

# Comments on “Household credit, growth and inequality in Malaysia: does the type of credit matter?”

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## Summary

The paper provides an empirical assessment of alternative household credit policy measures (ie housing vs consumption credit) which have been put in place by the Malaysian government since 1997. Malaysia's household debt as a percentage of GDP has doubled from 43% to 89% since 1997. During the past two decades, there has been a gradual shift away from consumption credit towards housing credit. The share of housing credit as a proportion of the total banking system's household loans has increased from 36% in 1997 to 51% in the first quarter of 2016.

Using both macro data and unique micro-level household survey data, the authors examined the impact of housing credit and consumption credit on income growth and income inequality.

## Empirical strategy

In the macro analysis, the base model is built upon a growth model specified in equation (4) of the paper, such that

$$\bar{y}_t = \beta_0 + \beta_1(HoC_t) + \beta_2(CoC_t) + \beta_3(X_t) + \varepsilon_t,$$

and an income inequality model specified in equation (7) of the paper, such that

$$w_{t,t+4} = \beta_0 + \beta_1(HoC_t) + \beta_2(CoC_t) + \beta_3(X_t) + \varepsilon_t,$$

and the covariates  $X_t$  include the savings-to-GDP ratio, the dependency ratio, openness to trade, log GDP per capita, external shocks (such as crisis dummies), a time fixed effect and a measure of housing wealth.

In the micro-level analysis, the authors merged the 2014 Household Income and Expenditure Survey (HIES) with the 2009 HIES according to three common variables, including 15 states, four levels of education and nine age groups for the head of household.

For each respective group, the authors computed the median and mean of disposable income, and then constructed the two key variables: *growth* and *inequality*. Income growth measures the change in median household disposable income between 2009 and 2014, and the change in income inequality measures the change in mean and median disposable income gap between 2009 and 2014.

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The authors then estimated the base income growth/inequality models as specified in equations (6) and (8) of the paper, such that

$$y_{i_{09},i_{14}} = \beta_0 + \beta_1(PHL_{i_{09}}) + \beta_2(PCL_{i_{09}}) + \beta_3(V_i) + \varepsilon_i$$

$$w_{i_{09},i_{14}} = \beta_0 + \beta_1(PHL_{i_{09}}) + \beta_2(PCL_{i_{09}}) + \beta_3(V_i) + \varepsilon_i.$$

## Key empirical findings

The study found that housing credit is positively associated with future income growth, while consumption credit shows no significant evidence. The paper suggested at the macro level that financial inclusion which improves the access to housing credit for more households would likely reduce income inequality.

The household survey data suggested that the accumulation of housing credit for existing borrowers may worsen income inequality given the likely concentration of housing wealth among richer households.

## Main takeaways

The authors suggested that housing credit would affect not only households' current balance sheet position, but also their future flow of income and wealth depending on asset price movements. In other words, housing is treated as an investment good, hence housing credit acts to provide stimulus to increase investment. However, consumption credit such as personal and passenger vehicle loans, while facilitating households' current expenditure more directly, has less of an influence and impact on asset accumulation.

## Comments

### Macro analysis

Given that the housing sectors (both real and housing finance) are of key interest in this analysis, the measurement of income growth is essential as it may reflect the housing boom during the sampling period. As reported in Table 2, housing net disbursement (as a percentage of GDP) has a point estimate of 0.715 and is highly significant ( $p$ -value 0.004). Nevertheless, in Table 3, after controlling for housing wealth, the point estimate for housing net disbursement drops to 0.263 and is now only marginally significant ( $p$ -value 0.045).

A more sophisticated modeling strategy is warranted here to account for potential endogeneity, for example, interaction between income growth, housing wealth, household credit, and income inequality.

The author can follow the existing literature to improve the model such that the new analysis will account for the interaction between income growth, housing wealth and household credit. For example, in the seminal paper by Case, Quigley, and Shiller (2005), it was reported and widely observed that changes in stock prices are associated with changes in national consumption. There is every reason to expect that changes in housing wealth exert effects upon household behavior that are quite

analogous to those found for stock market wealth. Case, Quigley, and Shiller (2005) found that a 10 percent increase in housing wealth increases consumption by roughly 1.1 percent for the international panel. Using an error correction model analysis, they found that the immediate effect of a 10 percent increase in housing wealth is an increase in consumption of 1 percent for the panel of western countries. Absent a second shock, the effect of the 10 percent increase in housing wealth is reduced to 0.3 percent after four quarters and to 0.2 percent after 10 quarters.

### Micro-level analysis

The findings on income inequality reported by the authors are less straightforward. Figure 6 of the paper suggested that housing credit as a share of GDP may increase either through a large proportion of poorer households obtaining a housing loan, which may narrow income inequality, or a bigger proportion of loans being distributed among wealthier households, which may lead to an increase in income inequality. There can be a third channel such that when housing price growth outpaces income growth, there will be a widening in income inequality as the burden of housing affordability will tend to disproportionately impact poorer households, affecting them more severely due to income constraints.

It would be useful, revealing and also very interesting for the authors to tabulate the distribution (ie, report the median, as well as the 10th, 25th, 50th, 75th and 90th percentiles) of key variables of the HIES 2009 and 2014, such as income, property value and size, consumption, saving, non-housing (stock/bond), investment, outstanding balance of mortgages, mortgage payment-to-income ratio, other household debt, total debt-to-income ratio, as well as the conditional distribution of the above by income, age, and education cohorts.

By comparing the changes of the distributions between 2009 and 2014, as well as the changes of the distributions by income, age, and education groups during this period, such tables of distribution can provide rich and meaningful information.

Campbell and Cocco (2007), in their highly influential paper which used UK data on individual households, found a statistically significant impact of housing prices on consumption among older homeowners, but no significant impact among young renters.

### More general comments

The simple comparison of changes in the raw distribution as suggested above might provide us with some useful insights on how, through the varying channels, structures, and mechanisms, different credit policy measures may come to impact income growth and income inequality.

As a follow-through, in a second stage, the authors could then test the hypothesis observed from these tabulations of income/wealth/debt using the current growth model.

This would allow the authors to extend the current modeling framework by more carefully addressing the endogeneity issues as well as testing for behaviors which are peculiar to each of the policy target groups. It would also allow the authors to disentangle income growth from the housing boom effect, as discussed in the

previous section, through a careful natural experimental design of the micro-level sample, through different income distributions or by age cohorts.

In addition to the analysis based on the merged sample, by cohorts, of three common identifiers, the author may also consider leveraging on the richness of the unmerged raw sample, by exploring the longitudinal time varying information among the households in the sample (see Deng, Quigley, and Van Order (2000) for an example of modeling household/loan level longitudinal analysis).

Moreover, as the size of housing credit is typically much larger compared to that of consumption credit, it would be useful to rescale these two credit variables in the sample, so that the process of estimation could be made less strenuous and more manageable. Interpretations of the estimation analyses would also be more meaningful.

## References

Campbell, J Y and J F Cocco (2007): "How do house prices affect consumption? Evidence from micro data", *Journal of Monetary Economics*, vol 54, no 3, pp 591-621.

Case, K E, J M Quigley and R J Shiller (2005): "Comparing wealth effects: the stock market versus the housing market", *B.E. Journal of Macroeconomics*, vol 5, issue 1, pp 1-34.

Deng, Y, J M Quigley and R Van Order (2000): "Mortgage terminations, heterogeneity and the exercise of mortgage options", *Econometrica*, vol 68, no 2, pp 275-307.