**Measuring Housing Affordability In An Emerging Market: The Lifetime Income Approach**

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**ABSTRACT**

The problem of housing affordability is a phenomenon that affects both developed and developing countries across the world. Researchers have tried to operationalize measures of housing affordability, resulting in measures such as the median multiple approach, the expenditure-to-income ratio and the residual income approach. Using the lifetime income approach developed by Abeysinghe and Gu (2011), we track and analyze housing affordability in Malaysia at various household income percentiles from 1995 to 2014. We do this via the computation of the Housing Affordability Index and the Mortgage Affordability Index, with the latter based on the intergenerational transfers literature relevant in the Malaysian context. The results show that households at the 25th income percentile cannot afford any of the four dwelling types in Malaysia. For the 40th income percentile and those households at median income levels, high-rise and terrace housing are affordable. However, we document significant downward trends in the housing affordability index and the mortgage affordability index starting in 2009, which indicates increasing housing stress for households at or below the median income. Based on the results, we contribute to the literature on housing affordability by suggesting general proposals to ameliorate the housing affordability problem in the context of a developing country such as Malaysia.

**Keywords:** Housing affordability, lifetime income, Malaysia real estate, intergenerational transfers

1. **Introduction**

Providing affordable housing has been one of the primary concerns for many countries, as shelter is a basic necessity for the well-being of society. In Malaysia, housing affordability has continued to pose a significant challenge for the government as 1.7 million households, which constitutes 25 percent of the population, have yet to own a home as of September 2013 (The Star 2013a).

In addressing this challenge, the government has in recent years begun to pursue an aggressive social housing agenda. Specific targeted government measures include (i) the formation of a National Housing Council (NHC) with the explicit objective of developing appropriate actionable plans for the provision of housing priced between RM150,000 and RM450,000;\textsuperscript{1} (ii) the creation of 1Malaysia People’s Housing Program (PR1MA) with the mission of planning, developing, constructing, and maintaining high-quality housing that meets the expectations of the middle-income group in urban areas; (iii) introducing a My First Home Scheme (a home financing program) for young singles and young couples earning less than RM5,000 and RM10,000,

\textsuperscript{1} At time of writing, the Malaysian ringgit to US dollar exchange rate is RM4.23/USD.
respectively; and (iv) providing developers with a RM30,000 subsidy per unit of low-cost and medium-cost housing built, priced at a maximum of RM45,000 and RM170,000, respectively (The Star 2013b).

Despite these efforts, house prices have continued to climb, recording an average increase of 9.2 percent over the 2010 – 2015 period. This increase is almost three times the growth from 2000 to 2009, which was 3.4 percent (Cheah et al. 2016). This continuous, steep ascent in house prices has also occurred without a structural break since mid-2009, implying the formation of a housing bubble (Yip, Wong and Woo 2016). Moreover, increases in household income have lagged behind house price increases, thus aggravating the housing affordability conundrum (Lee and Lye 2014; The Star 2014). Formally, the median house price in Malaysia was 4.4 times the median annual household income, making the housing market “seriously unaffordable” compared to global standards (Khazanah, 2015).

When assessing housing affordability, policy makers and researchers have primarily relied on short-term measures such as the median multiple ratio which compares house price with current incomes. This can be attributed to the fact that the median multiple indicator is easy to calculate and can compare housing affordability within a country over time. However, using such an indicator provides an incomplete picture of housing affordability as it only assesses the short-term affordability whilst ignoring the long-term affordability perspective. Gans and King (2004) made a distinction between short-term and long-term affordability, arguing that these two measures lead to fundamentally different policy approaches. In particular, short-term affordability concern households who may have sufficient lifetime income for a house purchase but have short-term financing issues, while long-term affordability concern households which have insufficient lifetime incomes to pay for a house. Quigley and Raphael (2004) also expressed concern over the use of annual incomes in assessing affordability because “when housing affordability is measured by…ratios based on annual income… housing will appear to be less affordable for the very young and very old; it will appear to be more affordable to households at the peak of their lifetime income profiles” (p. 194). They further argue that since house purchases are a big expenditure for a household, any purchase decision is most likely to be made on the basis of one’s assessment of his permanent income instead of current income.

Despite the shortcomings of using annual income as a measure of housing affordability (Mayer, 1999; Bholmark and Lindquist, 2006), measures of long-term housing affordability have remained elusive partly due to data constraints (Abeyesinghe and Gu, 2011). Currently, there is no measure of long-term housing affordability in Malaysia. Therefore, this paper seeks to fill this gap by introducing the long-term housing affordability index (HAI) that involves predicting the lifetime income of households. In addition to improving current measures which primarily uses current incomes, the HAI can also be used to complement the arsenal of analytical tools used by a financial institution in assessing the eligibility of households for financing. Furthermore, we introduce a modified version of the HAI - the Mortgage Affordability Index (MAI) - which accounts for intergenerational transfers from parents to their children in facilitating early entry into the housing market. This is based on the common practice in Malaysia whereby parents pay for the 10 percent upfront down payment cost and leave the period mortgage repayment to their children (Chin, 2016). In essence, the HAI and MAI are respectively associated with the concepts of purchase affordability and repayment affordability introduced by Gan and Hill (2009).

