Owner occupied housing in the Icelandic CPI, a survey of simple user cost for a quarter of a century.

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CPI 1914-2018

• The expenditure weights for housing estimated in line with:
  – 1924-1984 with market rent.
  – 1984-1992 according to payment method

• The price updating was by Indices:
  – 1939-1992 measuring lower price change than other indicators such as CPI less housing or the building cost.
  – 1992-2018 user cost-house price indices
CPI 1914-1992

• The first base for the CPI was estimated in 1922 and calculated back to 1914.
  – This was based on estimation not survey.
• The first household expenditure survey was conducted in 1939.
  – 1939-1984 were all based on all families with
  – From 1984 the sample included all households in the country.
• CPI mainly used for wage indexation 1939-1983
CPI 1992-

• In 1992 the rental equivalence approach was adopted by calculating simple user cost.
  – This is an adoption of a flow of services approach in line with national account.

• Market rent was incorporated in March 1997.

• From 1997 the index has been defined as having strong resemblance to a cost of living index.

• This is an adoption of a flow of services approach in line with national accounts.
  – CPI law in 1995 the target for the CPI was defined as private consumption.
CPI overview 1914-2018

Table 1. Price changes for different bases of the Icelandic CPI from 1939
CPI less housing cost, housing and the building cost index (BCI)

<table>
<thead>
<tr>
<th>Years</th>
<th>CPI</th>
<th>CPI less housing</th>
<th>Housing</th>
<th>BCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1914-1924</td>
<td>221%</td>
<td>219%</td>
<td>231%</td>
<td>226%</td>
</tr>
<tr>
<td>1924-1939</td>
<td>-16%</td>
<td>-29%</td>
<td>51%</td>
<td>-6%</td>
</tr>
<tr>
<td>1939-1959</td>
<td>673%</td>
<td>890%</td>
<td>175%</td>
<td>1189%</td>
</tr>
<tr>
<td>1959-1968</td>
<td>116%</td>
<td>150%</td>
<td>51%</td>
<td>159%</td>
</tr>
<tr>
<td>1968-1984</td>
<td>12777%</td>
<td>14617%</td>
<td>6085%</td>
<td>13474%</td>
</tr>
<tr>
<td>1984-1988</td>
<td>145%</td>
<td>148%</td>
<td>124%</td>
<td>124%</td>
</tr>
<tr>
<td>1988-1992</td>
<td>61%</td>
<td>64%</td>
<td>44%</td>
<td>71%</td>
</tr>
<tr>
<td>1992-1997</td>
<td>11%</td>
<td>11%</td>
<td>-4%</td>
<td>16%</td>
</tr>
<tr>
<td>1997-2019</td>
<td>162%</td>
<td>119%</td>
<td>415%</td>
<td>227%</td>
</tr>
</tbody>
</table>
CPI market rent-imputed rent

• Precondition for being able to use user cost to measure rental equivalence
  – is a strong link between price changes in market rent and the rental equivalence measured by the simple user cost.

• In Iceland, market rent and imputed rental equivalence move in line over time.
Market rent-imputed rent from 1997

Indices for rent in Iceland 1997-2017

- Market rent
- Imputed rent
- Highlights

Hagstofa Íslands
Difference imputed rent-market rent

The ratio of imputed rent to market rent in Iceland 1998-2017

Hagstofa Íslands
Main indexes 1994-2018

The CPI, BCI and Wage index in Iceland 1994-2018, March 1997=100
Comparing Icelandic, Swedish and Canadian user cost (1)

• The Icelandic user cost measures the flow of services method targeting rental equivalence as defined in the national accounts.
  – prices are present prices.

• The Swedish and Canadian user cost methods reflect that the main use of the CPI is for compensation.
  – The prices used are from various time points, which are 12-15 years on average in the past.
  – Hence, property prices in this context are more or less old prices.
Comparing Icelandic, Swedish and Canadian user cost (2)

• Both the Swedish and the Canadian owner occupied housing methods are payment related.
  – The Canadian method is a full payment method using outlying mortgages.
  – The payment method covers only households that are in debt and excludes households which have none.

• In this respect the Swedish method differs
  – all households living in their owned homes are included.
  – The interest is calculated from the whole stock including in that way own equity.
Comparing Icelandic, Swedish and Canadian user cost (3)

• All three countries use present time interest rates.
  – Interest rates in Iceland are real interest rates.
  – Sweden and Canada the choice is to use nominal interest rates.

• The treatment of depreciation is similar in all three countries.
  – The depreciation is calculated at a similar rate from a stock that is price updated to current prices.
  – Depreciation is calculated in Canada and Iceland from the property stock excluding land
  – price indexes used in Iceland and Sweden include land but the index used in Canada excludes land
## Swedish user cost with Icelandic data

### Table 8. Simulation Swedish user cost model with Icelandic data

<table>
<thead>
<tr>
<th>Property index</th>
<th>Real interest</th>
<th>Effect</th>
<th>Weight</th>
<th>Capital index</th>
<th>Nominal interest</th>
<th>Effect</th>
<th>Weight</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
</tr>
<tr>
<td>2007</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>106,2</td>
<td>106,8</td>
<td>0,31%</td>
<td>21,0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>95,9</td>
<td>106,3</td>
<td>0,05%</td>
<td>21,0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>93,0</td>
<td>102,2</td>
<td>-0,18%</td>
<td>16,9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>97,3</td>
<td>100,2</td>
<td>-0,05%</td>
<td>15,0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>104,0</td>
<td>95,7</td>
<td>0,07%</td>
<td>14,8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>110,0</td>
<td>92,4</td>
<td>0,00%</td>
<td>14,5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>119,3</td>
<td>91,8</td>
<td>0,09%</td>
<td>14,3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>129,1</td>
<td>91,8</td>
<td>0,07%</td>
<td>15,1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>141,7</td>
<td>91,6</td>
<td>0,11%</td>
<td>16,1%</td>
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</tr>
<tr>
<td>2017</td>
<td>169,4</td>
<td>91,6</td>
<td>0,20%</td>
<td>17,4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>183,3</td>
<td>91,1</td>
<td>0,23%</td>
<td>20,4%</td>
<td></td>
<td></td>
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</tbody>
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