

PRICE INDEX THEORY

Course lectures at Stockholm University

Part 6

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Owner Occupied Housing: Alternative approaches

- Exclusion of capital part (the house)
- (Net) Aquisition Approach
 - "Houses like potatoes"



- **Rental Equivalent Approach**
 - Appealing, but depends on rents



- **User Cost Approach**
 - Solution Variants: partial cost
- Payment Approach



Owner Occupied Housing



- Swedish CPI:
 - **O** Depreciation
 - Interest cost
 - Real estate tax
 - Site rent
 - **O** Repairs
 - O Insurance
 - **O** Water, etc.
 - O Oil, Electricity

HICP – plan: **O** Purchase of new houses

Repairs
Insurance
Water, etc.
Oil, Electricity





Interest cost

- Interest on mortgage + equity
 On mortgage = Interest payment
 On equity = Opportunity cost
- Rates of interest on mortgages of different types
- Based on a capital equal to present owner's purchase price
- Interest cost deducted in underlying inflation



Interest cost index







Depreciation

- **Loss of value due to wear etc.**
- Weight = 1.4 % of market value
- Before 1999: Building Price Index (BPI), updated by a Factor Price Index
- From 1999: Price index for "major" repairs

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Re-considerations

- How to find the true cost of having your own home?
- Recent CPI Commission suggested:
 Real interest of housing, on market value of house, at interest rate assumed constant
 Severely criticised
- In Government Budget Proposal 2002: Urgent to improve the computations – the CPI Board should consider the issue



Owner occupied housing: Capital cost



Present CPI:

- Depreciation
- Interest of mortgages and capital (current market rates)

Proposal of recent CPI Commission:

- Depreciation
- Real interest of housing, rate taken constant
 Cost prop. to market value of house

A general expression for the capital cost





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Commission Index Proposal





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Rental Equivalence Approach to owner occupiers

- Here prices for owner occupied housing are assumed to follow rents
- Plausible where owner occupied and rented dwellings compete well
- Favoured method in many countries
- Not considered adequate in Sweden, as owner occupied dwellings are not well comparable to rented ones



Dynamic approach to OOH: Consumer's utility

- Model by A. Klevmarken 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.







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Dynamic approach to OOH: Components concerned

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



- Interest cost new form
- Repairs new form
 - New construction



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 units



 B – \$ interest per house unit with current value covered by loan

 C – \$ interest per house unit with purchase value covered by loan





Practical pesentation issue for index numbers: Decimals

Index numbers may be published with e.g. 1 or 2 decimal places – like 101.1 or 101.11

- Permanent choice has to be made
- Advantage of >1 decimals: Rounding error minimised in use for further computation
- Drawback of >1 decimals: Possibly misleading impression of precision



Rate of Inflation

- The (Annual) Rate of Inflation is usually defined as the change in percent of the CPI, from the same month last year to the current month
- It is thus the relative price change over the 12 most recent months
- Published with 1 decimal, like 1.1%
- For computations use index numbers, not rate of inflation (to avoid rounding error)

Core inflation (underlying inflation)

- SCB
- Alternative measures of inflation for use in monetary policy
- Idea: To show price change except temporary/transitional or exogenous part
- Statistical approaches: Trimmed weighted means of subindex links
- Exclusion approaches: Exclude either food, energy, or taxes, interest cost



Particular point on interest rates

- Changes in interest rates show up in CPI – when owner occupied housing is treated by User Cost or Payment Approach
- This is problematic to monetary policy, as interest rate changes aim at reducing opposite changes in inflation rate
- Solution: Alternative inflation measures not affected by interest rates

Swedish core inflation series

- *KPIF / CPIF*
 - shows price change *except* changes in:
 Owner occupiers' interest cost
- **KPIX / CPIX (formerly called UND1X)**
 - shows price change *except* changes in:
 Owner occupiers' interest cost
 Indirect taxes & subsidies



shows price change *except* changes in:
 Owner occupiers' interest cost
 Indirect taxes & subsidies
 Prices of mainly imported products





Index of a tax j



Used for Net Price Index (NPI) and CPIX

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Year-to-year link of CPIX





Walsh weight of a tax *k*



Year-to-month link of CPIX

 $CPIX_{2004}^{2006;May} = CPI_{2004;excl.i.c.}^{2006,May} -$

 $-\sum W_k^{2006} \times \Delta I_{2004;k}^{2006;May}$ $k \in T \& S$

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