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2 An affordable market is one with a median multiple of 3 times.
3 We envisage the use of the HAI by financial institutions in much the same way as insurers use actuarial tables to alleviate the problem of adverse selection.
We develop not only a generic long-term HAI and MAI for Malaysia but also dissect the housing supply by type of dwelling, which allows for a more in-depth view of the housing affordability problem. Analyzing long-term affordability by type of dwelling allows policy makers to develop appropriate housing strategies through the NHC by specifically targeting the supply of the housing type that provides the highest return on investment. In doing so, we analyze housing affordability not only just for the median income households, as is commonly done in the literature, but also for households earning less than the median income. This is particularly important due to the Malaysian government’s emphasis on uplifting the well-being of the households in the bottom 40 percent income group (referred to as the B40 households) (Economic Planning Unit 2015).

In addition to providing formal long-term measures of affordability, we provide several in-depth policy recommendations as possible long-term solutions that could ameliorate the housing affordability conundrum plaguing Malaysia.

2. Literature Review

Several measures of housing affordability have been used in the extant literature. Much of the extant literature uses the price-income ratio approach in defining the interactions between housing costs and household incomes (Paris 2007) with the median disposable household income of the sample population commonly used as the income benchmark in assessing housing affordability. For example, the median house price to the median household income approach developed by Demographia International Housing Affordability Survey assumes that a median multiple of 3.0 or less would be indicative of an affordable housing situation. The advantages of this median multiple approach are that apart from its ease of calculation and comprehension, it provides a general macro view of the housing market and allows for a cross-sectional comparison across countries and trend analysis within a country. However, this approach ignores the role of borrowing and the distribution of household income and house prices, which allows housing affordability to be separated into purchase affordability and repayment affordability.

While the price-to-income indicator measures access to housing purchase affordability, the housing mortgage-income ratio (expenditure-to-income ratio) measures affordability after the household owns a home (Chen, Hao and Stephens 2010). This measure is thus related to mortgage repayment affordability. Ideally, the rule of thumb for this mortgage-income ratio measure is that not more than 30-35 percent of one’s monthly income should be spent on monthly mortgage repayments. Those paying above 50 percent of their income for housing are categorized as having severe cost burdens (Bogdon and Can 1997). The advantage of the mortgage-income ratio approach is its simplicity, which makes it a standard tool to measure housing affordability (Tan 2013) (e.g., the U.S. Department of Housing and Urban Development uses this approach). However, the disadvantage of this measure stems from its rigid imposition of the 30 percent threshold. Maintaining this rigidity would mean that either non-housing expenditures must decrease as income falls (Stone 2006) or the ratio must decrease accordingly (Hulchanski (1995); Thalmann 1999). Using such a fixed measure to determine housing affordability is also conceptually flawed, as it fails to account for household preferences, changes in quality and housing costs due to neighborhood quality differences and accessibility premiums (Bogdon and Can 1997). In addition, the accuracy of cross-country comparisons using this ratio could be influenced by cost of living differences and the structure of mortgage repayments across countries (Cheah and Almeida 2016).
Notwithstanding the above, both the price-income and mortgage-income approaches have been criticized as inequitable because higher income households will enjoy greater disposable income (Whitehead 1991).

Stone (1993) postulates that housing costs become an issue only when the residual income after the housing expenditure fails to support socially acceptable non-housing expenditures. Stone (2006) proposed the residual income approach, which relies on the identification of non-housing expenditures, the leverage effect, how taxes are derived, and household spending patterns. The residual available for housing reflects the difference between disposable income and the cost of achieving a minimal standard of non-housing consumption. If a household’s actual housing cost payments exceed the income necessary to support its minimal non-housing consumption, the household is then categorized as shelter poor. Despite this measure better reflecting the ability of households to purchase a house (Cheah and Almeida 2016), there is a lack of consensus as to what the optimum level of non-housing expenditures is (Bogdon and Can 1997) and what level of housing expenditure is deemed socially acceptable (Chen, Hao and Stephens 2010), as normative judgements of what households can afford are inherently tied to the judgments concerning the minimum income requirements for non-housing expenditures (Bramley 1994).

Much of the literature has largely focused on ratio calculations with their emphasis on current income. Quigley and Raphael (2004) argue that the choice of housing involves substantial transaction costs. The choice of housing is interrelated with decisions concerning the proximity of schools, the location of neighborhoods, the provision of public amenities, and the availability of natural surroundings. Thus, housing choice is likely to be determined by households’ self-assessment of permanent income rather than current income. Therefore, other studies have subsequently proposed using lifetime income instead of current income (Böhlmark and Lindquist 2006; Goodman and Kawai 1982). The ideal assessment of long-term affordability would be a comparison of house prices, a static point-in-time variable, to lifetime income (wealth), a similar static-in-point time variable. As mortgage payments are time-varying, the ideal comparison would be against permanent income, which is also time-varying. In this paper, we extend the work of Abeysinghe and Gu (2011) and compute a Malaysian HAI. We also modify this measure to compute a Malaysian mortgage affordability index (MAI), which accounts for intergenerational transfers unique in the Malaysian context.

