

DO HOUSE PRICE DEVELOPMENTS MATTER FOR INFLATION-TARGETING MONETARY AUTHORITIES? A VIEW FROM THE EURO AREA EXPERIENCE.

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1. The general consensus is that, since inflation-targeting monetary authorities focus on inflation *expectations*, they need not target asset prices directly but that they can use them as a means to improve their judgement on the future path of the price level (Bean, 2003). The situation of housing is, however, fundamentally different because a sizeable chunk of the services associated with house prices do affect the purchasing power with regard to current consumption. However, they are at present not included in the ECB's main inflation measure, the harmonised index of consumer prices (HICP).

2. The main observations are:

- Conceptually, the cost of housing services for owner-occupiers has a bearing on the value of money.
- Empirically, their inclusion in inflation measures can make a sizeable difference. In particular, numerical simulations for the euro area show higher cross-country divergences than recorded by the HICP.
- Operationally, taking owner-occupied housing costs into account requires a number of methodological choices which can significantly impact on the values taken by the inflation measure.

3. This note first recalls the reasons behind the exclusion of owner-occupied housing from the HICP before exposing the potential drawbacks of this choice. It then presents the methodology that has been used to produce illustrative estimates of completing the HICP with a measure of owner-occupied housing costs. It finally presents and discusses the results and discusses.

The rationale for excluding owner-occupiers housing costs from the HICP

4. As far as housing costs are concerned, the HICP only includes rents actually paid by tenants and light maintenance expenditure by renters and owner-occupiers.² The main reason for this choice lies in the very divergent treatment of owner occupied housing across countries. For instance, only four of the 12

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2. Major repairs and improvements are not included in the HICP.

euro area countries include estimates of owner occupied housing costs in the national consumer price indices and these four countries use three different methods. It proved therefore impossible to agree on and implement a measure for owner occupied housing when the HICP was first introduced. Furthermore, the scope of the HICP has been defined as actual monetary transactions undertaken for final private consumption purposes, which in principle excludes imputations (Eurostat, 2004). The final monetary private consumption approach warrants that the purchase of assets, including dwellings, lies outside the scope of the index.

5. The goals of cross-country comparability and verifiability are important motives for restricting the HICP to actual transaction prices (Eurostat, 2001). Using tangible prices limits the need for imputed values which can be perceived as being more difficult to audit and to compare. However, even with actual prices, a recurrent co-ordinating process is needed, and is indeed operating, to harmonise the methods used to adjust collected price information for changes in quality.

6. Another reason for excluding home-owners housing service cost developments is that the HICP is officially defined as a “pure inflation index” or as “not being a cost of living index” (Eurostat, 2004). Despite the brevity of its definition, the pure inflation concept clearly refers to measuring changes in prices of goods and services purchased by means of monetary transactions. From a conceptual point of view, this suggests that the “pure inflation index” should broadly correspond to the deflator of household real money balances. Such an approach warrants excluding imputed costs but, symmetrically, it calls for taking into account changes in the prices of assets purchased by households, as advocated by Fisher (1911). A choice of this nature would raise considerable measurement issues, make the index very different from cost of living indices (Diewert, 2002) and also deviate from the final consumption approach the HICP is simultaneously based on. Furthermore, the pure inflation approach underpinning the HICP is in tension with the recommended adjustment of prices for quality changes that imply “a significant difference in utility to the consumer” (Eurostat, 2001). Indeed, the use of quality adjustment lacks conceptual foundations outside the theory of cost of living indices (Cecchetti and Wynne, 2003).

7. A “pure inflation index” could also be understood as an Austrian school-type inflation measure – that is to say an inflation measure that reflected only those price developments that are caused by changes in money supply and not by real factors. Measures of this kind have been constructed for the United Kingdom by Quah and Vahey (1995) and for the euro area and the Netherlands by Fase and Folkertsma (1999). Even though it is called a “pure inflation index”, the HICP clearly does not belong to this category as it is calculated as a consumption-weighted mean of observed price changes with no attempt at filtering out real effects.

The advantages of inclusion

An important component of private consumption

8. House prices affect the user cost of capital associated with home-ownership. The negative effect of higher house prices on the cost of living is clear for renters and for prospective home owners who forgo any wealth effects. It is real for existing owner-occupiers too. Even though they see their wealth increase when residential property is booming, they are also confronted with a higher cost of living as they face a higher opportunity cost of capital for a given level of housing services.

