First Home Buyers and Housing Affordability

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Abstract

Residential dwelling prices have increased greatly in recent years, to the level that many households are not able to access homeownership. Though there are government schemes, such as the First Home Owner Grant (FHOG) scheme, available to assist the first home buyers to access the homeownership, the number of FHOG applications has declined since 2012. This study investigates housing affordability and dwelling prices for first home buyers. The study uses a Granger causality procedure to test the relationship between the number of FHOG applications and dwelling prices. Quarterly data such as interest rate, dwelling prices, government schemes, etc. were included for the development of a statistical model and the analysis. The results indicate that the FHOG scheme contributes to the increased demand for dwellings. A negative correlation between the number of applicants of the first home buyers and the dwelling prices was found.

Keywords: The First Home Owner Grant, Home Ownership, Dwelling Prices, Affordability, Australia

Introduction

Many first home buyers in Australia are experiencing difficulty with affordability to purchase their own home. This is caused by the rapid increase of property prices, with first home buyers unable to accumulate sufficient funds for the initial deposit to purchase a home and service their monthly mortgage. In the early 2000s, the Australian government introduced the First Home Owner Grant (FHOG) scheme, for the purpose of improving affordability for first-home buyers. The scheme provided the first-home buyers with the opportunity to increase their initial deposit, subject to certain conditions being met. With regards to the FHOG, there are debates with the effectiveness of the scheme. For instance, Van Onselen, (2012) claimed that the FHOG helped to boost demand and push up dwelling prices; whilst others criticized the FHOG as '*doing nothing to improve affordability*' (Pickering, 2013) since the first home owners have been pushed out of property market (Stevens, 2014) because of surging dwelling prices.

The FHOG scheme was introduced nationally in Australia on the 1st July 2000. The purpose of the scheme was to provide assistance to first-home buyers who from this date would be required to pay GST on the purchase of a new residential property. The purpose of the GST regime was to provide a broad based tax system in Australia. Unfortunately though, the GST application within the real property sector placed a burden for the industry, with questions raised on the housing affordability issues. Thus the governments' response was the introduction of the FHOG. The scheme is administered by the various jurisdictions within Australia, and is generally a one-off grant, with certain conditions required to be met, for eligible first home owners.

Recently, various jurisdictions have announced changes to their FHOG, with the primary focus shifting to the grant being applicable only for new residential buildings, instead of existing residential properties. This in turn is geared towards stimulating the construction industry. Although it can be argued that this change of eligibility will place stress on the supply and demand market for new residential properties, and perhaps adversely affect property prices.

Additionally, the states and territories in Australia offer different incentives for first-home owners with regards to stamp duty and bonus amounts in addition to the FHOG. However, as a general overview, since 2000, eligible first home owners are not subject to a means test. So whilst income is not a consideration to determine eligibility, there is a capped amount placed on the purchase price of the property. For instance on the 1st January 2010, this amount was placed at $750,000 and subsequently reviewed annually; the government on the 1st January 2011 increased the capped amount to $835,000.

So whilst the government had the good intention to assist first-home buyers, many successful applicants under the FHOG did not occupy their home purchased. Some purchases stated that they could not afford to live in the home and opted to receive rental income to provide assistance towards their mortgage repayment. However, there was difficulty in monitoring the scheme. Eventually, in 2010, the capped property purchase price was introduced, together with policing the mandatory requirement of taking up occupancy of the newly purchased premises.

The research paper commences with an introduction on the dwelling price performances and affordability in Australia, followed by a discussion on the first-home owner scheme programs. The study in this research paper uses a Granger causality procedure to test the relationship between the number of FHOG applications and dwelling prices. Quarterly data such as interest rates, dwelling prices, and supply of dwellings were included for the development of a statistical model and the analysis. It is argued that the FHOG scheme contributes to the increased demand for dwellings.

Residential Price Performances and Affordability in Australia

Australian residential prices have fluctuated during the last ten years. There were significant house price booms from 1996 to 2003, 2006 to 2007, 2009 and 2013; with the price rises outperforming the price falls (Refer to Figure 1 below). This pattern was similar to previous price performances during the period 1970 to 2003 (Abelson and Chung, 2004).