3. Methodology

We follow the methodology of Abeysinghe and Gu (2011) in computing the Malaysian HAI, as will be illustrated in this section. In essence, the HAI requires the lifetime income of Malaysian households and the Malaysian house prices as the two inputs in its calculations. Data on the latter is directly obtained from Malaysia’s National Property Information Centre (NAPIC), while data on the former requires prediction, as detailed in the following subsection. We also modify the HAI to introduce the Malaysian MAI to recognize the role of the intergenerational transfers that help to ease the house buying process in Malaysia.

Predicting Lifetime Income

The crux of computing the Malaysian HAI lies in predicting the lifetime income of Malaysian households according to the year of birth of the head of household. Obtaining these forecasts essentially comprises two steps. First, the annual incomes of households as their heads of household age from 30 to 60 have to be predicted using a panel regression model. Second,
using an appropriate discount rate, these annual incomes are summed together with the households’ estimated accumulated savings to obtain their lifetime income. To accomplish this calculation, Malaysian household income data by age groups were obtained.

Household income data by age groups were obtained from the Department of Statistics Malaysia (DOSM). These data and statistics were derived from the Household Income and Basic Amenities Surveys conducted by the DOSM from 1995 to 2014. Specifically, the incomes obtained were monthly income levels at the 25th, 40th, 50th and 75th percentiles. However, as the survey is not conducted on an annual basis, the household income data were only available for the following nine survey years: 1995, 1997, 1999, 2002, 2004, 2007, 2009, 2012 and 2014.

The data collected constitutes a pseudo-panel (Deaton 1985), whereby in each of the survey years, the cross-sectional survey includes a different set of randomly selected households. Therefore, the same household is not tracked over time, making it impossible to establish a proper panel dataset that would have been ideal in predicting lifetime incomes. Instead, we use the dataset to track the age-income profile of cohorts defined by the year of birth. However, as with Abeyesinghe and Gu (2011), the difficulty is that the data does not provide a complete income profile from ages 20 to 64 for every birth cohort. In other words, the data only allow for a partial tracking of the age-income profile of cohorts range. To overcome this limitation, we estimate a panel regression model to predict the missing income points to obtain complete age-income profiles for each cohort.

To increase the number of observations available in our dataset for the panel estimation, we obtained the monthly household incomes of the nine age groups for the missing survey years using interpolation via the cubic spline. Thus, we are able to obtain smoothed values of monthly household incomes for the years that the DOSM did not conduct the survey. We then arranged the data in a panel format and estimated the following regression model of Abeyesinghe and Gu (2011) to subsequently generate a complete age-income profile for each cohort in our sample:

\[
\log Y_{it} = \beta_0 + \beta_1 Age_{it} + \beta_2 Age_{it}^2 + \sum_{j=1}^{13} \alpha_j Cohort_j + \epsilon_{it}
\]

where \(i = 1, 2, \ldots, 9\) (representing the nine age groups in our sample), \(t = 1, 2, \ldots, 20\) (representing the twenty years from 1995 to 2014 in our sample), and \(j = 1, 2, \ldots, 13\) (representing the thirteen birth cohorts present in our sample). The variable \(Y\) refers to real monthly incomes while the \(Age\) variable records the age of the head of household corresponding to age group \(i\) in time period \(t\). The \(Cohort\) variables are dummy variables representing the various birth cohorts present in our sample. Equation (1) recognizes that there are many cohorts alive in any particular year and subsequently allows for the life-cycle component and cohort effects on income to be separated.

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5Household income is defined as the overall income accrued by household members, whether in cash or in kind, received repeatedly in the reference period. The four sources of income that can be accrued by households are income from paid employment, self-employment, income from property and investments, and current transfers received.

6The age groups in the dataset refer to the 9 five-year interval age groups, ranging from 20 to 64 years, to which a head of household belongs. The head of household is defined as any member, whether male or female, who is considered to be head of the household by other members. The head of household must be an income recipient and aged 15 years or over.

7Birth cohorts in our data are represented as 5 year intervals ranging from 1931 to 1995. For example, a birth cohort denoted by C61-65 refers to the sample group whose head of household was born between 1961 and 1965.

8CPI = 100 for base year 2010.

9Birth cohorts are in reference to the heads of the households.

