MEETING OF THE GROUP OF EXPERTS ON CONSUMER PRICE INDICES

CPI Major Review

National Statistics and Geography Institute

MEXICO

2 - 4 MAY 2016 GENEVA, SWITZERLAND
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Main improvements.

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Introduction

Since July 15th 2011, INEGI has exclusive faculty to elaborate National Price Indices.

INEGI has a commitment with the continuous improvement in the National Prices elaboration process, in order to provide prices statistics to society according best international practices to warranty that information correspond to market reality.

Since then, INEGI had made CPI new weights in April 2013. The weights referred to December 2010 period as CPI equals 100
Introduction

INEGI suggest to make CPI base period change; this activity requires two procedures well identified:

• To define comparison base period in which prices will be compared (comparison base).
• An estimation of how households expenditures are distributed; where weights are coming from (basket and weights).
Precedent and evolution

CPI elaboration and publication started with Central Bank of México in 1969, having as a base, the year before. During time, this indicator has been actualized in five occasions. Weights change from 2008 to 2010 is the sixth actualization and the first INEGI has done.

CPI Evolution

<table>
<thead>
<tr>
<th>Base period</th>
<th>Generics</th>
<th>Cities</th>
<th>Monthly Quotations</th>
<th>Weights Year</th>
<th>Weights Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>172</td>
<td>7</td>
<td>15 000</td>
<td>1963</td>
<td>FEIS-1963</td>
</tr>
<tr>
<td>1978</td>
<td>172</td>
<td>16</td>
<td>30 000</td>
<td>1963</td>
<td>FEIS-1963</td>
</tr>
<tr>
<td>1980</td>
<td>302</td>
<td>35</td>
<td>140 000</td>
<td>1977</td>
<td>HEINS-1977</td>
</tr>
<tr>
<td>1994</td>
<td>313</td>
<td>46</td>
<td>170 000</td>
<td>1989</td>
<td>HEINS-1989</td>
</tr>
<tr>
<td>2nd half Dec. 2010</td>
<td>283</td>
<td>46</td>
<td>235 000</td>
<td>2010</td>
<td>HEINS-2010</td>
</tr>
</tbody>
</table>

FEIS = Families Expenditure and Income Survey
HEINS = Household Expenditure and Income National Survey
Precedent and evolution

**CENTRAL BANK**
- 1968
- 1978
- 1980
- 1994
- 2002
- 2010

- 46 cities
- Biweekly
- Same base
- 283 generics
- 235,000 quotations

**INEGI**
- 2013
- 2016

- 2nd BW Sep
- HENS
- 300 generics
Economic information actualization cycle

According to the guidelines for the update cycle of economic information:

- Incorporating the FMI recommendations
- Using international best practices
- Economic census and HENS
- To maintain the reliability and representativeness of prices

It is proposed to update every five years the CPI base year reference.
Objective

What?

Actualize base period (changing the period which CPI equals 100, basket and weights)

How?

Using methodology improvements that maintain the basket and weights representative ness
Objective

Why?

Maintain CPI representativeness.

To comply with international recommendations.

To maintain a basket of products and services that reflects consumer preferences.”
Justification

To keep assuring information reliability and representativeness generated by INEGI.

Inflation calculus not only depends upon representativeness of the prices, also depends upon the rest of the indicator validity components like: basket, weights and the aggregation system.

International CPI manuals recommend that at least every five years actualizing activities must be done in order to warranty CPI representativeness. They also recommend to use products and activities classifications recognized by United Nations, in order to allow countries comparison.
Capture changes in households’ consumption pattern, which may come from economic or socio-demographic changes, changes in relative prices, changes in consumer preferences or the emergence of new products or the disappearance of old products.
Main improvements

- Weights calculus from annual average expenses from reported expenses in HENS 2012 and 2013.
- Indicators for each state.
Main improvements

- Inclusion of less than 15 thousands habitants localities in weights.
- Basket classification COICOP.
- Seasonal Products Analysis.
- Computer system and quotation process updated.
- Introduction of the new Statistical Design.
The updating base year includes:

1. Update basket of goods and services.
2. Updating Weights.
3. Definition of the period against which prices are compared.
1. UPDATING THE BASKET OF GOODS AND SERVICES

• The basket update is performed according to the expense items reported in the 2012, 2013 HENS.

• The main presentation of the basket is based on the OECD (version for PPP’s) Classification of Individual Consumption by Purpose.
Basket Selection

Select the expenditure items that weigh at least 0.01% of total expenditure.

Grouping items of expenditure in generic products having a similar price behavior.

To group them is necessary to keep the alignment of the items of expenditure according to COICOP.

Check that there is a place in which they listed the specifics of the proposed generic.
## Comparative basket

<table>
<thead>
<tr>
<th>Generics</th>
<th>Original basket</th>
<th>Status</th>
<th>Proposal basket versions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>Change name</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Disappear</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>168</td>
<td>Keep the same</td>
<td>185</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>Disaggregated</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>57</td>
<td>Fused</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>New</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>283</td>
<td>Total</td>
<td>304</td>
</tr>
</tbody>
</table>
2016 CPI Base Period Change Process

2. THE WEIGHTS UPDATE

• The weights were calculated according to the 2012, 2013 HENS.
• Household spending was included in towns with less than 15,000 inhabitants.
• The weighted number of varieties increased.
## Weights comparison by COICOP division