The first chart for figure 1 compares the annual change in dwelling values, (all capital cities combined), over the period of 1996-2013. The second chart in figure 1 identifies the change in home values, per capital city, throughout 2013. During the years 2008 and 2011-12 the property market was affected by the global financial crisis and economic uncertainty. However, positive changes to dwelling prices over the remaining years supports the evidence of strong growth within the residential property market in Australia. In particular, Sydney registered the strongest yearly growth across the capital cities in 2013 with an annual rate of 14.5 per cent in 2013 and median house price of $665,250 (Table 1). Perth recorded 9.9 per cent with median house price of $520,000, while Melbourne prices jumped by 8.5 per cent with median house price of $563,000.

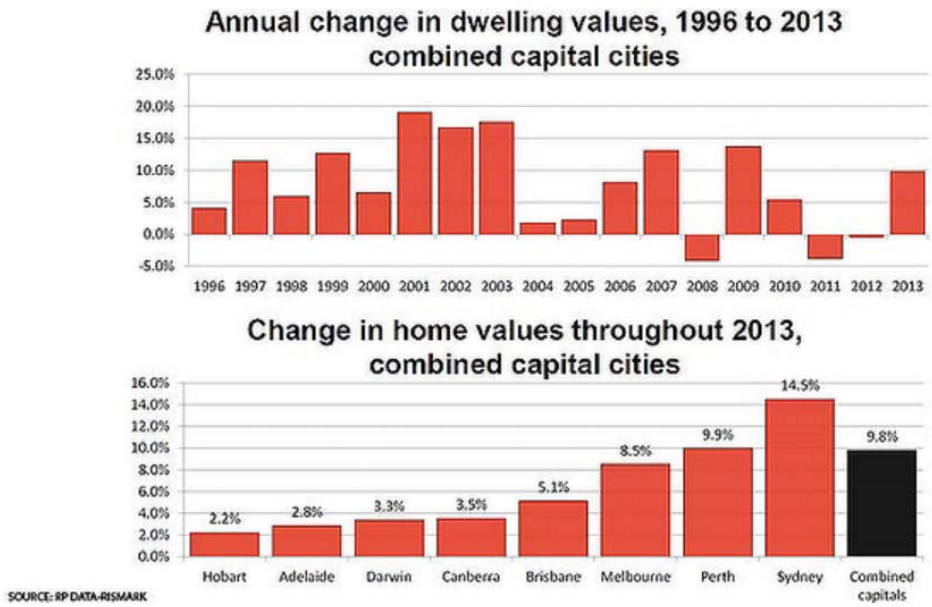


Figure 1: Residential property price performances in Australia (Source: Kwek, 2014)

The drivers attributed to the changes with dwelling prices in Australia have been studied by a number of authors. For instance, Abelson, et al. (2005) who undertook research investigating house prices in Australia from 1970 to 2003 concluded that house prices are determined significantly and positively by real disposable income. Additionally, the research also identified the consumer price index as a consideration, and the negative impact of the unemployment rate, mortgage rates, equity prices and the supply of housing stock in the long term. They also found significant lags in adjustment to equilibrium using asymmetric error correction model in the short term. Otto (2007) found economic factors explain around 40-60 per cent of the variation in the growth rate of house prices for most Australian cities.

Table 1: Median House Prices in Australia in 2013

	Rose from past year	Median House Prices In 2013
Sydney	14.5%	$ 665,250
Melbourne	8.5%	$ 563,000
Darwin	3.3%	$ 540,000
Canberra	3.5%	$ 530,000
Perth	9.9%	$ 520,000
Brisbane	5.1%	$ 445,250
Adelaide	2.8%	$ 386,000
Hobart	2.2%	$ 330,000
Capital city aggregate	9.8%	$ 540,000

The low interest rate for mortgages is identified as one of the drivers causing an increase in dwelling prices. According to Figure 2, residential secured-term interest rate lending started to drop gradually from 10.5 per cent in 1996 to 6.65 per cent on October 1999. The interest rate was increased to 8.2 per cent in January 2001 before decreasing again. In the years 2001 and 2002, the Australian economic growth slowed noticeably to 1.4 per cent GDP (ABS, 2002). This rate peaked at 10.10 per cent in August 2008 (noticeably because of the property bubble), and later decreased to address the global financial crisis. The rate has reduced again from 9 per cent in 2011 to 7.10 per cent in 2013. The low mortgage interest rate in turn, provides a low mortgage repayment. This is of benefit to the home buyer as they have the opportunity to borrow more money. Adversely, whilst this has increased the home buyer's options for housing affordability, this will also result in an underlying demand for the supply of available property. Otto (2007) found that a 25 basis point rise in the mortgage rate reduces the long-run quarterly growth rate of real house prices by about 1 per cent in Sydney compared with only 0.4 per cent in Adelaide.