10The life-cycle component effect on income refers to changes in income due to changes in age, while the cohort effects on income refers to changes in income resulting from “changing education and economic opportunities and other factors” (Abeyesinghe and Gu, 2011; pp. 1880) that arise over the passage of time.
After estimating equation (1), the coefficient estimates were then used to predict the annual incomes of Malaysian households as their heads of household ages from 20 to 64 years for each of the birth cohorts present in our sample. This method provides us with a complete age-income profile for each of the birth cohorts. The lifetime income for each birth cohort is then computed as per Abeysinghe and Gu (2011):

\[ W_{a,j} = \sum_{i=a}^{A} \frac{\hat{Y}_i}{(1+r)^{i-a}} + TS_{a-1} \]  

(2)

where \( W_{a,j} \) denotes the expected lifetime income for a household whose head of household is of age \( a \) and born in birth cohort \( j \), \( \hat{Y}_i \) denotes the predicted annual household income when the head of household is of age \( i \), and \( r \) is the discount rate. The first term in equation (2) represents the discounted present value of the expected household income when the head of household ages from age \( a \) to \( A \). In this paper, we set \( a = 30 \) and \( A = 60 \), as 30 years is the recommended age for a Malaysian household to consider purchasing a property (Rangel et al. 2017), while 60 years is the retirement age for a Malaysian worker. We also set \( r = 0.085 \), the average lending rate of commercial banks during the observation period. The second term in equation (2), \( TS_{a-1} \), represents the total savings accumulated by the household when the head of household is of age \( a - 1 \). Specifically, since \( a = 30 \), the second term (i.e., \( TS_{29} \)) represents the total savings accumulated by a household when the head of household is 29 years old. Assuming that one starts saving at the age of 25 in the Malaysian context, \( TS_{29} \) is defined as

\[ TS_{29} = \sum_{i=25}^{29} (1 + r_s)^{29-i} S_i \]  

(3)

where \( r_s \) denotes the interest rate for savings and \( S_i \) denotes the amount of household savings when the head of household is of age \( i \). Essentially, \( TS_{29} \) in equation (3) is the sum of annual household savings as the head of household ages from 25 to 29 years, with annual interest earnings accounted for. The amount of annual savings for households, \( S_i \), is estimated as \( S_i = \hat{Y}_i s_i \), where \( \hat{Y}_i \) is the predicted household income when the head of household is of age \( i \) (obtained from equation (1)) and \( s_i \) is the savings rate for \( i = 25, 26, ..., 29 \).

Given that the birth cohorts in equation (1) are five-year intervals, the lifetime income values obtained through equation (2) are also a time series at five-year intervals corresponding to the thirteen birth cohorts present in our sample. By assigning the computed lifetime income values from equation (2) to the mid-year of their corresponding five-year birth cohort, we applied cubic spline interpolation to ultimately obtain a time series of lifetime income values at an annual frequency from 1933 to 1993. In other words, through the cubic spline, we augment the original set of expected lifetime incomes associated with the 13 five-year interval birth cohorts to obtain the expected lifetime incomes associated with each of the years of birth from 1933 to 1993.

**Malaysian House Prices**

We obtained the quarterly publications of Malaysia’s NAPIC, which provided data on average house prices and indices for years 2003 to 2015. Specifically, data on house prices and indices for those years were available for the four housing types in Malaysia, terrace, high-rise, semi-detached and detached housing, and for the overall average house price.\(^1\) However, for the

\(^1\)The house price index for the overall average house price is referred to as the Malaysian house price index (MHPI), which is a measure of overall house prices calculated as the weighted average of the four sub-indices measuring the house prices for the four housing types in Malaysia.
years 1988 to 2002, the NAPIC publications reported data only on the house price indices for the overall house price and the four housing types. Nevertheless, by using these house prices indices and matching the 2015 house prices with their corresponding house price indices, it was possible to impute the average house prices for 1988 to 2002. All house prices were converted to real terms with 2010 used as the base year.

Malaysian Housing Affordability Index

Having obtained lifetime household incomes and Malaysian house prices, the Malaysian HAI for individuals aged $a$ in year $t$ is defined as

$$ HAI_{a,t} = \frac{W_{t-a}}{P_t^h} \tag{4} $$

where $W_{t-a}$ is the lifetime income expressed by the year of birth $(t-a)$, and $P_t^h$ is the average price of the housing type in year $t$. For example, since we have selected $a = 30$ in this paper, $HAI_{30,2014}$ indicates the HAI for the 30-year age group in 2014.

There are a few points to note about the HAI (Abeysinghe and Gu 2011). First, the index captures both short-run and long-run affordability, not just the latter. This is because in addition to accounting for the incomes earned after the age of 30, the index also accounts for savings accumulated before the age of 30. Therefore, even for a 30-year-old individual who has no inherited wealth, these savings will be useful for making the needed down payment in purchasing a house. Second, an increase in the index represents an improvement in housing affordability. As the reciprocal of the HAI denotes the portion of lifetime income spent on a house, an increase in the index means that a smaller portion of lifetime income is being spent on a house. Third, in this paper, we define the optimal cut-off value for the HAI to be 3. The common rule of thumb is that no more than one-third of income should be used for mortgage payments. Therefore, by applying this rule, $HAI = 1/0.33 = 3$. Any property types that have an HAI value greater than 3 are thus defined as within the affordable range.