9. Owner-occupied housing services make up a sizeable part of private consumption. On very conservative estimates, national accounts data value imputed rentals for owner occupiers at more than 10% of euro area household final consumption in 2002. Following Marshall (1898), the System of National Accounts foresees that “the imputed values of the housing services are recorded as final consumption expenditures of the owners” (Inter-Secretariat Working Group on National Accounts, 1993). Major repairs

and improvements, another expenditure item not covered in the HICP basket of goods and services, made up around 1% of household final consumption in the euro area in 2002.

10. Given the importance of owner-occupied housing services in private consumption, changes in their prices will affect household decisions. For instance, increasingly expensive owner-occupied housing services imply a higher cost of living which will influence wage-setting behaviour and then potentially other prices through wage-price spiral effects. The effect of higher owner-occupied housing unit costs is clear and instantaneous for prospective first-time buyers and for existing home-owners looking for more spacious dwellings. For other existing home-owners, such a rise in the price of housing services is accompanied by an increase in property income in the form of higher imputed rents. Therefore, wage claims following an increase in the price for owner-occupied housing services may take more time to materialise than for other prices. However, as it still corresponds to a fall in the value of money, such a price rise will eventually bear on household decisions in the same way as other forms of inflation (Goodhart, 2001).

11. In practice, when making economic decisions, households pay attention to housing costs. The absence of owner-occupied housing costs from the HICP may also help explain the emergence of a debate on a disconnect between recorded and perceived inflation. In the case of Italy, Marini, *et al.* (2004) estimate that more than 6 percentage points must be added to the HICP inflation rate each year since 2002 to make survey-based measures of changes in households' financial situation match national accounts data on household disposable income deflated by the HICP. Even if this estimate appears to be on the high side and if other factors are likely to be at play,³ it gives substance to the view that the HICP may diverge to some degree from the cost of living as perceived by European households.

Cross-country comparability

12. Another benefit of taking owner-occupied housing into account in a price index is to improve cross-country comparability since “*The ratio of owner-occupied to rented dwellings can vary significantly between countries , so that both international and intertemporal comparisons of the production and consumption of housing services could be distorted if no imputation were made for the value of the own-account housing services*” (Inter-Secretariat Working Group on National Accounts, 1993).⁴

Current practice and plans in some countries

13. The majority of central banks are relying on price indices which include the cost of owner-occupied housing (**Table 1**). This is notably the case in the United States where the two main price measures examined by the Federal Reserve take housing costs into account. In the euro area, Eurostat, supported by the ECB, identified the inclusion of owner-occupied housing in the HICP a priority in 1997 and a task force was set up in 1998 to devise its implementation but the project is still at the pilot stage.

3. Inflation perceptions may also have been distorted by the fact that price increases after the changeover were unusually large for low value but frequently purchased items (ECB, 2003 and Del Giovane and Sabbatini, 2004).

4. The System of National Accounts guards against extending imputations to “*the production of domestic and personal services for consumption within the same household such as the preparation of meals, care and training of children, cleaning, repairs, etc*”, noting that “*it is clear that the economic significance of these flows is very different from that of monetary flows. For example, the incomes generated are automatically tied to the consumption of the goods and services produced; they have little relevance for the analysis if inflation or deflation or other disequilibria within the economy*” (Inter Secretariat Working Group on National Accounts, 1993).

Table 1. The treatment of housing in price measures used by central banks in major monetary areas

Monetary policy authority	Price measure	Compiling agency	Treatment of owner-occupied housing costs
US Federal Reserve	Personal consumption deflator	Bureau of Economic Analysis	User costs calculated by applying a mortgage-rate dependent rent-to-value ratio to house prices.
	Consumer price index	Bureau of Labour Statistics	Imputed rents based on actual rents adjusted for quality differences between owner-occupied houses and other dwellings.
European Central Bank	Harmonised index of consumer prices (HICP)	European Commission (Eurostat)	Not included in the index.
Bank of Japan	Consumer price index excluding fresh food ¹	Statistics Bureau	Imputed rents based on actual rents.
Bank of England	Consumer price index (national name for the HICP)	National Statistics	Not included in the index.
Bank of Canada	Consumer price index excluding food, energy and indirect taxes	Statistics Canada	User costs consisting of mortgage interest cost, depreciation, property taxes, maintenance, insurance premiums and other fees.

14. There are indications that Eurostat may choose to integrate owner-occupied dwelling prices in the HICP, on an acquisition basis, net of land prices. The choice of an acquisition basis would imply a consistent treatment of housing and other consumer durables as the index would reflect actual price changes in the housing market to the extent that they influenced household decisions at a given point of time. This choice would also make it easier to achieve high standards of cross country comparability while maintaining the principle that the index should be based on the prices of market transactions. Nonetheless, as for all other options that exist on this field, it has some potential drawbacks. House purchases may be regarded as investment in fixed capital and therefore excluded from consumption expenditure. The intrinsic difficulty is to separate the investment and consumption elements. One way of dealing with it is to consider that the cost of land corresponds to the investment and consumption components, respectively. A problem with this approach is that land prices include the value of location and that owner-occupiers derive utility from the locations of their homes as much as from their structures.