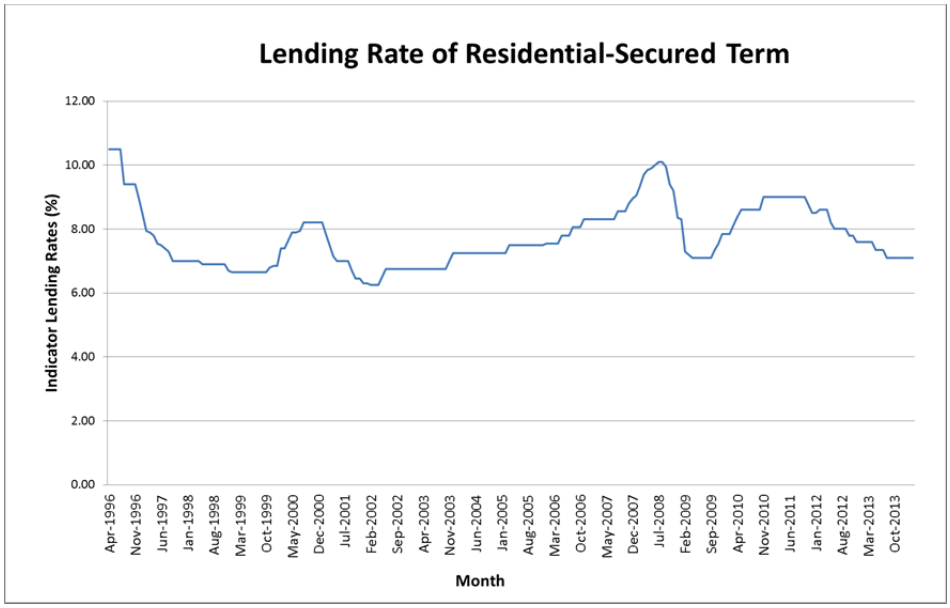


Figure 2: Australian Residential-Secured Term Lending Rate Indicator (Source: RBA)

In Australia, migrants have been an important source of population growth. In recent years, around 200,000 new migrants are granted permission to live in Australia (ABS) which adds pressures to the existing dwelling markets. Potepan (1994) suggested that a higher level of current population growth tends to raise current housing prices through the expectation that higher future population levels will cause higher future housing demand, and that migration influences house price and vice versa.

The change of household income is a contributing factor that impacts on dwelling prices. According to ABS (4102), gross household disposal income per capita reached $42,400 in 2012 in Australia. Muth (1960) suggested that housing demand is highly responsive to changes in income. Real income was a single most important determinant of real house prices (Holly and Jones, 1997).

There are limited amounts of dwelling supply each year. Around 155,000 new dwellings, i.e., 1.5 to 2.5 per cent adds to the total housing stock and only about 4 to 6 per cent of dwelling is turned over in the market each year (ABS, 41020). Therefore, an excess demand for dwellings over supply contributes to the increase of dwelling prices in Australia. McLaughlin (2012) investigated the magnitude of new housing supply elasticity for various types of dwellings in Australia. The results suggest a significant variation in housing supply elasticity in Australia. This is across all housing types and throughout the capital cities between the years of 1983 to 2010. In particular, the supply elasticity is greater, and the lag periods shorter for multifamily units, in comparison to single-family units.

The increase in dwelling prices has dampened the housing accessibility and affordability. Accessibility is defined as the ability to encourage home buyers to purchase a dwelling (Yates, 2007). Rodrigues (2004) studied the first home buyer behaviour. He found that first home-buyers were not being priced out of home ownership. This was primarily attributed to the strong growth of first-home buyer's income and employment, as well as the lower cost and increased availability of borrowing funds. Analysis undertaken by Boymal, et al. (2013) concluded that affordability declined across all income cohorts in Australia. Therefore, the homebuyers' ability to enter the housing market had significantly deteriorated. In particular this was evident with low income households for the period 1994 to 2010. Additionally, Stevens (2014) claimed that first-home owners were pushed out of the NSW property market.