Malaysian Mortgage Affordability Index

In recognizing the Malaysian context of intergenerational transfers whereby young homebuyers rely on financial assistance from their parents due to inadequate savings (Frankenberg, Lillard and Willis 2002; Lillard and Willis 1997), we modify the HAI to also compute a MAI given by

$$ MAI_{a,t} = \frac{W_{t-a}}{0.9(P_t^h)} \tag{5} $$

where $W_{t-a}$ is the lifetime income expressed by the year of birth $(t-a)$ and assumes that $T_{S_{a-1}} = 0$ in equation (2). The denominator denotes the mortgage amounting to 90 percent of the average price of the housing type in year $t$. In this context, we assume that a homebuyer obtains a mortgage worth 90 percent of the average price of the housing type and that the homebuyer, through intergenerational transfers or savings, have sufficient finances to make the 10 percent down payment for the house. As a result, we assume that $T_{S_{a-1}} = 0$, as any savings available at the time of purchase would have been depleted in making the down payment, and that the ability to repay the mortgage would have to solely depend on the homebuyer’s expected lifetime income after the house purchase. For the same reasons listed for the HAI, we selected $a = 30$ in equation (5) and define the affordable range for a property as one having an MAI value greater than 3.

4. Results
**Malaysian Housing Affordability Index**

Figure 1 plots the time series of the HAI from 1995 to 2014 by income percentiles for the four housing types computed for the 30-year-old age-group (i.e., \( a = 30 \), and \( t = 1995, 1996, \ldots, 2014 \) in equation (4)). The horizontal line in each of the plots in Figure 1 represents the cut-off value at 3; housing types with HAI values above this line represent affordable housing. For all income percentiles, an inverted U-shape curve can be seen for the four housing types. Housing affordability improved in the late 1990s, remained relatively stagnant in the decade after the millennium, and subsequently deteriorated after 2010. Therefore, despite government efforts put in place to address the housing affordability issue, affordability has actually worsened since 2010. In particular, the affordability for high-rise housing has taken the worst hit; its HAI has suffered the steepest decline among all housing types since 2010.

Housing affordability is bleak for the 30-year-old homebuyers at the 25th income percentile, as all housing types are considered unaffordable for them throughout the two decades. The further decline in the HAI values for all housing types after 2010 reflects further hardship for these homebuyers in affording a house. Regarding the 30-year-old homebuyers at the 40th income percentile, the higher end properties have remained out of their reach over the last two decades. While the terrace and high-rise housing units have remained affordable for them for majority of the observation period, these two housing types have become unaffordable for them in recent years. Specifically, the HAI values for terrace and high-rise housing have dropped to 2.74 and 2.46, respectively, in 2014.

The housing affordability scenario for 30-year-old homebuyers at the median income level is similar to those at the 40th income percentile; the higher end properties have remained unaffordable throughout the observation period and the high-rise housing has been unaffordable since 2014 (HAI = 2.92). The silver lining for these median income earners is that terrace housing is still within their affordable range with an HAI value of 3.26 in 2014. However, given the downward trend in the HAI for this housing type, it may not be too long before terrace housing is also considered unaffordable for the 30-year-old median income earners.

The 30-year-old homebuyers in the highest income quartile enjoy the largest buffer in terms of housing affordability with HAI values of high-rise and terrace housing averaging at more than 6 for the whole observation period. Semi-detached and detached housing are also considered affordable for them for most of the observation period with the HAI values for these two housing types averaging at approximately 3.4. However, it should be noted that detached housing has been at unaffordable levels since 2013 with the HAI value reaching 2.87 in 2013 and dropping further to 2.77 in 2014. However, the semi-detached housing, while increasingly unaffordable in recent years, is still considered marginally affordable with the HAI value dropping to 3.07 in 2014. The respective HAI values of 2.77 and 3.07 for detached and semi-detached housing in 2014 are the lowest HAI values for the observation period. In other words, these two housing types are currently at their most unaffordable levels for 30-year-old homebuyers.

**Malaysian Mortgage Affordability Index**

Due to space constraints, we do not present the results of the MAI in this paper. However, the results are fairly similar to Figure 1.

5. **Policy Implications and Proposed Recommendations**

Several policy implications can be gleaned from these results. Despite numerous measures undertaken by the Malaysian government to alleviate the housing affordability problem, especially
for low- and medium-income households, as discussed in the introduction, there has been no significant improvement in access to affordable housing among these targeted groups (Ho 2017). Although the prior literature has suggested numerous policy measures and recommendations, the majority were developed for housing markets in developed countries. Although useful to an extent, the development of recommendations in a contextual environment is also imperative to advancing our understanding of what policy recommendations can work for a developing country such as Malaysia. The clamor for workable solutions is all the more imperative when current measures are either piecemeal or lack effective implementation and coordination within different levels of government (The Star 2013c).