<table>
<thead>
<tr>
<th>Division</th>
<th>Current CPI</th>
<th>2012 and 2013 HENS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>01. Food and non-alcoholic beverages</td>
<td>18.73</td>
<td>23.95</td>
</tr>
<tr>
<td>02. Alcoholic beverages and tobacco</td>
<td>2.63</td>
<td>2.76</td>
</tr>
<tr>
<td>03. Clothing and footwear</td>
<td>5.46</td>
<td>5.10</td>
</tr>
<tr>
<td>04. Housing, water, electricity, gas and other fuels</td>
<td>23.53</td>
<td>20.97</td>
</tr>
<tr>
<td>05. Housing and household services</td>
<td>5.19</td>
<td>4.69</td>
</tr>
<tr>
<td>06. Health</td>
<td>2.18</td>
<td>2.94</td>
</tr>
<tr>
<td>07. Transport</td>
<td>12.71</td>
<td>13.18</td>
</tr>
<tr>
<td>08. Communication</td>
<td>3.99</td>
<td>4.10</td>
</tr>
<tr>
<td>09. Recreation and culture</td>
<td>4.36</td>
<td>4.84</td>
</tr>
<tr>
<td>10. Education</td>
<td>5.11</td>
<td>3.54</td>
</tr>
<tr>
<td>11. Hotels, cafes and restaurants</td>
<td>9.65</td>
<td>8.62</td>
</tr>
<tr>
<td>12. Miscellaneous goods and services</td>
<td>6.46</td>
<td>5.31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>
The products are prices series: the month we used for price-linking/price reference period is September. We broke down the series into their 4 components and took their seasonal factors series since 1993 until 2014, we first divide by quarters and then by months, and the third quarter had less seasonality.
2016 CPI Base Period Change Process

Monthly analysis

Monthly analysis by component

The products are prices series: the month we used for price-linking/Price reference period is September.
2016 CPI Base Period Change Process

INTRODUCTION OF NEW STATISTICAL DESIGN

Frame conformation from RENEM

Sampling frame = 300 Generics → 197 Activity classes → 3,562,778 Economic units
Size and sample selection

- Sampling scheme: Probabilistic, by conglomerates.
- Confidence level: 95%
- Error 3%
- DEFF 2.5
- NRR 15-25%

- Design variables
  - CPI variation considering the 46 cities as conglomerates
  - Income

- Sample size
  - 73,260 Quotations

- Sample selection
  - Multistage PPT-income
    - Locations
    - AGEB’s
    - Economic units

- Sample distribution:
  - Generic
  - State
  - Type of establishment (place of purchase)

- Total 21,211 economic units
Nine more cities included in the new CPI

Total Cities for new CPI by region

- North Frontier: 6
- North West: 4 + 1
- North East: 8 + 2
- Central North: 10
- Central South: 10 + 4
- South: 7 + 2
- Mexico City Metro Area: 1
Information to Use

HENS 2012
Encuesta Nacional de Gastos de los Hogares
Resultados del año de levantamiento 2012

HENS 2013
Encuesta Nacional de Gastos de los Hogares
Resultados del año de levantamiento 2013

HEINS 2012
ENCUESTA NACIONAL DE INGRESOS Y GASTOS DE LOS HOGARES
ENIGH 2012
Julio, 2013

ECONOMIC CENSUS

NATIONAL ACCOUNTS

PHC
IMF
Recommendations

With HENS information the CPI Base Period change will allow to follow FMI recommendations at ROSC report, to CPI calculus.

- The CPI weights should be based on survey data (among other sources) covering a full seasonal(annual) cycle; forthcoming continuous household expenditure survey data can be used to compile these weights.

- Research the impact of covering rural and small urban areas, with population less than 15,000, near urban clusters already in the area sample.
### Survey for weights

**HENS has the next characteristics to fix CPI weights:**

- Covering a full seasonal cycle (annual).
- It is free from seasonal bias, generated by survey application during certain periods of the year.
- It has a simple designed according information needs for CPI.
- Its goods and services catalog is internationally comparable and its disaggregation is comparable with CPI generics (COICOP).
- Provide a good estimation for expenditure evolution
How do we obtain weights?

Start

- 2012 and 2013 HENS files

Generation of master file

Conceptualization for integrating generics

Generation of CPI basket expenses

Special products review

Corrections

Evaluation

No → 2012 and 2013 HENS files

Yes → Weights calculus

Final master file

END
<table>
<thead>
<tr>
<th>CONCEPT</th>
<th>CURRENT</th>
<th>PROPOSAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basket</td>
<td>Urban consumption</td>
<td></td>
</tr>
<tr>
<td>Generics</td>
<td>283</td>
<td>300</td>
</tr>
<tr>
<td>Specifics</td>
<td>83,500</td>
<td>In process</td>
</tr>
<tr>
<td>Sources</td>
<td>21,000</td>
<td>In process</td>
</tr>
<tr>
<td>Quotations</td>
<td>235,000</td>
<td>In process</td>
</tr>
<tr>
<td>Weights</td>
<td>HEINS 2008</td>
<td>HENS 2012, 2013</td>
</tr>
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<td>Reference period</td>
<td>2\textsuperscript{nd} bw dec 2010</td>
<td>2\textsuperscript{nd} bw sep 2016</td>
</tr>
<tr>
<td>Formula</td>
<td>Laspeyres</td>
<td></td>
</tr>
<tr>
<td>Cities</td>
<td>46</td>
<td>55</td>
</tr>
</tbody>
</table>
Thank you very much

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