The record low mortgage rates within the last 18 months have not attracted first-home buyers. For instance, during the 12 months to March 2013, first-home buyers loans in New South Wales dropped by 57 per cent (Stevens, 2014). A possible explanation for this decline could relate to the high demand of investment activities which have pushed the dwelling prices upwards. Thus, first-home buyers are unable to access the housing market.

Figure 3 below, depicts the number of first-home grants verses median house prices for Sydney outer areas. The data shows that from June 2012, the lowest numbers of first-home grants were approved, whilst the mortgage rates stayed at a historical low, and the median house prices increased dramatically. Therefore, the question arises as to why the decline occurred.

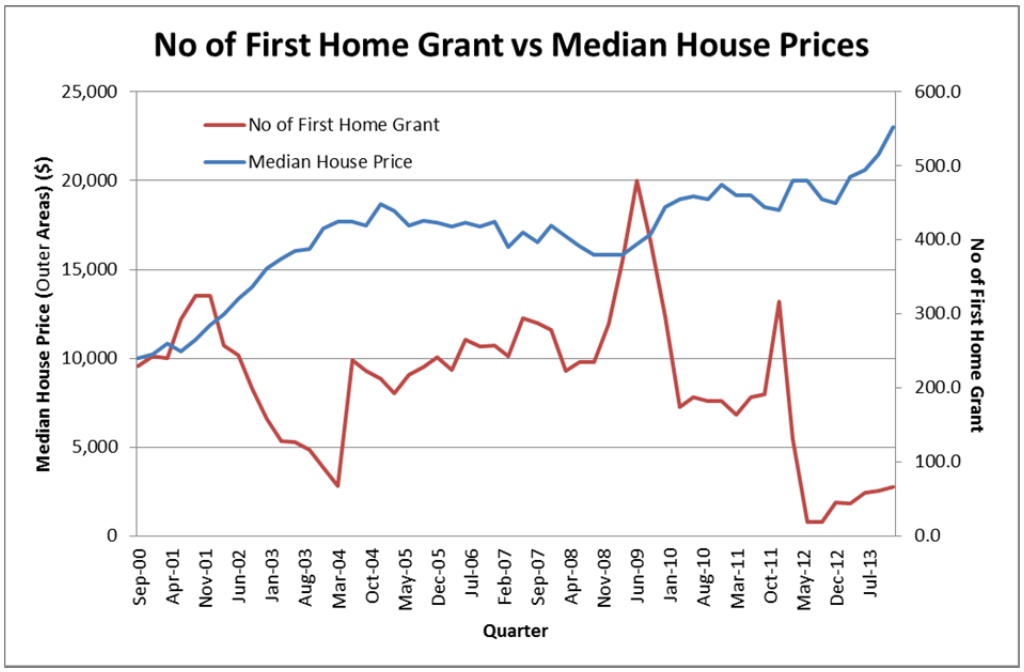


Figure 3: Number of First-Home Grant verse Median House Prices (Source: REIA, NSW Government)

The next section of the paper provides an overview of the FHOG scheme in Australia. Whilst varying changes have occurred, the underlying theme and conditions attached to eligibility for the grant have remained constant.

First-home buyer subsidised programs in Australia

The Australian government promotes home ownership. The benefit for the home owner includes the positive impact on a person's life, residential satisfaction (Galster, 1987; Fannie Mae, 1998, 1999; Saunders, 1990; Rohe, et al., 2013), and the overall health of society (Rohe and Stewart, 1996; Rohe, et al. 2013).

First-home buyers are eligible for the FHOG and the stamp duty concession or exemption when they purchase the whole property and have not previously owned property in any form, in any State or Territory in Australia. As early as 1964, schemes to assist first-home owners were introduced and implemented by the Australian government (Randolph, et al., 2013). However, this research paper focuses on the FHOG introduced in 2000 and beyond.

