USE OF PRIVATE SECTOR DATA IN PPP ESTIMATES

May 26, 2016
MIT Sloan, Cambridge
Outline: Use of Private Sector Data

- Introduction
- Approach and Lessons Learned to Date
- Preliminary Review and Findings
  - Summary Statistics
  - Example I: Regional PPPs
  - Example II: Sub-National PPPs
INTRODUCTION
World Bank Action Plan on Price Statistics

**PILLAR I**

**PROVIDING BETTER MEASURES OF PPP ESTIMATES**
- Estimate PPPs annually based on consistent methodology and lighter survey requirements

**PILLAR II**

**SUPPORTING IMPROVEMENTS IN CPIS AND OTHER PRICE INDICES**
- Target country support and technical assistance to improve national CPIs and increase synergies with PPP activities

**PILLAR III**

**EXPLORING INNOVATIONS IN COLLECTION AND USE OF ANCILLARY PRICE DATA**
- Research on ancillary price data for PPP estimation and spatial price adjustments (sub-national and urban/rural)
Pillar 3 Implementation

**OBJECTIVE**

Augment the availability of detailed price data that would inform international, regional and sub-national price comparisons, as well as poverty analysis.

**PILOT**

With Premise Data Corporation

- Study the feasibility of capturing granular high-frequency price data using modern ICT
- Identify and cover a detailed basket of goods and services for household consumption
- Achieve a representative set of national average prices through survey frames
- Collect additional rural-specific price data
- And make the captured data OPEN to all users
The Pilot

FIRST PILOT PHASE
- 3 countries: Brazil, Indonesia and Nigeria
- 150+ items: Food, products and services
- 6 months: Main data capture from July to December

SECOND PILOT PHASE
- 13 additional countries: Argentina, Bangladesh, Cambodia, Colombia, Ghana, Kenya, Malawi, Peru, Philippines, South Africa, Venezuela and Vietnam
- 160+ items: Food, products and services
- 6 months: Main data capture from January to June
APPROACH AND LESSONS LEARNED
The Network

PREMISE PLATFORM

- Leverage Premise’s network of paid on-the-ground citizens, who use an Android application
- Customize the application to cover specific price collection tasks
- Push the tasks through the selection of geographical locations

The current network covers approx. 200 towns and cities spanning 30 countries
The Application
The Data Stream
# Observation Details

<table>
<thead>
<tr>
<th>#</th>
<th>Data type</th>
<th>#</th>
<th>Data Type</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Date and time of the observation (obs. &amp; trans.)</td>
<td>10</td>
<td>Urban/Rural designation</td>
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<tr>
<td>2</td>
<td>Price (LCU and USD)</td>
<td>11</td>
<td>Population density</td>
</tr>
<tr>
<td>3</td>
<td>Reporting currency and XR</td>
<td>12</td>
<td>Venue information (type, location and name)</td>
</tr>
<tr>
<td>4</td>
<td>Quantity</td>
<td>13</td>
<td>User ID (anonymized)</td>
</tr>
<tr>
<td>5</td>
<td>Volume/weight</td>
<td>14</td>
<td>Scope affiliation (link)</td>
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<tr>
<td>6</td>
<td>Brand and model</td>
<td>15</td>
<td>Packaged/unpackaged</td>
</tr>
<tr>
<td>7</td>
<td>Longitude and latitude</td>
<td>16</td>
<td>Fresh/Frozen</td>
</tr>
<tr>
<td>8</td>
<td>GPS accuracy</td>
<td>17</td>
<td>Exclusion tag (for excluded obs.)</td>
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<tr>
<td>9</td>
<td>L1/L2/L3 designation</td>
<td>18</td>
<td>++++</td>
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## Lessons Learned to Date

<table>
<thead>
<tr>
<th>Quality</th>
<th>Data Quality → App Refinement</th>
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<tbody>
<tr>
<td></td>
<td>– Making sure contributors understand which products to price</td>
</tr>
<tr>
<td></td>
<td>– Accurate capture and verification (“trick”) questions</td>
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<tr>
<td></td>
<td>– Collecting as much metadata as possible</td>
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</table>

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Survey Frames → Setting up, Monitoring and Tasking</th>
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<tbody>
<tr>
<td></td>
<td>– Improving survey coverage</td>
</tr>
<tr>
<td></td>
<td>– Ensuring consistent collection of prices over time and space</td>
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</table>

<table>
<thead>
<tr>
<th>Operation</th>
<th>Recruiting → On-the-ground “special users”, social media+</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Payments → Actively seeking new partners</td>
</tr>
<tr>
<td></td>
<td>Phone &amp; OS → Further testing &amp; refining the App</td>
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</tbody>
</table>
PRELIMINARY REVIEW AND FINDINGS
## Summary Statistics (Jan 1st – May 13th, 2016)

