFH
    • Accounting for content

• **Design:** measuring FAFH in household surveys
  – Intervention in Vietnam
Plan

- **Relevance**: FAFH and welfare analysis
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- **Design**: measuring FAFH in household surveys
  - Intervention in Vietnam
National Household Survey (ENAHO)

- Detailed individual module on FAFH since 2004
  - Each adult reports about FAFH in the last 7 days
  - Meal events: breakfast, lunch, dinner, snack
  - Place: street vendor, restaurant, work
  - Frequency
  - Cost

- Household consumption module
  - Child FAFH
  - Take-out
FAFH consumption in Peru

Incidence

Participation on food budget

Source: ENAHO 2006-2013. Household-level statistics
How do welfare measures differ depending on whether we account for FAFH or not?

• Compare differences on
  – Poverty
  – Consumption Inequality
  – Poverty classification and poverty profile
Expenditure versus poverty line effects

**Expenditure effect**

- Poverty goes down

- Original
- w/FAFH
Expenditure versus poverty line effects

- **line effect < 0**: Poverty goes down
- **line effect > 0**: Poverty goes up
Expenditure versus poverty line effects

**net effect < 0**
- **line effect < 0**
- **expenditure effect < 0**

**ambiguous effect**
- **line effect > 0**
Impact on poverty rates, Peru 2010

1.1 pp represents: 17% increase in the poverty rate (337,500 individuals)

5.8 pp represents: 16% decrease in the poverty rate (1,725,500 individuals)
Poverty rates over time, Peru 2010-2013

### Extreme poverty

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute diff.</td>
<td>1.14</td>
<td>1.38</td>
<td>1.15</td>
<td>1.27</td>
</tr>
<tr>
<td>% difference</td>
<td>18%</td>
<td>27%</td>
<td>24%</td>
<td>37%</td>
</tr>
</tbody>
</table>

### Moderate poverty

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute diff.</td>
<td>-5.82</td>
<td>-5.51</td>
<td>-5.57</td>
<td>-4.73</td>
</tr>
<tr>
<td>% difference</td>
<td>16%</td>
<td>16%</td>
<td>18%</td>
<td>17%</td>
</tr>
</tbody>
</table>
Poverty gap and Severity of poverty

Moderate poverty

### Poverty gap

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute diff.</td>
<td>-2.29</td>
<td>-1.87</td>
<td>-1.85</td>
<td>-1.33</td>
</tr>
<tr>
<td>% difference</td>
<td>20%</td>
<td>19%</td>
<td>21%</td>
<td>18%</td>
</tr>
</tbody>
</table>

### Severity of poverty

<table>
<thead>
<tr>
<th>Year</th>
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<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute diff.</td>
<td>-1.08</td>
<td>-0.81</td>
<td>-0.80</td>
<td>-0.49</td>
</tr>
<tr>
<td>% difference</td>
<td>22%</td>
<td>20%</td>
<td>22%</td>
<td>17%</td>
</tr>
</tbody>
</table>
How do welfare measures differ depending on whether we account for FAFH or not?

• Compare differences on
  – Poverty
  – Consumption Inequality
  – Poverty classification and poverty profile
Inequality (consumption)

FAFH amounts, by percentile of the expenditure distribution without FAFH

Absolute amount spent on FAFH

Amount spent as a share over total expenditures
How do welfare measures differ depending on whether we account for FAFH or not?

- Compare differences on
  - Poverty
  - Consumption Inequality
  - Poverty classification and poverty profile
### Profile of the poor, Peru 2010

**Extreme poverty rate increases by 1.1 pp (17%)**

<table>
<thead>
<tr>
<th>Only at-home meals</th>
<th>Including FAFH</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Poor</strong></td>
<td><strong>non-poor</strong></td>
<td></td>
</tr>
<tr>
<td>poor</td>
<td>1,520,463</td>
<td>393,285</td>
</tr>
<tr>
<td>non-poor</td>
<td>730,765</td>
<td>26,979,752</td>
</tr>
</tbody>
</table>

**Moderate poverty rate decreases by 5.8 pp (16%)**

<table>
<thead>
<tr>
<th>Only at-home meals</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Poor</strong></td>
<td><strong>non-poor</strong></td>
<td></td>
</tr>
<tr>
<td>poor</td>
<td>8,748,740</td>
<td>2,078,532</td>
</tr>
<tr>
<td>non-poor</td>
<td>353,034</td>
<td>18,443,959</td>
</tr>
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</table>
## Profile of the poor, Peru 2010

