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PAPUA NEW GUINEA

Dynamics of housing price in Port Moresby: Issues and policy options

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Background information

- ❑ A decrease in supply of houses to housing market relative to demand results in an increase in house price.
- ❑ An increase in supply of houses relative to demand results in a decrease in house price.
- ❑ Housing is a basic need and a necessity good.
- ❑ Housing becomes a luxury good when we think of buying a house.

Factors influencing house price

- ❑ Quantity of houses in the market relative to demand (Glaeser et al. 2005).
- ❑ Access to secure land for development (Nubi, 2008).
- ❑ Cost of house building materials (Makinde, 2014).
- ❑ Availability of skilled personnel in construction industry (Makinde, 2014).
- ❑ Distance of the house from city centre (Tse, 2002).
- ❑ Environmental factors such as closeness to water bodies (Luttik, 2000).
- ❑ Number of bedrooms and bathrooms (Zeitz et al., 2008).
- ❑ Age of the house (Zeitz et al., 2008).
- ❑ Availability of trunk infrastructure (Arvanitis, 2013).

Classes of built areas

- ❑ Informal built area
 - No proper development plan
 - Area not serviced with trunk infrastructure
 - No secure land title.

- ❑ Formal built area
 - Proper development plan
 - Area serviced with trunk infrastructure
 - Secure land title

- Formal built area is the focus of the study reported in this Presentation.

Objectives of the study reported in this presentation

- ❑ To examine market prices of houses in Port Moresby and factors influencing it.
- ❑ To explore potential strategy that could be used to increase housing affordability level in Port Moresby.

Port Moresby – The study area

- ❑ Largest city and real estate market in PNG

- ❑ Population:
 - 254,158 people in 2000
 - 364,145 people in 2011

- Annual growth rate of 2.1% = 402,380 people in 2016.

- ❑ Average population density: 16 people/ha
- ❑ Area: 240 square km

Port Moresby

- ❑ Land ownership: 60% State; 40% communal
 - State owned land is almost exhausted.
 - Most customarily owned land do not have secure title and comes with high transaction costs.

- ❑ Government dominates the housing sector.

- ❑ Few large scale private developers such as Edai Town Development and Glory Group.

Port Moresby

- ❑ Port Moresby is subdivided into 15 suburbs:
 - Badili, Boroko, Erima, 8 Mile, 5 Mile,
 - Gerehu, Gordons, Hohola, Korobosea, 9 Mile
 - Sabama, 6 Mile, Tokarara, Town, and Waigani
- ❑ Port Moresby has been booming economically in recent years.
- ❑ Most housing building materials are imported.
- ❑ Shortages of skilled workers in house construction industry.

Data collection and analysis

- Data were obtained from advertisements on Home and Property pages of *The National newspaper*.
- Rental and sales prices of houses were collected.
- Others include location and house type number of bedrooms, date of advertisement and name of real estate that advertised the property.

Data collection and analysis Continue

- ❑ Data were collected on 1st Tuesday of each month for 13 (March 2015 to March 2016).
- ❑ Newspaper adverts were used as data source because property sector in Port Moresby is not well organised.
- ❑ It is difficult to get information on property prices from real estate agents.
- ❑ Data were analysed using ordinary least (OLS) regression and descriptive statistics.
- ❑ OLS was used to examine factors influencing house rental price in Port Moresby

Data analysis continue

- ❑ Homoscedasticity of error terms: Breusch-Pagan test.
 - Test statistic was **186.71**
 - Critical value of chi-squared of 6 df at 1% significance: **16.81**
- The error term is not homoscedastic, i.e. it is heteroscedastic

- ❑ Log-linear form of the OLS model: Breusch-Pagan test
 - Test statistic was **69.77**, i.e. heteroscedasticity was reduced.

- ❑ Log-linear OLS was corrected for heteroscedasticity using White's heteroscedastically consistent variance estimator.

- ❑ Variance inflation factor of all independent variables do not exceed 2.8, i.e. multicollinearity is not a serious problem.