15. However, such an approach would imply that the owner-occupied component of the new HICP would only reflect a fraction of housing costs since land typically represents about half of house prices in European countries (Calmfors *et al.*, 2005). Moreover, land prices are also the most volatile component of house prices since they represent the scarcity value of a non-reproducible asset. Therefore, excluding land from the new measure is a controversial issue when incorporating owner-occupied housing costs into the extended HICP.

A simulation for euro area countries

Method

16. A direct method based on the concept of user costs has been used to assess the impact of home-owners' housing costs on inflation. The implicit price of housing services for owner-occupiers is estimated by calculating the user cost associated with their housing capital valued at market prices. Examples of official price indices incorporating owner-occupied housing costs calculated in this way include the US private consumption deflator (Lebow and Rudd, 2003) and the Icelandic CPI. Another method used by statistical agencies consists of imputing rents to home-owners on the basis of rental market data. Such measures of owner-occupied housing costs have weaker conceptual foundations than the user cost approach because they are affected by the frequent disequilibria between rental and owner-occupier markets (Verbrugge, 2004). In addition, time series for rental market conditions are missing in several euro area countries and when they exist, the data on paid rents have to be adjusted for the important differences between rented and owned housing (Kurz and Hoffman, 2004). For a majority of euro area countries, the information needed to perform this operation is not publicly available.

17. The user cost of owner-occupied housing is calculated following a method proposed by Poterba (1992) and summarised below in equation (1). UC stands for user costs, i^e for the effective, after-tax nominal mortgage interest rate, τ for the property tax rate on owner occupied houses, d for the depreciation rate, m for the ratio of maintenance cost to property value, r for the risk premium on residential property and π for the expected rate of increase in dwelling prices. The primary data source for house prices (P) and mortgage rates is the European Mortgage Federation's annual Hypostat report (2000-04 issues). The *OECD Economic Outlook No. 77* database has been used as an additional source for interest rates. Property tax rates are taken from ECB (2003). The calculation of effective, after-tax mortgage interest rates follows the method outlined by van den Noord (2005). Parameter values for d , m and r and the estimation of π as a moving average of consumer price inflation are taken from Poterba (1992). *OECD Economic Outlook No. 77* data underlie the calculation of π .

$$UC = (i^e + \tau + d + m + r - \pi)P \quad (1)$$

18. Owner-occupied housing user costs are then combined with the HICP to produce an illustrative estimate of "complete" consumer price inflation. The indices for the HICP and estimated user costs have been weighed together using the breakdown of household final consumption expenditure in the *OECD Annual National Accounts* database.

19. The methodology underpinning the results shown in **Table 2** involves a certain number of questions which would have to be looked at carefully before any decision to implement it operationally. First, the results have been derived after making a number of methodological choices and the numerical values are partly dependent on these choices. Secondly, in the absence of harmonised data, the mortgage rates and house price statistics underlying the calculations are not directly comparable across countries. Thirdly, as such an inflation measure factors in the costs of housing services to owners who are servicing variable rate mortgages, it is directly affected by interest rate changes. For example, the International CPI Manual (ILO et al. 2004) describes several ways of implementing a user cost approach, each of which may produce somewhat different results from the present ones.