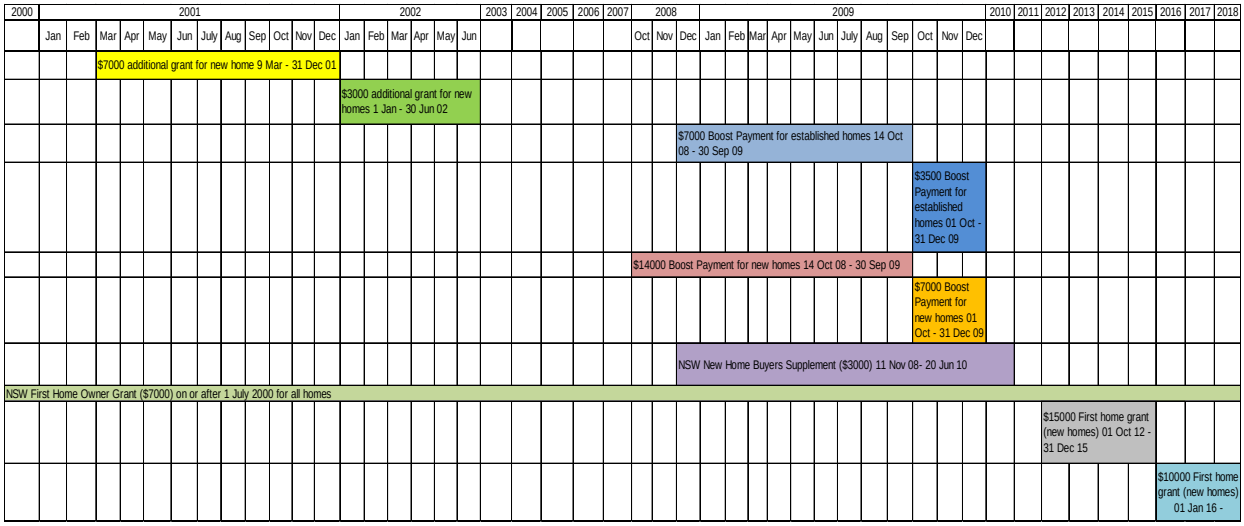
As indicated earlier in the paper, Figure 3, identified that there were more than 10,000 FHOG paid in the year 2000 to June 2002. The number of FHOG declined gradually to 2,809 in March 2004. This decrease could be caused by the expiration, on 30th June 2002, of the additional grant of $3,000 towards the purchase of new dwellings. During the period, dwelling prices were high and recorded more than a 15 per cent increase during three consecutive years (2001, 2002 and 2003). The number of FHOG picked up again by June 2004 to around 10,000 and remained constant until 2008 and 2009, when the new boost grants were introduced. There were 20,014 FHOG paid which reached the highest record on June 2009 during the global financial crisis. The number of FHOG paid decreased again

when the introduction of the new schemes gradually expired. The average size of the FHOG was from $7,000 to $14,000. The fluctuation on the number of FHOG paid indicates that changes to the first-home buyer subsidy policies influenced the demand for FHOG. There are many types of subsidy programs available to assist the first-home buyers. The details of the schemes and subsidy time frame have been included in the Figure 4.

The impacts or outcomes of the FHOG implemented in Australia have been studied by Randolph, et al. (2012). Randolph, et al. (2013) suggested that the FHOG funding had been attributed to most of the existing properties in the lower value suburbs in the city's middle and outer western suburbs.

The national average loan of first-home buyers was increased from $132,900 in 2000 to $285,600 in 2012 (ABS: 4102).

Figure 4: NSW FHOG Schemes



Effects of the subsidised programs: case study in NSW

To understand whether the first-home buyers pushed up the dwelling prices, and the reasons for the decline with the FHOG, a Granger causality procedure has been undertaken to test the relationship between the number of FHOG and dwelling prices. Hansen (2009) suggested that regression-based measures are useful for measuring house price changes in Australia. Therefore, the attributes of dwelling prices will be tested for NSW property markets.

Data Collection

The number of FHOG applications were extracted from the NSW government. The data consists of quarterly first-home buyers and property prices from September 2000 to December 2013, and first-home boost numbers and property prices from September 2005 to December 2013.

Quarterly median house prices of Sydney by zones for the same period were provided by the Real Estate Institute of Australia (REIA). The zones consist of inner (0-6 kilometres), middle (6-25 kilometres) and outer (>25 kilometres) ring areas from the Central Business District (CBD) of the Sydney city. The median prices have been converted to the real prices by dividing Sydney housing CPI provided by the Australian Bureau of Statistics (ABS).