Results

- ❑ 1061 properties were advertised:
 - 58% for rental; 42% sales

- ❑ Properties for rental
 - Apartments: 77%
 - Standalone houses: 23%

- ❑ Properties for sales:
 - Apartments: 36%
 - Standalone houses: 64%

Fig 1 Properties that were advertised for rental

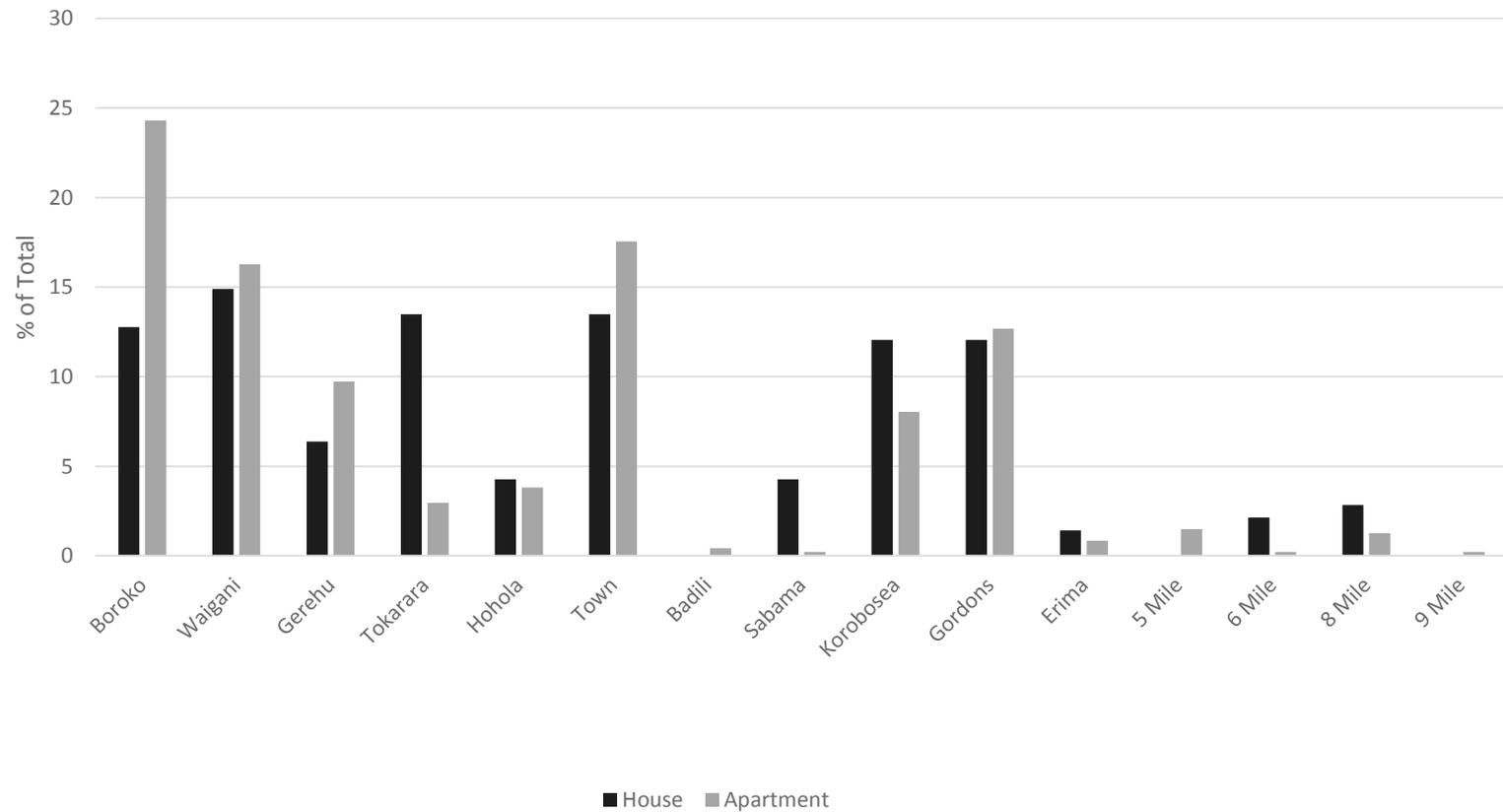
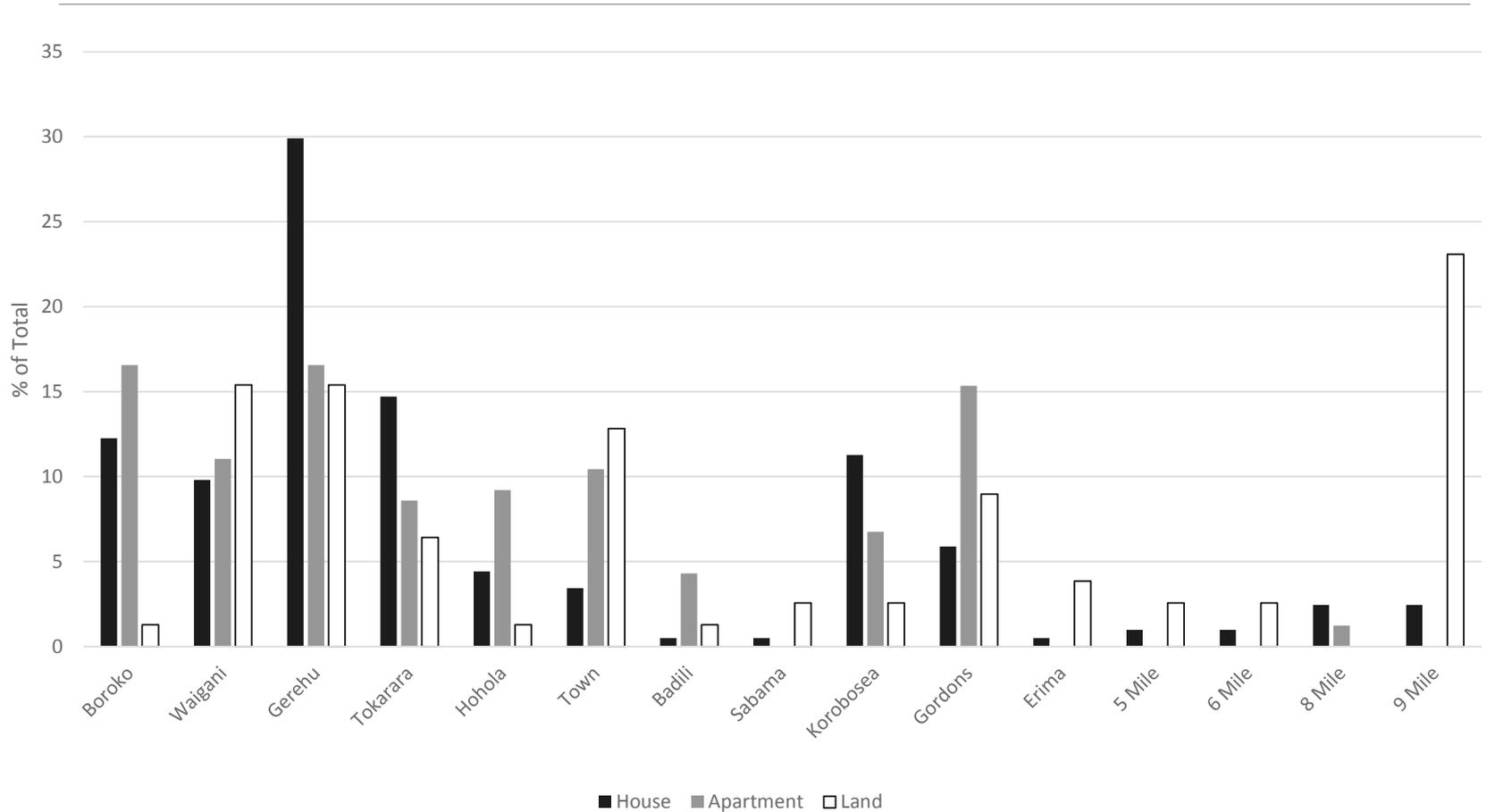


