

Does Consumption Respond to Economic Sluggishness: Some Evidence from Malaysia

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Abstract. This paper adds to the evidence on consumption behavior by incorporating economic sluggishness from the recent two financial crises using data from Malaysia 1991-2010. The finding rejects excessively volatile consumption behavior and supports a stable consumption pattern. The marginal propensity to consume 0.67 is consistent with other findings in the literature. Wealth is one of the determinants of consumption.

Keywords: Consumption, Financial Crisis, Error Correction Modelling, Fiscal Stimulus.

1. Introduction

In recent years consumption has been given much attention to stimulate growth. Consumption is one of the main drivers to the sustainability of economic growth. It contributed about 50-70% of GDP. Based on modern economic theory consumption is closely linked to lifetime income. Availability of credit allows consumption to go higher than household's income. As such, increased financial deepening and innovation is an integral part in supporting consumption by facilitating greater access to credit. Consumption is a forward-looking behavior. The life-cycle and permanent income hypotheses explain that consumption responds more to permanent changes in income and reject excessive volatile pattern in consumption. However a controversy has developed over the issue as evidence on visible response of consumption to the decline in income has been found (Gordon, 2012 and Flavin, 1981).

Accordingly, the Asian financial crisis 1997-1998 and the global financial crisis 2007-2008 may have adverse impact on consumption. Countries suffered continuous currency depreciation, stock markets crash, banking crisis, company's bankruptcy and retrenchment of workers. Although almost all Asian economies were affected by the crises but the magnitude differs across the countries. It is the concern of this paper to study the effect of these crises on household consumption. Specifically, this paper examines the dynamic link of consumption-income relationship in Malaysia and explores whether consumption in Malaysia is adversely affected by the two financial crises. It also analyzes whether consumption responds strongly to changes in actual income or behaves in a smoother pattern. The study helps policymakers to understand better the behavior of household consumption in Malaysia. It offers the estimate of multiplier effect from the estimated marginal propensity to consume. This is crucial for an effective fiscal stimulus program and macroeconomic management. Moreover, up to present time, research on consumption behavior in Malaysia is scanty and this serves as a strong motivational drive of this study.

The rest of this paper is organized as follows. Section 2 discusses literature review related to the issue of consumption. Section 3 presents the methodology of the study and the analysis of the findings is given in Section 4. Finally, Section 4 concludes the study by highlighting the key findings of this study.

2. Literature Review

Keynes in his theory explains that consumption is strongly affected by current disposable income. People consume about 80-90% from disposable income. However, the modern consumption theory of life-cycle hypothesis and permanent-income hypothesis maintain that most people favor a stable consumption. In other words, consumption is less responsive to current income but react more to income in the long run. Consumption is a stable function and does not fluctuate. Some scholars argue that in the present of liquidity constraint or unavailability of credit, consumption is strongly affected by current income and fluctuates with

changes in income. This is supported by Flavin (1981), she finds that consumption is excessively volatile as it reacts strongly to changes in income.

In the literature, many of the past studies on consumption behavior are exclusively focusing on the US economy (Holbrook and Stafford, 1971; Hall, 1978; Sargent, 1978; Balla 1979; Hall and Mishkin, 1982; Hayashi, 1982; Flavin, 1981 and 1985, Mankiw, 1981 and Zeldes 1985). Time series data are applied to the rational expectations permanent income hypothesis in the studies by Hall (1978), Sargent (1978), Flavin (1981 and 1985) and Mankiw (1981). Panel data are used in the studies of Holbrook and Stafford (1971), Bhalla (1979), Hayashi (1985), Zeldes (1985) and Altonji and Siow (1987). To cite studies in Malaysia, the recent work of Eu Chye (2009) and Ismail (2010) are considered here. In both studies, models are not tested sufficiently using the latest econometric method. Restricted by the availability of data, Eu Chye (2009) investigates private consumption behavior by analyzing the average share of private consumption in the GDP. Ismail (2010) examines the relationship between government spending and private consumption in Malaysia and concludes that government spending and private consumption are complementary to each other. Thus, in this study the empirical work on consumption behavior takes more comprehensive estimation procedures via VAR and ECM approaches and estimates with more recent data.

3. Methodology and Data

The analysis uses cointegration techniques, vector autoregressive (VAR) and error correction model (ECM). Regression involving non-stationary time series is meaningless although the good-of-fit of the model is very high. However, if the non-stationary series are cointegrated the estimates are not dubious. Cointegration implies that there always exists a linear combination of these variables that is stationary. Therefore, it is important to examine first the time series properties of the data and only when each of the series is integrated the same order, cointegration is possible. The Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests are used to test the order of integration of the series. The cointegration follows Johansen and Juselius (JJ) (1992) method. It is a multivariate cointegration analysis using a maximum likelihood estimation procedure. VAR models are estimated with unrestricted intercepts and no trends.

An error correction model can be written as

$$\Delta y_t = A_o + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + \alpha \beta' y_{t-p} + u_t$$

Where $\Gamma = \alpha \beta'$, matrices α and β are $(n \times r)$ dimension, r is the rank of matrix Γ as before. The matrix β is the long-run coefficients (cointegrating parameters) and the matrix α represents speed of adjustments to disequilibrium. The Granger-causality is explained through i) the short-run causality relationship in the differenced variables, Δy_{t-i} and ii) the long-run dynamic causal link in the long-run comovements (error correction term) of the variables, y_{t-p} (Masih and Masih, 1996).

