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NATIONAL EXPERIENCES IN THE TREATMENT OF OWNER-OCCUPIED HOUSING IN CPI

Note by the Secretariat

1. The previous ECE/ILO meeting on CPI (Geneva, 25-28 October 1993) asked the secretariat to arrange for a detailed exchange of national experiences in the treatment of owner-occupied housing in CPI. Accordingly, the ECE secretariat wrote to countries in early March 1995 requesting this information. The present note summarises countries' replies.
2. The items and their respective weights (out of 10 000) included under rent and housing in the CPI in **Cyprus** are the following: rents of dwellings - 1 335, of which actual - 146, imputed - 1 189; repairs and maintenance - 43; water rates - 51; common expenses - 12; housing fire insurance - 11; municipal taxes - 24; total - 1 476. Dwellings covered by the rent data are those with a monthly rent ranging from C£35 - C£200 per month as found in the income and expenditure survey. This group represents about 88 per cent of the total rented houses in urban areas. Rent data are obtained monthly through mail questionnaires and by personal visits for those not replying by post. The sample of 300 dwellings covered by the rent data was randomly selected from Lefkosia (148), Lemesos (102) and Larnaka (50). The number of dwellings selected in each town was based on the population distribution.
3. The computation method of the rent index is as follows: first the current rent per dwelling for each town is divided by the corresponding average rent at the base period (1992=100). Then the sum of the price relatives is divided by the number of dwellings in each town. These are then averaged for the 3 towns using the same weights as for all other items in the index (i.e. Lefkosia - 5, Lemesos - 3, Larnaka - 2).
4. Owner-occupied houses were taken into account in calculating the overall rent weight by estimating an imputed rent. The imputed rent was

established by a specific question in a household income and expenditure survey. In computing the rent index only actual rents paid are considered, imputed rents are disregarded on the assumption that their development is similar to actual rents paid.

5. Since 1995, CPI in the **Czech Republic** is calculated on the basis of a new basket of goods and services. The housing component of the basket includes housing rents (in private, municipal and state-owned dwellings), payments for housing in cooperative dwellings, imputed rents of owner-occupied housing, related services, goods and services for routine maintenance and repair, water and energy (electricity, gas, heating) supply, sewerage, solid and liquid fuels, insurance. The weights are based on the family budget statistics for 1993. An ad hoc survey of selected indicators on housing and costs of housing was conducted in 1994 with the purpose of revising housing index numbers. The total of 21 100 dwellings (0.6 per cent of all occupied dwellings) were surveyed.

6. With regard to legal forms of ownership, 41.8 per cent of dwellings were owner-occupied, 38 per cent were rented dwellings (of which over two thirds were in state-owned and municipal houses), and 18.9 per cent were dwellings of the members of building cooperatives. The survey results showed big differences in housing costs for comparable dwellings depending on the form of property. It has been decided to measure the change in the cost of dwellings for the following three categories: (i) tenant-occupied dwellings; (ii) dwellings of members of construction cooperatives; (iii) owner-occupied dwellings.

7. **Tenants** are still protected by regulated housing rents. The net rent, which excludes all related services, is calculated as the floor space times the rate per lm^2 . Different rates are established for dwellings of different quality and location. **Cooperative dwellings** are similar in quality to rented dwellings. However, the cost of cooperative dwellings depends on their size and age. These two factors determine the size of mortgage and also the size of maintenance and repair charges. **Imputed rents of owner-occupied dwellings** were included in the CPI basket in January 1995. In the absence of a developed dwellings market changes in imputed rents are measured by changes in prices of cost components for cooperative dwellings. Average prices of imputed rents for the country as a whole are calculated by weighting regional average prices of cooperative dwellings by the structure of owner-occupied dwellings. Payments for cooperative dwellings, in contrast to rents for municipal or state-owned dwellings, are neither regulated nor subsidised by the state. Therefore, they amount, without the profit component, to the real prices of full costs including paying back mortgage.

