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Role of Government Public Housing Loan in House-Price Dynamics in Japanese Prefectures

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Abstract

This paper explores the relationship between homeowner borrowing patterns from the government public housing loan corporation (GHLC) and house-price dynamics by estimating serial correlation and mean reversion coefficients from a panel data of 46 prefectures for 1980 to 2004 in Japan. Our principal finding is that in prefectures where a greater fraction of homeowners are highly leveraged from GHLC –i.e. have high GHLC loan-to-value ratios (= low non-GHLC loan-to-value ratio) – housing prices react less sensitively to prefecture-specific shocks. That is to say, the fitted values for mean reversion and serial correlation in all prefectures with high GHLC loan-to-value ratio lie in the convergent non-oscillatory ranges. In contrast, the fitted values for mean reversion and serial correlation in all prefectures with high non-GHLC loan-to-value ratio (= low GHLC loan-to-value ratio) (ex. Tokyo, Osaka) lie in the convergent, but oscillatory ranges. Real user costs (we used in the estimation) which capture the cost of homeownership consist of the weighted average of real mortgage rates, the effective property tax rate and the expected rate of real house price inflation. The weighted average of real mortgage rates consist of the multiplication of the GHLC borrowing interest rate by the share of GHLC loans and the multiplication of the non-GHLC interest rate by the share of non-GHLC loans. We assume the non-GHLC loan interest rate is equal to the individual's opportunity cost of capital. This finding suggests the GHLC's low subsidized interest rate policy has contributed to stabilize movements of real estate prices in Japan.

Key Words: House price dynamics, Loan to Value ratio, Panel data, Serial correlation, Mean reversion, GHLC, Japan

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