In addition, NSW median weekly family income was sourced from the REIA. The quarterly number of dwelling completion in NSW was used as a proxy of housing supply. RBA monthly residential lending rate indicator was also employed to represent the cost of financing home ownership.

Granger Causality Tests and Discussion

The Granger causality test is a statistical hypothesis test for determining whether on time series is useful in forecasting another (Granger, 1969). The purpose of applying the Granger causality tests is to investigate the causal relationships between dwelling price and the number of FHOG. Two tests were performed including: a) real prices (both middle and outer areas) were tested against the numbers of FHOG; and b) changes of real prices (both middle and outer areas) were tested against the changes of FHOG for the period of September 2000 to December 2013 (Table 2). Because, the dwelling prices of the inner area are generally expensive, these were excluded from the test. Pairwise Granger causality tests are applied to test the null hypothesis and the test results are presented at the appendix. The F-Statistic indicates the significance of the tests. The test results suggest that a) the number of FHOG does not impact on the real prices in the middle and outer areas with half year lagged. However, the real prices of middle and outer areas have impact on the number of FHOG lagged for half year; b) the changes of real price of middle area does not affect the changes of FHOG with half year lagged, but changes of FHOG granger causes the changes of real price of middle area with half year delayed; and c) the changes of real prices in the outer areas granger causes the changes of FHOG and vice versa with half year lagged.

Table 2: Pairwise Granger Causality Tests and Results

Items	Presented by	Test Results
Real Price (Middle area)	a	a granger causes c, but c does not granger cause a
Real Price (Outer area)	b	b granger causes c, but c does not granger cause b
No of FHOG	c	
Changes of Real Price (Middle area)	a1	a1 does not granger cause c1, but c1 granger causes a1
Changes of Real Price (Outer area)	b1	b1 granger causes c1, and c1 granger causes b1
Changes of Number of FHOG	c1	

Regression Tests and Discussion

Statistical models were developed using SPSS software and the regression results are shown in the Table 3. The number of FHOG was used as a dependent variable to test the relationship with dwelling prices. It was found that the number of FHOG resulted in a positive correlation to the dwelling price in the outer area and a negative correlation to the dwelling price in the

middle area. This implies that first-home buyers are less inclined to apply for the FHOG when prices increase for dwellings which are located between 6 to 25 kilometres from the CBD. The real dwelling prices decreased by one index point, and can attract around 7,296 buyers applying for the FHOG. Conversely, the number of first-home buyers for the FHOG will increase, although the dwelling prices increased for the outer area zone (>25 kilometres). These results indicate a strong demand by first-home buyers, who selected to purchase dwellings that were affordable in the outer area zone.

The income and dwelling supply resulted in a negative correlation when compared to the number of FHOG in model 2. This result suggests that first-home buyers with very low income will apply for the FHOG; and the lower the supply of dwellings, the higher the applicants for FHOG. The property prices for first-home buyers is more affordable if there is an over-supply of stock in the market place. The over-supply will provide a natural balance for supply and demand and assist to keep property prices at a reasonable level.

With regards to the statistical modelling, the lending rate was not selected for inclusion as it was considered to not impact on the FHOG application. The main reason for this assumption is due to the fact that the FHOG was primarily introduced to assist the first-home buyers' initial deposit only, and not for the purpose of supporting their monthly loan repayments.

The dependent variable in table 3 refers to the changes of dwelling prices in the middle area zone. Changes for property supply were the only independent variable selected for the statistical model. The results indicate a positive correlation between the change in dwelling prices and supply such as, the greater the change with the dwelling supply and the greater the change with the dwelling prices. Therefore, a one per cent increase with the dwelling supply will result with a 0.097 per cent rise in the dwelling price.

