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The Housing Rental Rate Elasticity of Aggregate Consumption: A Panel Study for OECD Countries

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Abstract

This paper investigates the impact of changing housing rental rates upon aggregate consumption based on yearly data for 18 OECD countries observed between 1970 and 2004. Estimates of long run elasticities are derived from cointegrating relationships with panel estimation techniques and compared with estimates implicitly given in short run dynamic equations. The results across all estimation approaches yield similar magnitudes and indicate a significantly negative impact of rental rate increases upon aggregate consumption. For the EU-25 or the USA, for example, relevant elasticities lie in the range between −0.13 and −0.17. The jointly estimated elasticities of the wealth components seem unaffected, relative to previous studies, by the inclusion of the rental housing market variables.

Key Words:

Housing rental rates | aggregate consumption | panel estimation | wealth effects

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Notes

1. An extra benefit from the parsimonious specification is the possibility to estimate consumption functions also for each country separately. For the employed panel stationarity tests for example this is a prerequisite, as they are based on country specific ADF-tests.

2. Like the role of interest rates (which did not appear relevant in preliminary specification testing), the degree of financial liberalization or structural breaks.

3. The underlying non-log form (indicated by underlining variables) of the relationship, including such country specific rescaling factors b_i for comparability of rent indices across countries, would be $\underline{C}_{it} = \ldots (b_i \underline{R}_{it})^{\alpha_5 S_{it}} \ldots$ Taking logs thereof makes the renter share a country specific variable as in 1.

4. Analogous reasoning also applies to the price variables P^H_{it} and P^S_{it}, whose corresponding rescaling coefficients are also lumped together in the country-specific effect ν_i.

5. This possibility has been pointed out by a referee and would correspond to an underlying non-log formulation $\underline{C}_{it} = \ldots (b_i \underline{R}_{it})^{\alpha_7 + \alpha_5 S_{it}} \ldots$. Thus, $\alpha_7 \neq 0$ would violate the condition of a zero elasticity for zero renter share. However, as the referee argued, zero renter shares are not observed anyway. Therefore, this violation might be considered irrelevant.

6. The P-values associated with F-tests are 0.13 for the $S_{it} R_{it}$-coefficient and 0.44 for the R_{it}-coefficient.

7. See, for example Pedroni (1999) on explicit estimation of time effects versus demeaning.

8. Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Spain, Sweden, UK and USA. For lack of relevant data, other countries like Switzerland or Portugal had to be excluded.

9. The exceptions are Germany, France, UK and the USA, for which longer series are available.

10. For a detailed, country by country description of the ILO rent indices see laborsta.ilo.org

11. These prices are the inflation adjusted residential property prices from BIS calculations based on national data.

12. The seven mentioned, plus 18 country specific renter share vectors plus 32 dummy vectors to capture time effects (two years of observations are lost due to lagged variables, one year is skipped to avoid collinearity).

13. H_0: 'Chosen instruments are uncorrelated with the error term (exogenous) and, if they are excluded as regressors, they are correlated with the presumed endogenous regressors (non-redundant)'. Under H_0 the minimum value of the GMM criterion function J is χ^2 distributed with df's equal to the number of over identifying restrictions. This test is heteroskedasticity robust.

14. This is a LR test with a χ^2 distribution under H_0: Excluded instruments are redundant, (i.e. equation is under identified).

15. Defined as difference in J-values of the models with and without this additional moment restriction. Under the H_0 of exogeneity, this difference is again χ^2 distributed.

16. Contrastingly, the same test yields p-values < 0.007 for the suspected endogenous variables, justifying their instrumentation. This does not hold for share prices, for which exogeneity is indicated at a confidence level of 0.18. Nevertheless, for a symmetric treatment of house prices and share prices, it was instrumented.

17. The maximum lag length considered for these tests was nine and the choice of the actual lag length was based on the Schwartz-Bayes information criterion. Of the original 24–34 observations, therefore, only 15–25 could be used for testing.

18. Additional testing for cointegration was carried out based on the bounds approach of Pesaran et al. (2001). Given the evidence from the unit-root tests, this approach would be more appropriate particularly for specifications A and C, because it is valid also for mixtures of I(0) and I(1) variables. Due to data limitations, this type of testing could only be carried out for a maximum of three lags and specifications B and C, but the general picture emerging supports the findings above: Cointegration evidence for specification B is better than for specification C.

19. Additional estimation for specification B (without the wealth variables), for which cointegration evidence was best, lead to significantly negative rental rates elasticities in the −0.35 range (depending on the subsample used).

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