Current Swedish discussion on housing in the CPI

Martin Ribe
Statistics Sweden

Presentation at Ottawa Group Meeting
Ottawa, October 2007
Dynamic approach to OOH: Consumer’s utility

Model where consumer’s utlility is a function of:

- Consumption of other products
- Housing in rented dwelling
- Owned dwelling at period start
- Owned dwelling at period end
- Financial assets & debts, per. end
Dynamic approach to OOH: Consumer’s budget

**Income components:**
- Labour income
- Capital income
- Net savings withdrawals
- Net new loans

**Income is to cover:**
- Cost for other consumption (than housing)
- Cost for rents
- Cost for repairs / maintenance
- Cost for loan interest
- Cost for new construction, extensions etc.
Dynamic approach to OOH: Components concerned

**Present approach**
- Interest cost
- Depreciation
- Repairs, goods
- Repairs, services (– year 2000)

**New approach**
- Interest cost – new form
- Repairs – new form
- New construction
Dynamic approach to OOH: Utility function

$$U(q, q_0^0 + \lambda q_m, q_h, q_r, g_A(A), g_M(M))$$

with

$$g_M(M) = \frac{M}{P_h q_h} = \tilde{M}$$

Role of loan amount \((M)\) in utility:

- Disutility of higher future risk
- Disutility of stronger restriction on future consumption
Dynamic approach to OOH: Interest cost alternatives

A – At constant nominal loan
B – At constant real loan
C – At constant duration of ownership & constant loan share
Dynamic approach to OOH: Interest cost term

- **Alt. A** – \( r^t_M \times M^B \)

- **Alt. B** – \( r^t_M p^t_h \times q^B_h \times \frac{M^B}{p^t_h q^B_h} \)

- **Alt. C** – \( r^t_M p^{t-L}_h \times q^B_h \times \frac{M^B}{p^{t-L}_h q^B_h} \)
Dynamic approach to OOH: Interest cost units

- **A** – $ interest per $ loan
- **B** – $ interest per house unit with current value covered by loan
- **C** – $ interest per house unit with purchase value covered by loan
Dynamic approach to OOH: Outcome (dec 1984 = 100)
Dynamic approach to OOH: Inflation rate at real interest

\[(3) \quad \pi^t_{\text{real}} \approx \pi^t_{\text{nom}} + \pi^{t-1}_{\text{real}} \frac{M^0}{\mu^0_{\text{nom}}(Q)} \cdot \frac{M^0}{1 + \mu^0_{\text{nom}}(Q)}.\]
## Dynamic approach to OOH: Consumption & mortgages

<table>
<thead>
<tr>
<th>År</th>
<th>Konsumtion Mkr</th>
<th>Huslåneskuld Mkr</th>
<th>Relation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>417 737</td>
<td>266 458</td>
<td>64</td>
</tr>
<tr>
<td>1987</td>
<td>507 960</td>
<td>308 882</td>
<td>61</td>
</tr>
<tr>
<td>1989</td>
<td>595 108</td>
<td>382 017</td>
<td>64</td>
</tr>
<tr>
<td>1991</td>
<td>706 755</td>
<td>422 646</td>
<td>60</td>
</tr>
<tr>
<td>1993</td>
<td>744 040</td>
<td>473 454</td>
<td>64</td>
</tr>
<tr>
<td>1995</td>
<td>804 739</td>
<td>466 929</td>
<td>58</td>
</tr>
<tr>
<td>1997</td>
<td>864 104</td>
<td>468 722</td>
<td>54</td>
</tr>
<tr>
<td>1999</td>
<td>926 011</td>
<td>526 535</td>
<td>57</td>
</tr>
<tr>
<td>2000</td>
<td>935 078</td>
<td>529 361</td>
<td>57</td>
</tr>
<tr>
<td>2002</td>
<td>1 029 923</td>
<td>644 121</td>
<td>63</td>
</tr>
<tr>
<td>2003</td>
<td>1 075 935</td>
<td>673 972</td>
<td>63</td>
</tr>
<tr>
<td>2004</td>
<td>1 102 984</td>
<td>774 111</td>
<td>70</td>
</tr>
</tbody>
</table>
Dynamic approach to OOH: Inflation rate at real interest
Dynamic approach to OOH: Indifference curves

\[ A = A^0 \]

\[ M = M^0 \]
Dynamic approach to OOH: Operative index computation

\[ I^{0,1} = \frac{V^B_{\text{rest}}}{V^B_{\text{rest}} + V^B_m + (1 - \tau^B) V^B_M + V^B_h} I^{0,1}_{\text{rest}} + \]

\[ + \frac{V^B_m}{V^B_{\text{rest}} + V^B_m + (1 - \tau^B) V^B_M + V^B_h} I^{0,1}_m \]

\[ + \frac{(1 - \tau^B) V^B_M}{V^B_{\text{rest}} + V^B_m + (1 - \tau^B) V^B_M + V^B_h} I^{0,1}_m I^{0,1}_M \]

\[ + \frac{V^B_h}{V^B_{\text{rest}} + V^B_m + (1 - \tau^B) V^B_M + V^B_h} I^{0,1}_h \]

M. Ribe, SCB, 2007-09-24