Figure 1: The HAI of the four housing types for the 30-year-old age group at different income percentiles

Increasing the Timeliness and Availability of Housing, Rental, and Income Data

As in many developing countries, timeliness and the availability of housing and income data is a problem. Although data collection methods have improved, they are still not comparable to the quality available to researchers in developed countries. The Malaysian government has embarked on the MyHome Exchange initiative, which will be a comprehensive database to track the completion status of ongoing housing projects and will provide a better picture of housing demand and supply in the country (Ahmad 2014). However, information on its progress and availability has been lacking for researchers. What we envisage is that rather than only tracking the status of ongoing housing developments, the database should encompass comprehensive information about existing completed housing projects with information at the transaction level that will enable the development of superior housing indices such as the S&P Corelogic Case-
Shiller Home Price Indices. In terms of timeliness, we envisage that house price indices be updated at a higher frequency. Currently, the Malaysian house price indices and average house prices are updated with at least a half-year lag. A quarterly lag frequency would improve the timeliness of data, giving house buyers valuable information when making a home purchase decision. Such frequency would be on par with house price indices updates from Singapore’s Urban Redevelopment Authority (URA).

The lifetime income measure of housing affordability requires timely household income data. Currently, the DOSM conducts household income surveys in two-year intervals. Data timeliness could be further enhanced if the survey was conducted on an annual basis. A good example would be the Household, Income, and Labor Dynamics survey (HILDA) conducted by the Melbourne Institute in Australia. The advantage of HILDA stems from the fact that it surveys the same households and individuals repeatedly on an annual basis. This type of dataset provides researchers a wealth of information and enhances their ability to engage in various streams of research focusing either on individuals within the household or the household itself. Barring any financial constraints, the Malaysian government, through its DOSM, would benefit from conducting such a survey with a quick turnaround time of the survey results. This type of survey would enable researchers interested in conducting studies on households to enhance the reliability of their research, as the longitudinal nature of such surveys ameliorates the disadvantages of using survey data that are predominantly cross-sectional in nature (Bentley et al. 2011).

The call to develop a vibrant rental market would require the development of a rental index to track the trend of rentals for the country and across states. A rental index would allow households seeking to rent to have the necessary decision-making information before committing to a rental contract. Again, the private residential rental index provided by Singapore’s URA would be a suitable example to follow.

Development of a Vibrant Rental Market

As the results have revealed that housing affordability has not improved but declined in recent years, we recommend that households whose incomes preclude them from owning a home enter the rental market rather than going through the undue stress of owning a home. In its annual report, BNM has emphasized the need for the development of a rental market for two consecutive years (2015 and 2016). However, the issue with renting is the social stigma attached to it. Renting is seen as a last resort of households as they strive to secure a high value physical asset. Many countries with severe unaffordable housing have a thriving rental market. They also tend to be developed countries. The Malaysian government should accord equal status to the rental market.

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12The Case-Shiller house price indices are developed based on data on repeat sales of single-family homes. They allow the tracking of the price trend of the same representative single-family home over time and are deemed to provide better representation of house prices trends compared to indices developed using transactional data without the identification of repeat sales.

13URA releases a flash estimate of the prior quarter’s private residential property price index on the first workday of the first week in the first month of the following quarter. It then releases the finalized index in the final week of the first month of the following quarter.

14Several studies have utilized successive annual waves of HILDA to gauge the effects of housing affordability or the lack thereof and changes in housing affordability. See Bentley, Baker and Mason (2012) and Bentley et al. (2011).

15BNM (2015) highlights the high percentage of renters in countries where housing has been unaffordable. These countries are mostly developed countries (e.g. Switzerland (56 percent renting), Germany (48 percent), and the U.S. (37 percent)).
in terms of policymaking. Households moving into the rental market can lead to a flexible workforce, which would lead to increased mobility with better career advancement prospects.

One way of developing the rental market would be the establishment of a private real estate investment trust (REIT), which would consist of both commercial and residential properties as part of its property portfolio (Phang et al. 2014). Malaysia currently has 18 listed REITs on Bursa Malaysia (Malaysia’s stock market). The property portfolios of these REITs consist exclusively of retail, industrial, and commercial properties.16 This proposal would allow federal and state government agencies and government-linked firms to be tasked with the provision of affordable housing by selling a proportion of the completed units to the residential REIT for rental purposes. The residential REIT would become an active participant in the affordable housing sector by offering rental and leaseback initiatives. Shares in the residential REIT could be sold to EPF members who would pay for the shares using their statutory contributions.17 A federal or state government-linked firm would be appointed as the REIT’s manager with the authority to impose some form of rent control structure to decouple rent increases from market forces. There are several advantages in establishing a residential REIT.