### Household composition

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Extreme poverty</th>
<th>Moderate poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At-home poor</td>
<td>FAFH poor</td>
</tr>
<tr>
<td>children &lt; 15</td>
<td>0.74</td>
<td>0.75</td>
</tr>
<tr>
<td>women 15-60</td>
<td>0.79</td>
<td>0.79</td>
</tr>
<tr>
<td>women 60+</td>
<td>0.30</td>
<td>0.32</td>
</tr>
<tr>
<td>men 15-60</td>
<td>0.75</td>
<td>0.71</td>
</tr>
<tr>
<td>men 60+</td>
<td>0.25</td>
<td>0.26</td>
</tr>
</tbody>
</table>

### Labor market outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Extreme poverty</th>
<th>Moderate poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>log per-capita income</td>
<td>4.74 4.63</td>
<td>5.29 5.14</td>
</tr>
<tr>
<td># individuals employed</td>
<td>2.39 2.23</td>
<td>2.34 2.27</td>
</tr>
<tr>
<td># females employed</td>
<td>1.08 1.05</td>
<td>1.06 1.04</td>
</tr>
<tr>
<td># males employed</td>
<td>1.30 1.18</td>
<td>1.28 1.23</td>
</tr>
</tbody>
</table>
Plan

• **Relevance:** FAFH and welfare analysis
  – Evidence from Peru
    • Accounting for incidence of FAFH
    • **Accounting for content**

• **Design:** measuring FAFH in household surveys
  – Intervention in Vietnam
SURVEY TO MEASURE THE NUTRITIONAL COMPOSITION OF MEALS MOST FREQUENTLY CONSUMED AWAY FROM HOME IN LIMA (ENCONUT)

- Close collaboration between the NSO and the National Nutritional Institute
- Representative of Metropolitan Lima & Callao
- Stratified by socio-economic strata
- Population: commercial facilities that offer a “menu” at lunch (daily pre-specified dish)
- Field: May-December 2013
- Sample size: 1,738 facilities
SURVEY TO MEASURE THE NUTRITIONAL COMPOSITION OF MEALS MOST FREQUENTLY CONSUMED AWAY FROM HOME IN LIMA (ENCONUT)
SURVEY TO MEASURE THE NUTRITIONAL COMPOSITION OF MEALS MOST FREQUENTLY CONSUMED AWAY FROM HOME IN LIMA (ENCONUT)

First stage: registration and inventory

– Identify the menu most frequently consumed, by day of the week

– General information on each menu:
  • name, number of menus sold, cost
SURVEY TO MEASURE THE NUTRITIONAL COMPOSITION OF MEALS MOST FREQUENTLY CONSUMED AWAY FROM HOME IN LIMA (ENCONUT)
SURVEY TO MEASURE THE NUTRITIONAL COMPOSITION OF MEALS MOST FREQUENTLY CONSUMED AWAY FROM HOME IN LIMA (ENCONUT)

Second stage: collection of nutritional information

- Detailed information on the menu most frequently consumed

- Information collected by professionals in nutrition

  • Observed the preparation of the menu

  • Collected ingredients and quantities
    - Weighted raw ingredients (50%) – otherwise self-reported
    - Weighted cooked food
Surveyed

Measured

Analyzed

SURVEY TO MEASURE THE NUTRITIONAL COMPOSITION OF MEALS MOST FREQUENTLY CONSUMED AWAY FROM HOME IN LIMA (ENCONUT)
SURVEY TO MEASURE THE NUTRITIONAL COMPOSITION OF MEALS MOST FREQUENTLY CONSUMED AWAY FROM HOME IN LIMA (ENCONUT)

Third stage: food composition table

- Information collected on the field
- Lab analysis on sub-sample of menus (10 most frequently consumed)
- Table of 520 components (appetizer, main dish, dessert, drink)
- Table differentiates by socio-economic strata
  - The nutritional content of the same component/dish varies with the amount of ingredients used in each preparation
### Food Composition Table - CENAN

Source: National Institute of Statistics and Informatics - Survey to Measure Nutritional Composition of Food Consumed away from Home