The estimating model

$$\Delta LCon_t = B_0 + \sum_{i=1}^k \beta_1 \Delta LCon_{t-i} + \sum_{i=1}^k B_2 \Delta LYd_{t-i} + \sum_{i=1}^k B_3 \Delta LW_{t-i} + \phi CRIS9808 + \gamma ECT_{t-1} + \varepsilon_t$$

where $B_0 > 0$, $0 < B_1, B_2, B_3 < 1$, u_t is $E(u_t) = 0$, $LCon_t$ is consumption, LYd_t is disposable income (GDP minus income tax), LW_t is wealth, $CRIS9808$ is a dummy variable measuring the financial crises in 1998 and 2008, ECT is error correction term (the value must be negative for its to be stable), u_t is white-noise error term. L denotes logarithms. $LCon$ and LYd are in real terms. Stock returns are used as a proxy for wealth. The analysis spans from 1991 to 2010. Data sources are from International Monetary Fund (IMF) and Monthly Statistical Bulletin, Bank Negara Malaysia.

4. Findings

The results for unit root test using Augmented Dickey Fuller (ADF) and Phillips Perrontest suggests that all variables are integrated of order 1, $I(1)$ (Table 1). Next cointegration test is performed on the $LCon_t$, LYd_t and LW_t to determine the existence of any long-run relationship between the series. The maximum order of lags is $k=1$. The finding shows that all the series are cointegrated (Table 2). Both λ -max and trace statistics

$$\begin{array}{ccc}
 (-1.48020) & (0.68433) & (4.43219) \\
 - 0.084996 \text{ Crisis9808} & - 0.338703 \text{ ECT}_{t-1} & \\
 (-3.42491) & (2.28278) &
 \end{array}$$

R-squared = 0.830835

Adj. R-squared = 0.760350

Jarque-Bera = 1.177804 (0.554936)

Breusch-Godfrey LM Test $F(4,8) = 0.568768$ (0.6929)

Heteroskedasticity ARCH Test $F(1,15) = 0.003661$ (0.9526)

5. Conclusion

This paper examines the behavior of household consumption in Malaysia using data from 1991-2010. In particular, it analyzes whether households are excessively sensitive to changes in income and the financial crises in 1998 and 2008 or in short economic sluggishness. The findings reveal that household consumption in Malaysia remains relatively stable over the past years. Households are more responsive to income in the long-run and less to current income. In general, people tend to smooth out any change in income. Wealth is one of the factors that affect consumption but the effect is relatively low. This finding suggests that any fiscal policy stimulus such as cash payments or income tax refunds to the people must be made large for it to have significant effect on the economy. Since there is tendency that people may not be spending the payments on goods and services instead for paying debt or saved, money payment using voucher that link to specific purchases is another way to do. The recent money payment to the lower-income group is a right move to increase domestic spending. This is because lower-income group's mpc is higher than high-income group. Therefore, the government should also consider extending the money to the middle-income group based on their ability to consume.

6. References (This is “Header 1” style)

- [1] A. P. Jonathan, S. S. Nicholas, S. J. David and M. Robert. Consumer spending and the economic stimulus payments of 2008. *NBER Working Paper 16684*, 2011. National Bureau of Economic Research, Inc.
- [2] F. Hayashi. The permanent income hypothesis and consumption durability: analysis based on Japanese panel data. *The Quarterly Journal of Economics*. 1985, November: 1083-13.
- [3] J. G Altonji and A. Siow. Testing the response of consumption to income changes with (noisy) panel data. *The Quarterly Journal of Economics*. 1987, 102(2):293-328.
- [4] M. A. Flavin The adjustment of consumption to changing expectations about future income. *Journal of Political Economy*. 1981, **LXXXIX**: 974-1009.
- [5] M. A. Flavin. Excess sensitivity of consumption to current income: liquidity constraints or myopia? *Canadian Journal of Economics*. 1985, XVIII (February): 117-36.
- [6] N. A. Ismail. Does government spending crowd out private consumption in Malaysia. *Jurnal Kemanusiaan*. 2010, 16.
- [7] N. G. Mankiw. The permanent income hypothesis and the real interest rate. *Economics Letters*. 1981, **VII**: 307-11.
- [8] R. E. Hall. Stochastic implications of the life cycle-permanent income hypothesis: theory and evidence. *Journal of Political Economy*. 1978, **LXXXVI**: 971-87.
- [9] R. Holbrook and F. Stafford. The propensity to consume separate types of income: a generalized permanent income hypothesis. *Econometrica*, 1971, **XXXIX** (January): 1-22.
- [10] R. J. Gordon. *Macroeconomics*. Pearson, 2012.
- [11] R. Masih, and A. M. M. Masih. Macroeconomic activity dynamics and granger causality: New evidence from small developing economy based on a vector error correction modeling analysis. *Economic Modelling*. 1996, 13: 407-426.
- [12] R.E Hall and F. S. Mishkin. The sensitivity of consumption to transitory income: estimates from panel data on households. *Econometrica*. 1982, March: 261-81.
- [13] S. S. Bhalla. Measurement errors and the permanent income hypothesis: evidence from rural india. *American Economic Review*. 1979, **LXIX** (June):195-207.

- [14] S. Zeldes. Consumption and liquidity constraints: an empirical investigation. Working Paper No. 24-85, 1985. Wharton School, University of Pennsylvania.
- [15] T. Eu Chye. Private consumer expenditure in Malaysia: theories and evidence. *International Journal of Applied Business and Economic Research*. 2009, **7** (2): 107-120.
- [16] T. J. Sargent. Rational expectations, econometric exogeneity and consumption. 1978, **LXXXVI**: 673-700.