Table 3: Test results from Regression

	Model 1			Model 2			Model 3		
Independent variables	B	t-test	significant	B	t-test	significant	B	t-test	significant
Constant	25.466	5.270	0.000	35.621	5.997	0.000	0.729	0.955	0.344
Lending rate									
Income				-13.318	-4.213	0.000			
Price_Middle	-7.296	-3.835	0.000						
Price_Outer	7.603	3.130	0.003						
Supply				-2.240	-3.923	0.000			
Change of Supply							0.097	2.437	0.018
Dependent Variable	FHOG			FHOG			Change of Price_Middle		
Sample	54			54			53		
R square	0.251			0.289			0.104		
F-test	8.537			10.35			5.939		
Significant	0.001			0.000			0.018		
DW	0.808			1.039			2.165		

Conclusion

In conclusion, three hypothesises can be drawn from the above investigations. The first is that levels of dwelling prices will cause an impact on the number of FHOG. This is because the

first time buyers usually have little equity with regards to their initial deposit. Therefore, this initial deposit plus their loan repayment, and limited income ratio for first-home buyers, is a challenge when entering the property market (Yates, 1994). Over the decades, the FHOG has been the main mechanism to assist first-home buyers and the recommendation from the research suggests that changes to the lending facilities would be of benefit to first-home buyers.

The second hypothesis suggests that the first-home owner support system could be consistent and tactical. For instance, a "one-off" and a special stimulated scheme would encourage a strong demand for housing in order to take advantage of the grants provided by government. However, to curb an increase in prices, due to the sudden demand for dwellings, construction and supply would need to be monitored. A possible solution could be to offer property developers a form of incentive to encourage the mass construction of dwellings that are primarily suitable for meeting the requirements imposed by the FHOG applications. Therefore, if mechanisms are not implemented to safeguard the supply and demand, an increase in dwelling prices will diminish the housing affordability for first-home buyers to enter the housing market.

Consequently, the property market could be distorted by an unexpected increase in dwelling prices. For instance, purchasers will pay inflated prices for over-valued dwellings. The purchasers will suffer when the market adjusts to the equilibrium level when the dwelling supply increases.

The third hypothesis considers the area zone selected by first-home buyers. The results indicated that dwellings located in the outer area zone, i.e., 25 kilometres away such as Liverpool and Blacktown were generally cheaper than the dwelling prices located in the middle and inner areas. In addition, most new dwellings were built in the outer areas. An explanation for this preference by first-home buyers could primarily relate to the affordability of the dwelling prices, and the capped limit allowed for dwelling prices under the FHOG scheme. However, a disadvantage associated with the outer area zone relates to the distance from the CBD and associated daily travelling costs. Boymal, et al. (2013) estimated three aspects of the trade-off being made between house price and house quality/distance from the Melbourne CBD. They found that households are facing a distance cost in some instances of over 10 kilometres and distance cost varies by income cohort and a decline in the level of socio-economic diversity in some localities close to the CBD.

Further Research

Whilst the research attempted to identify a relationship between FHOG applications and the dwelling prices, there is also the consideration of the capped price of properties eligible for the scheme. Whilst first-home buyer applicants are not means tested, the limitation of the purchase price of the property can represent a constraint in the selected area to purchase. In some instances the buyers might be able to receive assistance from family, perhaps such as an interest free loan to boost their initial deposit. Currently, there is no research to identify the value in placing such a restriction for the purchase price. However, anecdotal articles suggest that the government was keen to open up new urban areas for living and remove the congestion from the city centre. Therefore, ongoing research investigating the effect of the capped purchase price will be examined and analysed.

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Appendix: The Results of Granger Causality Tests

Pairwise Granger Causality Tests
Date: 04/17/14 Time: 10:24
Sample: 1901 1954
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
GRANTC does not Granger Cause A	52	0.53995	0.5864
A does not Granger Cause GRANTC		3.47244	0.0392

Pairwise Granger Causality Tests
Date: 04/17/14 Time: 10:32
Sample: 1901 1954
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
GRANTC does not Granger Cause B	52	0.04485	0.9562
B does not Granger Cause GRANTC		3.46619	0.0394

Pairwise Granger Causality Tests
Date: 04/17/14 Time: 10:33
Sample: 1901 1954
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
GRANTC1 does not Granger Cause A1	51	6.69866	0.0028
A1 does not Granger Cause GRANTC1		2.32615	0.1091

Pairwise Granger Causality Tests
Date: 04/17/14 Time: 10:36
Sample: 1901 1954
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
GRANTC1 does not Granger Cause B1	51	4.25125	0.0202
B1 does not Granger Cause GRANTC1		2.95952	0.0618