<table>
<thead>
<tr>
<th>ESTRATO</th>
<th>Código Alimento</th>
<th>Nombre del alimento</th>
<th>Energía (kcal)</th>
<th>Proteína (g)</th>
<th>Grasa (g)</th>
<th>Carbohidratos (g)</th>
<th>Zinc (mg)</th>
<th>Hierro (mg)</th>
<th>b-caroten (mg)</th>
<th>Vitamina A (µg)</th>
<th>Vitamina C (mg)</th>
<th>Sodio (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>E0006</td>
<td>Aguadito de pollo</td>
<td>38.15</td>
<td>1.97</td>
<td>0.87</td>
<td>4.84</td>
<td>0.32</td>
<td>0.66</td>
<td>195.60</td>
<td>40.39</td>
<td>250.42</td>
<td>2.57</td>
</tr>
<tr>
<td>B</td>
<td>E0006</td>
<td>Aguadito de pollo</td>
<td>42.85</td>
<td>2.92</td>
<td>0.87</td>
<td>5.41</td>
<td>0.39</td>
<td>0.66</td>
<td>139.99</td>
<td>31.02</td>
<td>222.60</td>
<td>2.99</td>
</tr>
<tr>
<td>C</td>
<td>E0006</td>
<td>Aguadito de pollo</td>
<td>44.91</td>
<td>2.43</td>
<td>0.98</td>
<td>6.13</td>
<td>0.36</td>
<td>0.66</td>
<td>149.93</td>
<td>66.62</td>
<td>206.00</td>
<td>2.90</td>
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<tr>
<td>D</td>
<td>E0006</td>
<td>Aguadito de pollo</td>
<td>41.41</td>
<td>2.28</td>
<td>0.82</td>
<td>5.74</td>
<td>0.34</td>
<td>0.61</td>
<td>149.15</td>
<td>40.59</td>
<td>209.80</td>
<td>2.46</td>
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<tr>
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<td>E0006</td>
<td>Aguadito de pollo</td>
<td>44.86</td>
<td>2.34</td>
<td>0.95</td>
<td>5.97</td>
<td>0.39</td>
<td>0.70</td>
<td>170.26</td>
<td>55.94</td>
<td>255.43</td>
<td>2.53</td>
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<tr>
<td>A</td>
<td>S0414</td>
<td>Aji de pollo con arroz</td>
<td>137.14</td>
<td>5.43</td>
<td>2.77</td>
<td>20.47</td>
<td>0.61</td>
<td>0.81</td>
<td>28.52</td>
<td>19.89</td>
<td>131.32</td>
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<tr>
<td>B</td>
<td>S0414</td>
<td>Aji de pollo con arroz</td>
<td>156.61</td>
<td>5.96</td>
<td>3.44</td>
<td>22.41</td>
<td>0.65</td>
<td>1.28</td>
<td>14.27</td>
<td>17.56</td>
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<tr>
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<td>S0414</td>
<td>Aji de pollo con arroz</td>
<td>145.65</td>
<td>5.93</td>
<td>2.81</td>
<td>21.57</td>
<td>0.68</td>
<td>0.85</td>
<td>0.00</td>
<td>11.30</td>
<td>7.75</td>
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<tr>
<td>D</td>
<td>S0414</td>
<td>Aji de pollo con arroz</td>
<td>156.55</td>
<td>5.42</td>
<td>2.56</td>
<td>26.76</td>
<td>0.68</td>
<td>0.99</td>
<td>0.00</td>
<td>14.92</td>
<td>9.09</td>
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<tr>
<td>E</td>
<td>S0414</td>
<td>Aji de pollo con arroz</td>
<td>156.15</td>
<td>4.86</td>
<td>3.75</td>
<td>22.78</td>
<td>0.58</td>
<td>0.98</td>
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<td>18.11</td>
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<td>P02300</td>
<td>Arroz con leche</td>
<td>149.42</td>
<td>2.00</td>
<td>0.35</td>
<td>33.98</td>
<td>0.40</td>
<td>0.52</td>
<td>0.00</td>
<td>0.00</td>
<td>1.43</td>
<td>0.00</td>
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<tr>
<td>B</td>
<td>P02300</td>
<td>Arroz con leche</td>
<td>149.04</td>
<td>2.25</td>
<td>1.59</td>
<td>31.66</td>
<td>0.37</td>
<td>0.46</td>
<td>0.00</td>
<td>6.92</td>
<td>10.38</td>
<td>0.00</td>
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<td>P02300</td>
<td>Arroz con leche</td>
<td>130.90</td>
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<td>1.67</td>
<td>26.83</td>
<td>0.38</td>
<td>0.39</td>
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<td>9.86</td>
<td>13.43</td>
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<td>D</td>
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<td>Arroz con leche</td>
<td>224.44</td>
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<td>10.05</td>
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<td>0.29</td>
<td>0.61</td>
<td>0.00</td>
<td>4.96</td>
<td>6.26</td>
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<td>Chicha morada</td>
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<td>0.55</td>
<td>0.26</td>
<td>11.85</td>
<td>0.01</td>
<td>0.13</td>
<td>0.02</td>
<td>0.68</td>
<td>0.05</td>
<td>1.20</td>
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<tr>
<td>B</td>
<td>R02003</td>
<td>Chicha morada</td>
<td>36.37</td>
<td>0.32</td>
<td>0.16</td>
<td>8.55</td>
<td>0.01</td>
<td>0.11</td>
<td>0.00</td>
<td>0.47</td>
<td>0.04</td>
<td>1.46</td>
</tr>
<tr>
<td>C</td>
<td>R02003</td>
<td>Chicha morada</td>
<td>44.98</td>
<td>0.45</td>
<td>0.21</td>
<td>10.40</td>
<td>0.01</td>
<td>0.13</td>
<td>0.01</td>
<td>0.57</td>
<td>0.05</td>
<td>1.19</td>
</tr>
<tr>
<td>D</td>
<td>R02003</td>
<td>Chicha morada</td>
<td>40.30</td>
<td>0.38</td>
<td>0.18</td>
<td>9.55</td>
<td>0.01</td>
<td>0.13</td>
<td>0.01</td>
<td>0.53</td>
<td>0.06</td>
<td>0.66</td>
</tr>
<tr>
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<td>Chicha morada</td>
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<td>0.46</td>
<td>0.21</td>
<td>11.55</td>
<td>0.01</td>
<td>0.14</td>
<td>0.00</td>
<td>0.57</td>
<td>0.04</td>
<td>0.72</td>
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</tbody>
</table>
Accounting for content in poverty analysis