8. According to the household survey, 72 per cent of households live in owner-occupied dwellings in **Finland**. This means that gross rents paid do not describe real costs of owner-occupied housing. Although the rent regulation has been dismantled, a major part of rented dwellings still belongs to housing co-financed by the state. The share of the free rent market in the total dwelling stock amounted to about 9 per cent in 1991.

9. The price change of the housing costs of households living in owner-occupied dwellings is estimated starting from different cost items. This way

of measuring was adopted in the previous index revision (CPI 1985 = 100).

10. The costs of owner-occupied housing are divided into management and capital costs. Management costs include for example repair and waste removal costs, insurance payments and maintenance charges. Capital costs are described by the nominal interest rate of housing loans (average interest rate for the stock of housing loans according to the Bank of Finland with the lag of one month), the so-called depreciation term which reflects the deterioration of the dwellings. Installments of housing loans are not taken into account, for even though paying off a loan is a real cost item for households, the installments paid are for the acquisition of wealth and are not considered as consumption.

11. The deterioration of dwellings is monitored according to the dwelling price index produced by Statistics Finland. The statistics are based on the price data on realised deals on flats by major real estate agencies. Data on dwelling prices are obtained quarterly. At present there is no price monitoring for detached houses. Price developments for the costs of housing for detached houses are assumed to follow price developments for old flats and semi-detached houses.

12. The CPI components for owner-occupied housing in **Hungary** are actual costs and imputed rents of owner-occupied dwellings. The computation of actual costs covers expenditures on repair and maintenance of dwellings (purchases of related materials and services), water charges, sewage disposal, garbage disposal and other related expenditures. Their weights are taken from the household budget survey. Price data are collected by CSO in the framework of the general price collection procedure.

13. The computation of imputed rents of owner-occupied housing is problematic because there has been no real market for rented dwellings and therefore no information on market rents. Some estimates have been made for imputed rents for 1993 taking into account the location, age, technological level of dwellings, prices at which dwellings were purchased and the length of amortisation periods. The weights are based on these estimates. Presently the average of price indices for different repair items is used as a substitute for the price index of imputed rents.

14. In the **Netherlands**, the CPI housing unit sample consists of approximately 12 000 **rental units**. The rents for these houses are collected once a year in July, the month when the general rent increase takes place. Using these rents and the rents for the same houses from the base year, the residential rent index is compiled according to the Laspeyres formula.

15. The price change of **owner-occupied housing** is measured using the "flow-of-services" approach. This approach considers a house as a capital good which produces for the consumer a service called a "shelter". To measure the price change of homeowners' shelter services, the "rental equivalence" technique is used. The base period expenditure weight for the owner-occupied housing is derived from the household budget survey. For each owner in the household budget survey, real estate agents estimate the current rent which he could receive if letting his house. These imputed rents are then used to calculate the weight. The average rent increase of all rental houses is used

as an estimate of the price change of imputed rents of owner-occupied houses.

16. Imputed rents of owner-occupied housing are not included in observed expenditures and are not estimated in **Poland**. Costs of owner-occupied housing are covered by various categories of the households expenditure nomenclature.

17. Imputed rents of owner-occupied housing are not included in the computation of CPI in **Slovakia**. The following data are collected for the "rent" item in consumer price statistics: (i) actual monthly rate calculated for 1m²; (ii) services related to the use of the dwelling (public lighting and cleaning, waste removal, use of the elevator and common areas); (iii) cold water supply and sewerage charges; (iv) payment for heating calculated for 1m² of the heated floor surface; (v) payment for hot water per person.

18. The **Swedish** model for owner-occupiers' housing costs in the CPI includes mortgage interest, interest on own equity, depreciation, ground rent, repairs and maintenance, insurance, water and sewerage charges, electricity, heating and property tax. The overall weight is the share of owner-occupiers' housing in the national accounts compiled as the total floor space of that housing times the average rent of multi-dwelling houses. The weights for the various cost components mentioned above are determined from statistical surveys examining the cost structure of owner-occupied houses. The imputed rent from the national accounts will cover the current cost including mortgage interest plus a rate of return on owners equity. The rate has to be interpreted as a real rate. Market price data are collected for the sub-indices of maintenance, repairs, etc. on a regular basis.

