Estimating owner-occupied dwelling services – user cost approach

Baku, 24-26 September 2008

* The presentation is to a great extent based on the paper by Derek Blades, OECD, and a presentation by David Roberts, OECD, at the UNECE/Eurostat/OECD Meeting on National Accounts, Geneva, April 2008

Imputed rents – 2008 SNA

In 2008 SNA in 3 places:

- Chapter 6: the production account, §6.34
  - Always included although and exception (other own-account services excluded)
  - Important for international and inter-temporal comparability
    - to be estimated in line with international recommendations, so that measures of GDP exhaustiveness are comparable across countries
    - in some countries are taxed
**Imputed rents – 2008 SNA**

- Chapter 9 Use of income accounts, § 9.65
  - owners are treated as owning unincorporated enterprises that produce housing services consumed by the owner’s household
  - value equal to the rentals that would be paid on the market for same kind of accommodation

- Chapter 15 Price and volume measures, §15.134-135
  - ref. to chapters 10 and 23 of the CPI Manual
  - 3 alternative approaches, use-based approach is recommended for National Accounts
  - user-cost, or rental equivalence (stratification) method

**International recommendation 1**

- SNA 93 & ESA 95 recommend *stratification approach*

- Assumes that rents for owner-occupied dwellings would be the same as rents paid for similar dwellings
  - Over 25% of dwellings rented
  - Rented dwellings evenly distributed over all parts of the country & all dwelling types
  - Over 50% of rented dwellings occupied by nationals paying representative market rents
In transition countries

- Percentage of rented dwellings is small
  - E.g. Albania 2.7%, Bosnia Herzegovina 5%, Croatia 3.8%, FYR of Macedonia < 5%, Montenegro < 10%, Serbia < 10%
- Rental market limited to capital cities or principal urban centres
- Dwellings rented are not typical of the total housing stock
- Tenants are usually foreigners paying unrepresentative rents

International recommendation 2

- Recommended alternative to the stratification approach is the user cost approach
- Based on costs that the owners would need to take into account if they decided to rent it
User cost approach

- Starting point is a breakdown of the stock of owner-occupied dwellings, at minimum:
  - Single-family dwellings (houses or villas)
  - Apartments below a certain floor space (e.g. 30 m²)
  - Apartments above a certain floor-space (e.g. 30 m² or more)
  - for example:
    - Bosnia Herzegovina: five municipal areas, type of settlement (urban/rural), type of dwelling (single-family/ multi-family), size of dwelling (square metres)
    - Serbia: four regions, type of settlement (urban/rural)
- Object to estimate the user cost for the dwellings in each cell of the breakdown

Imputed rent by user cost approach

- Imputed rent (R):
  - Intermediate consumption (IC)
  - Other taxes on production (T)
  - Consumption of fixed capital (CFC)
  - Net operating surplus (NOS)

\[ R = IC + T + CFC + NOS \]
Intermediate consumption - IC

- Maintenance & repair of dwellings
  - Have to be undertaken regularly in order to maintain the dwelling in good working order:
    - Minor, such as interior decoration, carried out by tenants & owners – not included
    - **Major, such as repairing roofs, carried out by owners** (IC)
  - Do not change the dwelling’s performance, capacity or expected service life (otherwise GFCF)
- Net insurance premiums paid by owners on dwellings

Intermediate consumption 2

<table>
<thead>
<tr>
<th>Country</th>
<th>Intermediate consumption as % of output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia Herzegovina</td>
<td>14.9</td>
</tr>
<tr>
<td>Croatia</td>
<td>11.7</td>
</tr>
<tr>
<td>FYR of Macedonia</td>
<td>11.6</td>
</tr>
<tr>
<td>Serbia</td>
<td>3.5</td>
</tr>
</tbody>
</table>
Other taxes on production - T

- Taxes paid by owners on the imputed value of the dwelling services they derive from owning the dwelling they occupy less any subsidies that owner-occupiers receive to help them to pay current housing expenses (subsidisation of mortgage rates)
- Taxes paid by owners on the value of owner-occupied dwellings & associated land or “property taxes”

Consumption of fixed capital 1

- CFC on the stock of owner-occupied dwellings is measured at current prices
- Should be obtained from estimates of the stock of owner-occupied dwellings valued at current prices
- Preferable that stock estimates calculated by the Perpetual Inventory Method (PIM) as the derivation of CFC is an integral part of the method
- If countries do not have a long time series of GFCF & prices of capital assets, an alternative to PIM has to be used
Consumption of fixed capital 2

- The usual way of calculating CFC with a PIM is to assume straight-line depreciation with a bell-shaped mortality function.
- This can be approximated by geometric depreciation with no mortality function (does not require a long times series of GFCF).
- Geometric depreciation rate is written as \( D/L \) (declining balance rate/average service life).
- In OECD countries a value of 1.6 for \( D \) produces CFC estimates similar to those obtained by straight-line depreciation with a bell-shaped mortality function.

Consumption of fixed capital 3

The proposed alternative to PIM is:

1. Determine the mid-year net value of the stock of each type of owner-occupied dwelling for the current year.
2. Multiply these mid-year net values by \( D/L \) where \( D = 1.6 \) and \( L \) is the average service life for the dwelling type.

[Average service lives of dwellings in the Western Balkans: Bosnia Herzegovina: 80 yrs urban, 70 yrs rural; Croatia 80 yrs; FYR Macedonia 70 yrs; Montenegro 72 yrs; Serbia 75 yrs]
Mid-year net value of dwelling stock 1

- Number of owner-occupied dwellings in the middle of current year
  - most recent census
  - annual growth in stock of dwellings
- Price (excluding land) of a dwelling of average age in the current year
  - average price (excluding land) of newly constructed dwellings in the current year
  - average age of dwellings
  - average service life of dwellings
  - annual growth in stock of dwellings

Mid-year net value of dwelling stock 2

\[ P_{\text{average}} = P_{\text{new}} \left( \frac{L - A}{L} \right) \text{or} (1 - \left( \frac{A}{L} \right)) \]

\[ A = \frac{\sum_{i} i (1 + r)^{L-i}}{\sum_{i} (1 + r)^{L-i}} \]

- \( P_{\text{average}} \) = price of average-aged dwelling
- \( P_{\text{new}} \) = price of new dwelling
- \( L \) = average service life of dwelling
- \( A \) = average age of dwellings
- \( r \) = annual growth in stock of dwellings
- \( i \) = age of dwelling and takes the values of 1, 2, 3, ..., \( L \)
Net operating surplus – NOS

Rate of return times the mid-year net value of dwelling stock in the current year

- Rate of return that the owner-occupier would expect to get if he had invested in a financial asset rather than a dwelling
  - Without a well-developed financial market - use 2.5%
- The mid-year net value of dwelling stock should also include the value of land
  - Adjust the mid-year net value of dwelling stock land used for CFC (which excluded land) to include the value of land

Results

<table>
<thead>
<tr>
<th>Country</th>
<th>Output of owner-occupied dwellings as % GDP in 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia Herzegovina</td>
<td>6.8</td>
</tr>
<tr>
<td>Croatia</td>
<td>8.1</td>
</tr>
<tr>
<td>FYR of Macedonia</td>
<td>10.6</td>
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<tr>
<td>Montenegro</td>
<td>9.4</td>
</tr>
<tr>
<td>Serbia</td>
<td>9.0</td>
</tr>
</tbody>
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