Results

Table 2. Complete inflation estimates

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Austria												
HICP	3.2	2.7	1.6	1.8	1.2	0.8	0.5	2.0	2.3	1.7	1.3	2.0
Estimated complete inflation	2.6	3.0	1.9	1.5	0.7	0.9	0.8	2.7	0.8	1.2	0.7	1.2
Belgium												
HICP	2.5	2.4	1.3	1.8	1.5	0.9	1.1	2.7	2.4	1.6	1.5	1.9
Estimated complete inflation	1.7	4.3	0.2	1.0	2.1	-1.7	6.7	3.4	1.6	2.5	2.1	2.0
Finland												
HICP	3.3	1.6	0.4	1.1	1.2	1.4	1.3	3.0	2.7	2.0	1.3	0.1
Estimated complete inflation	-1.8	0.3	-1.1	1.5	5.7	3.0	1.8	3.8	1.1	1.1	1.0	1.9
France												
HICP	2.2	1.7	1.8	2.1	1.3	0.7	0.6	1.8	1.8	1.9	2.2	2.3
Estimated complete inflation	0.4	2.2	1.9	1.1	1.0	0.2	2.1	3.2	1.7	2.4	2.5	3.5
Germany												
HICP	4.4	2.7	1.7	1.2	1.5	0.6	0.6	1.4	1.9	1.3	1.0	1.8
Estimated complete inflation	4.0	5.4	0.9	1.1	1.6	0.3	2.1	1.5	1.1	1.0	0.5	1.2
Greece												
HICP	14.4	10.9	8.9	7.9	5.4	4.5	2.1	2.9	3.7	3.9	3.4	3.0
Estimated complete inflation	14.1	10.7	6.5	9.7	6.3	6.0	2.7	1.2	3.9	5.3	3.8	2.4
Ireland												
HICP	1.4	2.3	2.5	2.2	1.2	2.1	2.5	5.3	4.0	4.7	4.0	2.3
Estimated complete inflation	0.4	3.3	3.4	2.8	4.0	3.5	2.9	8.5	1.8	3.6	2.7	3.1
Italy												
HICP	4.5	4.2	5.4	4.0	1.9	2.0	1.7	2.6	2.3	2.6	2.8	2.3
Estimated complete inflation	5.4	3.5	6.8	0.5	-0.1	0.6	3.9	4.6	2.0	3.1	3.2	3.2
Netherlands												
HICP	1.6	2.1	1.4	1.4	1.9	1.8	2.0	2.3	5.1	3.9	2.2	1.4
Estimated complete inflation	1.1	2.4	2.2	2.2	2.8	2.4	4.4	3.7	4.4	3.6	2.2	2.0
Portugal												
HICP	5.9	5.0	4.0	2.9	1.9	2.2	2.2	2.8	4.4	3.7	3.3	2.5
Estimated complete inflation	3.8	3.7	5.7	2.2	0.9	1.3	2.6	4.7	3.2	3.4	2.5	3.5
Spain												
HICP	4.9	4.6	4.6	3.6	1.9	1.8	2.2	3.5	2.8	3.6	3.1	3.1
Estimated complete inflation	3.3	4.5	6.0	2.0	2.2	2.1	3.1	6.3	3.1	3.4	4.1	4.0
Euro area												
HICP	3.4	2.8	2.6	2.3	1.7	1.2	1.1	2.1	2.4	2.3	2.1	2.1
Estimated complete inflation	3.1	4.0	3.0	1.5	1.5	0.9	2.8	3.4	2.0	2.5	2.4	2.7

20. Even though they have been derived with conservative assumptions, the illustrative results show that taking account of owner-occupied housing costs can have a sizeable impact on inflation measures. The “complete” inflation rate exceeded the HICP inflation rate by two-thirds of a percentage point in 2004 for the euro area. Differences are much greater at the country level as for instance in the case of France where the estimated complete inflation rate was 1.2 percentage points above HICP inflation in 2004. In Germany, the sluggishness of the housing market meant that complete inflation was only 0.5% in 2003, half the 1.0% rise recorded by the HICP.

21. This has noteworthy implications for future inflation developments. If the housing boom were to continue near its recent pace, the effects on complete inflation would be more dramatic than they were before 2004. In 2002 and 2003, the strong house price rises recorded in countries such as Ireland or Italy did not translate into massive increases of housing costs because they occurred in conjunction with sharp reductions in mortgage rates. The situation changed in 2004 when house prices kept booming while mortgage rates stabilised and this explains why the difference between HICP and complete inflation widened in 2004. In a context where mortgage rates have little room to fall further, continued house price rises would dent the value of money more. At the same time, the expectation that mortgage rates are going to remain stable or increase should induce a moderation in residential property markets – provided no speculative bubble inflates them.

22. Cross-country differences also imply that the geographic dispersion of the estimated complete inflation rate is higher than recorded by the HICP. This indicates that the adjustment of real exchange rates following the misalignments present at the inception of the euro have been proceeding more quickly than is usually thought. In this regard, it is particularly telling that, in the 1999-2004 period, the estimated complete price index for Germany added up to a cumulated (negative) difference of 3% relative to the German HICP. However, the use of the incomplete HICP (or of national price indices that are also excluding owner-occupied housing costs) for wage bargaining hampers cross-country adjustment.⁵

5. In addition to the HICP (which is mandatory under Council Regulation No 2494/95/EC of 23 October 1995), all euro area countries except Luxembourg compute specific consumer price indices (CPI). Headline national CPIs exclude owner-occupied housing costs in Belgium, France, Greece, Italy, Portugal and Spain. France, however, publishes an additional CPI that includes owner-occupied housing.

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