19. The **depreciation** element of the cost is calculated at a rate of 1.4 per cent per annum on the market value of the dwelling (excluding land purchase) irrespective of its age. The price component is the price index for newly built small houses, projected to the current month using the factor price index for such houses.

20. The **mortgage interest** component is calculated on the basis of the price movements of the stock of owner-occupied houses times a weighted interest rate. The same average interest rate is applied both on the amount borrowed and on the owner's own equity. There are three different types of borrowing in Sweden - from the state, from housing finance institutions and from banks. The average mortgage interest rate is compiled from a mix of the types of loans with interest both at fixed (5 years and 2 years terms) and variable rates. Mortgage interest on new houses is subsidised by the government. The total interest cost is then based on changes in the value of the capital stock, the average interest rate and the subsidy deduction. In a formalised form the sub-index for interest costs is determined as:

$$I = w_1 I_1 - w_2 I_2, \text{ where } w_1 - w_2 = 1 \quad (1)$$

I = index for net interest costs;

I₁ = index for gross interest costs;

I_2 = index for interest subsidy; and
w = weights.

Furthermore, the index for the gross interest costs can be written as:

$$I_1 = R_{01} K_{01} \quad (2)$$

where R_{01} is the sub-index for the average interest rate and K_{01} the sub-index depicting the change in the value of the capital stock with a time lag of one year due to the lack of more recent data. The movement in the capital value is calculated as:

$$K_{01} = \frac{K_G + \Delta K_G + K_n}{K_G + K_n / BPI} \quad (3)$$

where K_G is the value of the old stock;

ΔK_G is the total increase in the stock value from transactions in existing houses;

K_n is the value of newly built houses;

BPI is the building price index for small houses.

21. The calculation of interest costs is then based on the historic cost of the property to which a weighted average of mortgage interest rates and bank interest rate are applied, and from which interest subsidy is deducted. The historic cost of the property is related to the house price paid by the present owner. In determining the value of the capital stock for a particular period the value for the previous period is adjusted on two grounds: (1) all newly built houses have been added to the stock at their current prices; and (2) all transactions in existing houses are registered and their prices replaced by current prices. In the first case, the value of the capital stock is changed according to the change in new building prices and the registered amount of new buildings.

22. For transactions in existing houses, the stock value will increase by the sum of the differences between the prices paid by the new and previous owners in each registered transaction. Thus, the value of a particular house is kept unchanged until the house is resold. In essence, the interest cost of owner-occupiers' housing will be determined by changes in average interest rates and changes in the value of housing stock as new houses are added and existing ones change hands. The addition of new houses only affects the index when there is a change in new house prices. The calculation is conceptually subdivided into two parts: interest on the amount borrowed plus interest on the owner's equity. The same average interest rate is applied to both parts. The calculated interest rate therefore is applied to both actual interest payments and imputed interest payments on that part of the property that is not financed by borrowing. There is no deduction for tax relief on interest payments.

23. In the calculation of CPI in **Switzerland** the expenditures on owner-occupied housing are included in the weighting for rents. However, prices are not collected for this category. It is assumed that the development of

costs of owner-occupied housing is similar to that of actual rents paid.

24. The rent category, which have an important share in the total consumer expenditure in **Turkey**, covers actual rents and imputed rents of owner-occupiers. Special rent surveys are carried out for this purpose. The dwellings for which rents are recorded are chosen by taking into consideration socio-economic structure and housing characteristics of the districts included in the sample of the 1994 Household Income and Expenditure Survey. The results of this survey were used to determine the proportion of owner-occupied dwellings in the settlements covered by the rent survey. Two different questionnaires are used to collect data on actual rents and imputed rents. Average rent is calculated as the sum of actual and imputed rents divided by the number of dwellings. A distinction is made between urban and rural areas for both actual and imputed rents.