First, a residential REIT will provide further diversification of the property portfolio of its unit holders, as it will comprise of both commercial and residential properties. Malaysia’s commercial property vacancy rate is 10.8 percent, which is higher than the regional average of 6.6 percent and is deemed by BNM to be unsustainable (The Star 2017a). This is perplexing for current REIT investors, as commercial property constitutes a sizeable proportion of the property portfolio of all listed REITs. Second, a residential REIT with lower rentals will create rental take-up opportunities, especially for lower- and middle-income households. This progressive development will lead to downward pressure on rents in the private market that should reduce both foreign and local investment demand. Third, the tax-free rental income received by the residential REIT will enhance the returns received by EPF contributors. The tax regime in Malaysia states that if an REIT returns 90 percent of its total yearly income to unit holders, the REIT will be exempt from tax for that year of assessment. Income distributed to unit holders is taxed at a final withholding tax rate of 10 percent, which is an advantage for those in the high-income tax bracket.18 REITs are also exempted from paying stamp duties, which can amount to a maximum of 3 percent of the purchase price of a property. When REITs divest their properties, they are also exempted from paying real property gains tax (RPGT) where the maximum is 30 percent.

Establishment of a Single Entity to Provide Affordable Housing

The current policy of leaving the provision of affordable housing to market forces has not reduced the mismatch between demand and supply. The public-private partnership in developing affordable housing has also not borne much fruit (Abdul-Aziz and Jahn Kassim 2011; Agus 2002). The imposition of the “cross-subsidization” policy by the Malaysian government has led to developers building luxury housing in prime locations while building the mandatory low-cost housing imposed by the policy on land plots located far from the city-center, subsequently burdening low-income households as transportation costs rise. The private sector has shown little

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17The EPF is a statutory body established by an Act of Parliament to manage the contributions to the fund from private and non-pensionable public-sector employees. The EPF currently allows its members to withdraw part of their contributions to invest in mutual funds on the condition that should the investment be liquidated before a member’s retirement age, the returns of the investment and the principal will be credited back into the member’s contribution account.
18The maximum tax rate for an individual is 28 percent.
interest in alleviating the mismatch between the demand and supply of affordable housing. A major reason for this mismatch is the difference in perception between what is deemed affordable by the private sector and by the households. Based on our results, a clearer picture has emerged of what is deemed to be affordable from a lifetime income perspective. The notion that housing costing up to RM500,000 is deemed affordable from the perspective of the private sector is perplexing to say the least (The Star 2017b). Statistics have shown that less than 30 percent of new housing launched in 2015 and 2016 were priced below RM250,000 compared to 70 percent during the 2008 and 2009 (Ho 2017).

As there is little interest or effort on the part of the private sector to increase the supply of affordable housing, the idea of establishing a single entity entirely focused on affordable housing could be the way forward to alleviate the mismatch between affordable housing demand and supply. This measure has been undertaken by South Korea and Singapore through the formation of the Land and Housing Corporation and the HDB in these countries, respectively. This type of entity would coordinate efforts at all levels of government and handle the delivery of affordable housing through the initial steps of land acquisition, planning approvals, and construction and continue through to housing finance. The formation of this entity would then eliminate the need to be wholly dependent on the private sector for the provision of affordable housing. Furthermore, this entity would absorb all ongoing efforts undertaken by all levels of government to ensure a coherent and coordinated effort to increase timeliness in the delivery of affordable housing. Researchers have touted Singapore’s model as a solution for the Australian government to adopt in light of the decline in house ownership among younger Australians, which may lead to future pressures on government pension schemes given that housing equity is indirectly considered the fourth pillar of retirement savings (McLaren, Yeo and Sweet 2016).

Unlike PR1MA, which engages the private sector in partnership for actual construction, the proposed entity would instead carry out the actual construction directly. That would mean competing with the private sector for construction labor and other necessary expertise. Much of the labor supply in the construction sector in Malaysia is provided by foreign labor. The Malaysian Immigration Department reported that the number of foreign laborers employed in the construction sector has increased significantly from 68,226 in 2000 to 433,133 as of March 2013.

Competing with the private sector for construction labor would require the entity to provide (i) suitable housing for those workers complete with comfortable living amenities, (ii) competitive salaries on par or better than those offered by the private sector, (iii) long-term contracts (7-10 years) to ensure low turnover of experienced workers and arranged transport to and from the construction site, and (iv) proper medical care. A ready pool of legitimately employed foreign construction workers would also set the right example for the private sector, pressuring them to register their foreign labor and thus ameliorate the negative effects of unregistered illegal foreign labor in the country (Kong 2017).

The ease of obtaining suitable land for the construction of affordable housing needs support from all levels of government. There have been cases in which government ministries and their

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19 An initiative has been launched by the state government of Penang to build workers’ dormitories to house foreign workers. While the concept has long been practiced in neighboring Singapore, it has yet to take root on a large scale in Malaysia. Singapore’s Building and Construction Authority (BCA) conducts multiple checks per month on the dormitories. Penalties, including fines of up to SGD10,000 and 12-month jail terms, can be imposed on errant employers who do not provide acceptable housing.

20 Competitive salaries here would also mean salary increases commensurate with increases in annual inflation so as to ensure no reduction in purchasing power.

21 It is estimated that one in every two foreign workers in Malaysia is an illegal worker.
agencies have suitable parcels of land but have been reluctant to part with them (Saieed 2016). For the proposed entity to meet the social needs of affordable housing, this long-standing issue of reluctance to part with prime land needs to be resolved holistically through interventions by the upper echelons of government in a top-down directive. Indeed, the Malaysian government has recently warmed to the idea of establishing a single entity to govern the property market (Idris and Zainul 2017).

