Available online at www.sciencedirect.com
ScienceDirect
Japan and the World Economy
18 (2006) 358–377
Japan and the WORLD ECONOMY
www.elsevier.com/locate/econbase

Do borrowing constraints matter? An analysis of why the permanent income hypothesis does not apply in Japan

Miki Kohara [a,*], Charles Yuji Horioka [b]

[a] *Osaka School of International Public Policy, 1–31 Machikaneyama, Toyonaka, Osaka 560-0043, Japan*
[b] *Institute of Social and Economic Research, Osaka University, 6-1, Mihogaoka, Ibaraki, Osaka 567-0047, Japan*

Received 30 November 2005; received in revised form 31 March 2006; accepted 24 April 2006

Abstract

We use micro data on young married households from the Japanese Panel Survey of Consumers in order to analyze the importance of borrowing constraints in Japan. We find (1) that 8–15 percent of young married Japanese households are borrowing-constrained, (2) that household assets and the husband's educational attainment are the most important determinants of whether or not a household is borrowing-constrained, and (3) that the Euler equation implication is rejected for both the full sample and for the subsample of unconstrained households. These results suggest that the life cycle/permanent income hypothesis does not apply in Japan and that the presence of borrowing constraints is not the main reason why it does not apply.

JEL classification: D1; D9; E2; G1

Keywords: Borrowing constraints; Liquidity constraints; Consumption; Life cycle/permanent income hypothesis; Permanent income hypothesis; Euler equation; Households; Japan

1. Introduction

If the life cycle/permanent income hypothesis (hereafter LCPIH) holds, changes in consumption should not be sensitive to changes in expected income. On the other hand, if this hypothesis does not hold (for example, because households are borrowing-constrained), changes in consumption will be sensitive to changes in expected income. Thus, a commonly used test of

* Corresponding author. Tel.: +81 6 6851 5622.
E-mail address: kohara@osipp.osaka-u.ac.jp (M. Kohara).

0922-1425/$ – see front matter
doi:10.1016/j.japwor.2006.04.002

the validity of the LCPIH is to estimate an Euler equation to see whether changes in consumption are sensitive to changes in expected income.

If the LCPIH does not hold and the reason is the existence of borrowing constraints, we would expect changes in consumption to be sensitive to changes in expected income in the case of borrowing-constrained households but not in the case of unconstrained households. In this paper, we use micro data on young married households from the Japanese Panel Survey of Consumers, conducted by the Institute for Research on Household Economics, to shed light on (1) the prevalence of borrowing constraints in Japan, (2) what households are borrowing-constrained in Japan, (3) whether the LCPIH holds in Japan, and (4) whether the presence of borrowing constraints is the reason why the LCPIH does not hold in Japan.

To summarize our main findings, we find (1) that 8–15 percent of young married Japanese households are borrowing-constrained, (2) that household assets and the husband's educational attainment are the most important determinants of whether or not a household is borrowing-constrained, and (3) that the Euler equation implication is rejected for both the full sample and for the subsample of unconstrained households. These results suggest that the LCPIH does not apply in Japan and that the presence of borrowing constraints is not the main reason why it does not apply.

The paper is organized as follows: in Section 2, we present the theoretical model; in Section 3, we describe the data and analyze what households are borrowing-constrained in Japan; in Section 4, we present the results of our Euler equation tests; and Section 5 concludes.

2. The model

2.1. Consumption smoothing

Consumption smoothing behavior is characterized by the Euler equation. We summarize this, making the usual assumptions. An individual holds A_t of total assets at the beginning of period t and purchases a total of N_t of assets at (the end of) t. The individual earns a real wage of w, and spends it on the consumption of goods, c, and the purchase of assets, N. We do not consider the individual's leisure choice, and assume w is exogenous. The saving constraint faced by the consumer is described as $N_t - A_t = w_t - c_t$. The asset accumulation constraint is $A_{t+1} = N_t(1 + r_{t+1})$ where r_{t+1} is the interest rate at the beginning of period $t + 1$. All individuals face the same interest rate, live for a finite lifetime T, and leave no bequests at $T + 1$. Suppose that the individual's utility is stationary and additively separable over time and written as $E_t\{\Sigma_{k=t}^{T}(1/(1+\rho)^{k-t})u(c_k)\}$, where E_t is an expectation operator conditional on information available at t, u is a function that is increasing and concave in c_t and ρ is the rate of time preference, which is assumed to be homogeneous over individuals and time. The representative consumer's maximization problem can be written as a dynamic programming problem. Maximizing $V_t = u(c_t) + (1/(1+\rho))E_tV_{t+1}(A_{t+1}, w_{t+1})$, we obtain the first order condition for consumption: $E_t\{(\partial u_t/\partial c_t) - ((1+r_{t+1})/(1+\rho))(\partial u_{t+1}/\partial c_{t+1})\} = 0$. This is the Euler equation, implying consumption at t should be chosen so that the expected discounted gain of saving now for the future is equal to marginal utility in this period. Further assume that utility is isoelastic, $u(c_{it}) = c_{it}^{1-\gamma}/1 - \gamma$, where γ is the risk aversion parameter. Marginal utility is convex and allows for precautionary saving as a special case. If it is assumed that $\ln c_{i,t+1}$ and r_{t+1} have a joint normal distribution, the Euler equation becomes

$$E_t\Delta \ln c_{i,t+1} = \gamma^{-1}(E_t r_{t+1} - \rho) + \frac{1}{2}\gamma w_{i,t}^2. \tag{1}$$