<table>
<thead>
<tr>
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<th>#Geo. regions</th>
<th>#Outlets</th>
<th>#Items</th>
<th>#Obs</th>
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<tbody>
<tr>
<td>Argentina</td>
<td>8</td>
<td>1,593</td>
<td>154</td>
<td>18,690</td>
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<tr>
<td>Bangladesh</td>
<td>7</td>
<td>3,188</td>
<td>165</td>
<td>72,771</td>
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<td>Brazil</td>
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<td>12,322</td>
<td>163</td>
<td>146,529</td>
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<td>Cambodia</td>
<td>7</td>
<td>589</td>
<td>147</td>
<td>6,682</td>
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<tr>
<td>Colombia</td>
<td>8</td>
<td>1,589</td>
<td>161</td>
<td>42,105</td>
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<tr>
<td>Ghana</td>
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<td>982</td>
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<td>11,574</td>
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<tr>
<td>Indonesia</td>
<td>18</td>
<td>6,159</td>
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<td>128,500</td>
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<td>Kenya</td>
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<td>3,280</td>
<td>164</td>
<td>54,263</td>
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<td>Malawi</td>
<td>3</td>
<td>803</td>
<td>154</td>
<td>10,572</td>
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<tr>
<td>Nigeria</td>
<td>15</td>
<td>4,574</td>
<td>163</td>
<td>92,103</td>
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<td>Peru</td>
<td>11</td>
<td>1,069</td>
<td>158</td>
<td>15,054</td>
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<td>Philippines</td>
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<td>3,772</td>
<td>163</td>
<td>31,268</td>
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<td>South Africa</td>
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<td>2,339</td>
<td>168</td>
<td>34,024</td>
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<tr>
<td>Venezuela</td>
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<td>6,488</td>
<td>160</td>
<td>95,663</td>
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<tr>
<td>Vietnam</td>
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<td>3,974</td>
<td>167</td>
<td>89,101</td>
</tr>
</tbody>
</table>
Results Example 1: Regional PPPs

Geographies

- 5 African countries, one main city for each
  - Ghana (Accra)
  - Kenya (Nairobi)
  - Nigeria (Lagos)
  - Malawi (Lilongwe)
  - South Africa (Johannesburg)

Items

- Food, beverages, alcohol and tobacco
  - 67 items
  - Surveyed over January – May 2016

Process

- Results by
  - CPD at level of class (one above the basic heading)
  - GEKS over the class level CPD PPPs
    - Detailed NA expenditure structure from ICP 2011
Regional Results: PLIs, AFR5 = 100

Ghana (Accra)
- PLI: 128 (Rank 1)
- #Priced items: 56
- #Obs: 3,020
- #Obs per item: 54
- Intra-country CV: 16
- Inter-country CV: 23

Kenya (Nairobi)
- PLI: 95 (Rank 3)
- #Priced items: 63
- #Obs: 2,586
- #Obs per item: 41
- Intra-country CV: 16
- Inter-country CV: 25

Nigeria (Lagos)
- PLI: 125 (Rank 2)
- #Priced items: 63
- #Obs: 8,933
- #Obs per item: 142
- Intra-country CV: 20
- Inter-country CV: 26

Malawi (Lilongwe)
- PLI: 88 (Rank 4)
- #Priced items: 62
- #Obs: 1,362
- #Obs per item: 22
- Intra-country CV: 17
- Inter-country CV: 24

South Africa (Johannesburg)
- PLI: 74 (Rank 5)
- #Priced items: 59
- #Obs: 1,218
- #Obs per item: 21
- Intra-country CV: 19
- Inter-country CV: 29
### Results Example II: Sub-National PPPs

#### Geographies
- 11 Brazilian states (excl. Amazon)
  - Bahia / Ceará / Distrito Federal / Minas Gerais / Pará
  - Paraná / Pernambuco / Rio de Janeiro / Rio Grande do Sul / Santa Catarina / São Paulo
- Selected locations for each state

#### Items
- “Household consumption”
  - 69 basic headings / 149 items
  - Surveyed over January – May 2016

#### Process
- Results by
  - CPD at level of COICOP-12
  - GEKS over the COICOP-12 CPD PPPs
    - Detailed NA expenditure structure from ICP 2011
    - Same weight structure for each state
Sub-National Results: PLIs, BRA11 = 100

Pará
PLI: 99 (Rank 5)
#Priced items: 111
#Obs: 5,485
Intra-country CV: 16
Inter-country CV: 16

São Paulo
PLI: 104 (Rank 2)
#Priced items: 145
#Obs: 22,413
Intra-country CV: 19
Inter-country CV: 16

Distrito Federal
PLI: 103 (Rank 3)
#Priced items: 110
#Obs: 2,627
Intra-country CV: 19
Inter-country CV: 16

Paraná
PLI: 99 (Rank 5)
#Priced items: 111
#Obs: 5,485
Intra-country CV: 16
Inter-country CV: 16

Rio de Janeiro
PLI: 105 (Rank 1)
#Priced items: 144
#Obs: 45,737
Intra-country CV: 21
Inter-country CV: 16

Rio Grande do Sul
PLI: 102 (Rank 4)
#Priced items: 133
#Obs: 7,598
Intra-country CV: 18
Inter-country CV: 18
Sub-National Results: PLIs, BRA11 = 100

Bahia
PLI: 98 (Rank 8)
#Priced items: 138
#Obs: 15,144
Intra-country CV: 17
Inter-country CV: 11

Santa Catarina
PLI: 97 (Rank 10)
#Priced items: 124
#Obs: 2,704
Intra-country CV: 16
Inter-country CV: 21

Minas Gerais
PLI: 99 (Rank 6)
#Priced items: 141
#Obs: 25,067
Intra-country CV: 20
Inter-country CV: 12

Pernambuco
PLI: 98 (Rank 9)
#Priced items: 127
#Obs: 4,611
Intra-country CV: 19
Inter-country CV: 14

Paraná
PLI: 99 (Rank 7)
#Priced items: 117
#Obs: 3,350
Intra-country CV: 16
Inter-country CV: 13

Santa Catarina
PLI: 97 (Rank 10)
#Priced items: 124
#Obs: 2,704
Intra-country CV: 16
Inter-country CV: 21
THANK YOU