Reforming the Land Acquisition Act to Support an Affordable Housing Supply

The price of available land is a key factor affecting house prices, as the private housing developer would have procured land before construction commences. Land prices in Malaysia have increased significantly, leading to a cost pass-through to house buyers (Ong 2013). A government that seeks to increase the supply of affordable housing needs to either release land from its own landbank for affordable housing or acquire land for this specific purpose.

The government can acquire land by invoking the Land Acquisition Act. Compensation for the land will be determined by the Land Administrator. Dissatisfied landowners can seek a judicial review by submitting land valuation reports and supporting affidavits to support their claims for rightful compensation. Normally, the measure of compensation is based on the market value of the acquired land. However, the government should reform the Land Acquisition Act by tying land value to a certain date when acquiring land for public purposes. There should be no reason for private landowners to benefit from an increase in land value brought about by economic development and infrastructure financed with public funds (Lee 2006), such as the building of a new road nearby or the construction of a major transportation hub. The base valuation year can be adjusted over time using a measure of prosperity such as the gross domestic product (GDP).

The government must adopt these drastic measures to ensure that land prices do not spiral out of control. The control of land costs is all the more urgent due to recent massive public investments in transportation improvement through the scheduled construction of the East Coast Rail Line (ECRL) project, estimated to cost RM55 billion, and the Kuala Lumpur-Singapore High Speed Rail (HSR). These major investments in public transportation will surely increase the value of land adjacent to these rail lines and will indirectly increase the cost of housing through the pass-through effect.

Converting Commercial Property for Residential Use

In view of the current and impending oversupply of commercial properties in Malaysia, policies should be put in place to allow for the conversion of older commercial properties to residential use specifically targeted at affordable housing or rental housing. The vacancy rates of commercial property in Malaysia stand at 16.3 percent as of 2015, which is more than double the regional average of 6.6 percent. With a significant incoming supply of large projects, this vacancy rate would aggravate the current oversupply situation in commercial property experienced in major urban areas (BNM 2015).

In an oversupply situation, older commercial properties are at risk of losing out to newer developments and thus would either need to refurbish to compete or run the increased risk of

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22 This has been the problem plaguing PR1MA. The process of releasing land to PR1MA for the construction of affordable housing has been long and arduous. It has resulted in complaints that PR1MA is too slow in supplying affordable housing in sufficient quantities to close the mismatch between demand and supply.

23 The Land Acquisition Act of 1960 allows the government to acquire land from private landowners that is needed for public purposes or for a purpose beneficial to the economic development of Malaysia.
dilapidation and lower future rentals. Conversion to a residential property could prolong the lifespan of older commercial properties. Conversions play an essential role in the revitalization process in a neighborhood and help to alleviate the growing pressure for residential accommodation (Heath 2001). Although there are technical challenges in the conversion process, adopting conversion-friendly policies can encourage the frequency of conversions.24

6. Conclusion
This paper adopts a lifetime income approach to measure housing affordability over time and across age cohorts in Malaysia. Our definition of housing affordability is two-fold. The first definition is purchase affordability measured by the HAI; the other is repayment affordability measured by the MAI. In the MAI model, we assumed that the down payment would not be an issue for the house buyer, as inferred from the intergenerational transfers literature. The findings indicate that housing affordability had improved from the start of the sample period to 2009. However, in the aftermath of the Global Financial Crisis, housing affordability has been on a steady decline. For those in the 25th income percentile range, all dwelling types have remained unaffordable over the sample period. As such, these households are encouraged to go into the rental sector, on which the government needs to place more emphasis.

Housing affordability also declines as one moves up the value chain in terms of type of dwelling. While households at the 75th percentile can afford all dwelling types, only terraced and high-rise housing are affordable for households at the median income level and those households at the 40th income percentile for the majority of the sample period. Policy measures to encourage the construction of more of these dwelling types coupled with the reduction of the supply of detached and semi-detached dwellings would be one way to alleviate the housing affordability conundrum.

Lastly, we extensively listed general proposals to ameliorate the housing affordability problem in the contextual nature of a developing country such as Malaysia. This paper provides equal emphasis on policy measures that need to be implemented rather than merely documenting a housing affordability problem. The important test going forward would be how much effort the government of Malaysia will make in terms of manpower and finances to resolve the housing affordability problem.

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References

24There have been multiple success stories. Heath (2001) has documented evidence of successful conversions of older commercial properties in both London and Toronto. Remoy and Wilkinson (2015) have listed successful adaptive reuse of commercial properties in Sydney. There was also increased conversion activity in Tokyo after the office market collapse in 2002-2003 (Ogawa et al. 2007)


41. Rangel, GJ, JWJ Ng, TMT Murugasu, and WC Poon 2017. A micro-level view of housing affordability in Malaysia using an age cohort-housing type analysis. Bandar Sunway, Malaysia: Monash University Malaysia.