• Poverty line
  – Calorie consumption

• Missing information on FAFH module
  – Content of the food consumed
  – Quantities consumed
Accounting for content in poverty analysis

• **Calorie composition: “representative meal”**
  – By meal type and place of consumption

<table>
<thead>
<tr>
<th></th>
<th>Street vendor</th>
<th>Restaurant</th>
<th>At work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Lunch</td>
<td>332.5</td>
<td>172</td>
<td>172</td>
</tr>
<tr>
<td>Dinner</td>
<td>332.5</td>
<td>172</td>
<td>172</td>
</tr>
<tr>
<td>Snack</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

– Enconut: lunch at restaurant, estrato D (2nd quintile)
  • 220 - 250
Accounting for content in poverty analysis

- **Quantities consumed**: “implicit price per kg”
  - Children FAFH and Take-Out:
    - Household level module
    - Content, quantities, and cost => price per kg
  - Adult FAFH:
    - Assign price per kg (by quartile pce, location, meal type)
    - Quantity = cost / price per kg
Accounting for content in poverty analysis

What do we get from the data?

- **Quantities consumed**: “price per kg”
  - Enaho: lunch, reference population (p20-40), Metropolitan Lima
    - 2010 prices: S./ 10.4
  - Enconut: lunch (restaurant), estrato D (2\textsuperscript{nd} quintile), Metropolitan Lima
    - 2013 prices: S./ 5.4 - 7.1
    - 2010 prices: S./ 4.7-6.1
Accounting for content in poverty analysis

Moderate poverty rates in Metropolitan Lima, 2010
(By kcal per 100 grams in FAFH)

Lunch costs as estimated by official methodology
Accounting for content in poverty analysis

Moderate poverty rates in Metropolitan Lima, 2010
(By kcal per 100 grams in FAFH)

Lunch costs as estimated by official methodology

<table>
<thead>
<tr>
<th></th>
<th>kc 172</th>
<th>kc 220</th>
<th>kc 250</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.66</td>
<td>10.27</td>
<td>9.53</td>
</tr>
</tbody>
</table>

Lunch cost adjusted downwards based on Enconut estimates (80% of original)

<table>
<thead>
<tr>
<th></th>
<th>kc 172</th>
<th>kc 220</th>
<th>kc 250</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>8.54</td>
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</tr>
</tbody>
</table>
Accounting for content in poverty analysis

Moderate poverty rates in Metropolitan Lima, 2010
(By kcal per 100 grams in FAFH)

Lunch costs as estimated by official methodology

Lunch cost adjusted downwards based on Enconut estimates (60% of original)
Plan

• **Relevance:** FAFH and welfare analysis
  – Evidence from Peru
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    • Accounting for content

• **Design:** measuring FAFH in household surveys
  – Intervention in Vietnam
On-going work

• Challenging to measure FAFH in household surveys

• Unknown best practice
  – Who the respondent should be?
  – What information to collect?

• New collaboration with GSO of Vietnam
National Household Survey (VHLSS)

• Current consumption module
  – FAFH information collected at the household level
  – One line on “outdoors meals and drinks” (breakfast, lunch, dinner)
    • Members living in the household
    • Members working, studying, health facilities
    • Other
Involves two visits to the household

Experimental design

Food Away from Home

"First Best"

Alternatives to "first best"

individual informant

individual informant

household informant

household informant

diary

meal events

meal events

7 day
7 day recall
7 day
7 day

Involves two visits to the household
Closing remarks and early lessons

• **FAFH is rapidly growing, but proper measurement in household surveys is lacking**
  
  – Evidence from Peru suggests that accounting for FAFH can have important **implications for welfare analysis**
  – Need for replication

• **Little is known about how best to measure FAFH**
  
  – Need for guidelines on good practices
  – Low hanging fruit on extensive margin (meals, snacks, cost, place of consumption)
  – More **methodological research** is needed (informant, content)
    
    • Ongoing work in Peru & Vietnam
    • Demand from Bolivia, Ecuador, Maldives
    • Other?
Thank you!