Fig 2 Properties that were advertised for sales



House sales and rental prices in Port Moresby

- ❑ Weekly house rental price: Range from 550 to 8,000PGK
 - Town: Median price = 3,500PGK (highest).
 - 6 Mile: Median price = 925PGK (lowest).

- ❑ House sales price: 160,000 to 23 million PGK
 - Town: Median price = 2.8 million PGK
 - Gerehu: Median price = 550,000 PGK

Fig 3 Median weekly rental price for 3-bedroom house

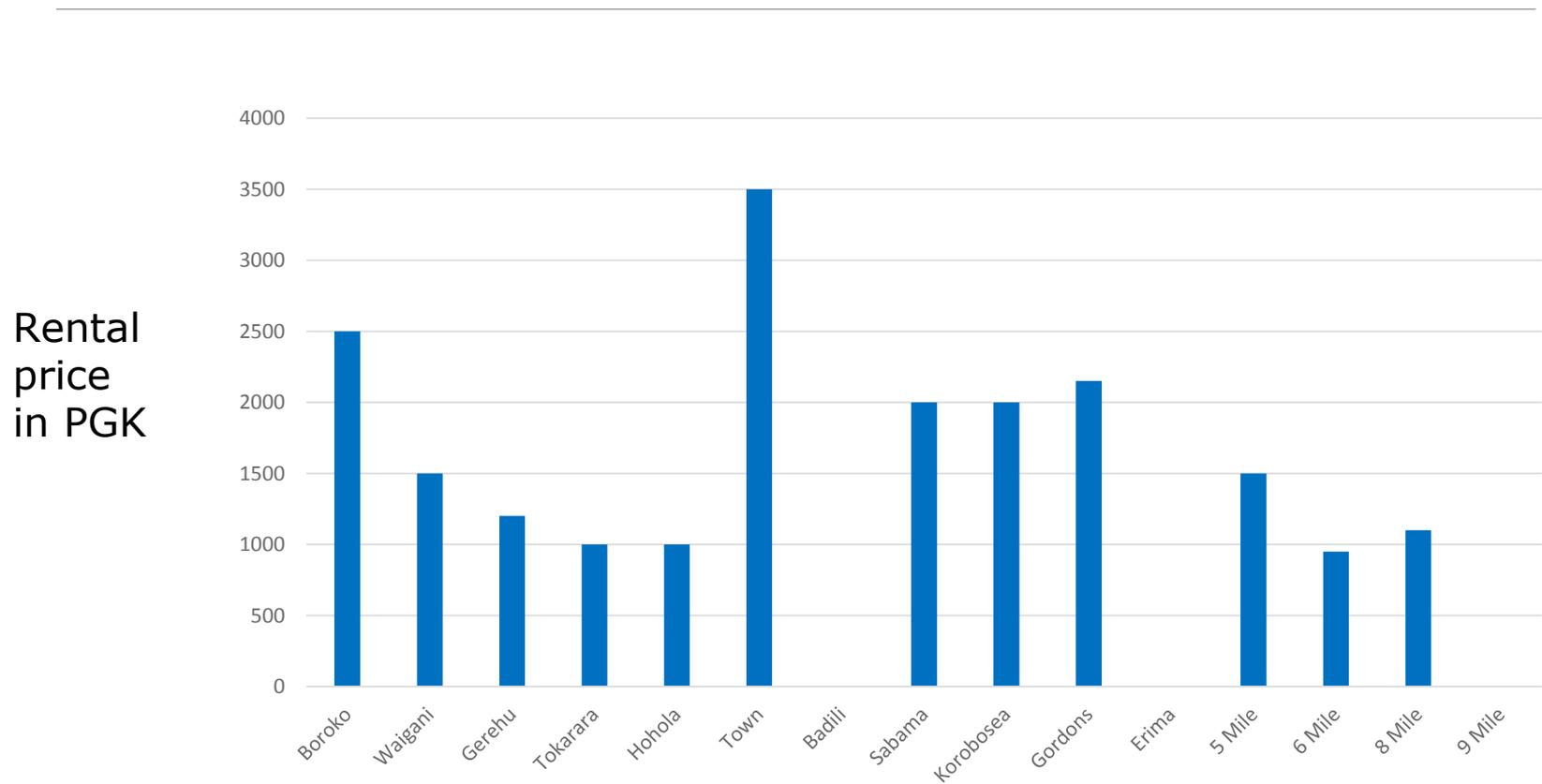


Fig 4 Median sales price for 3-bedroom house

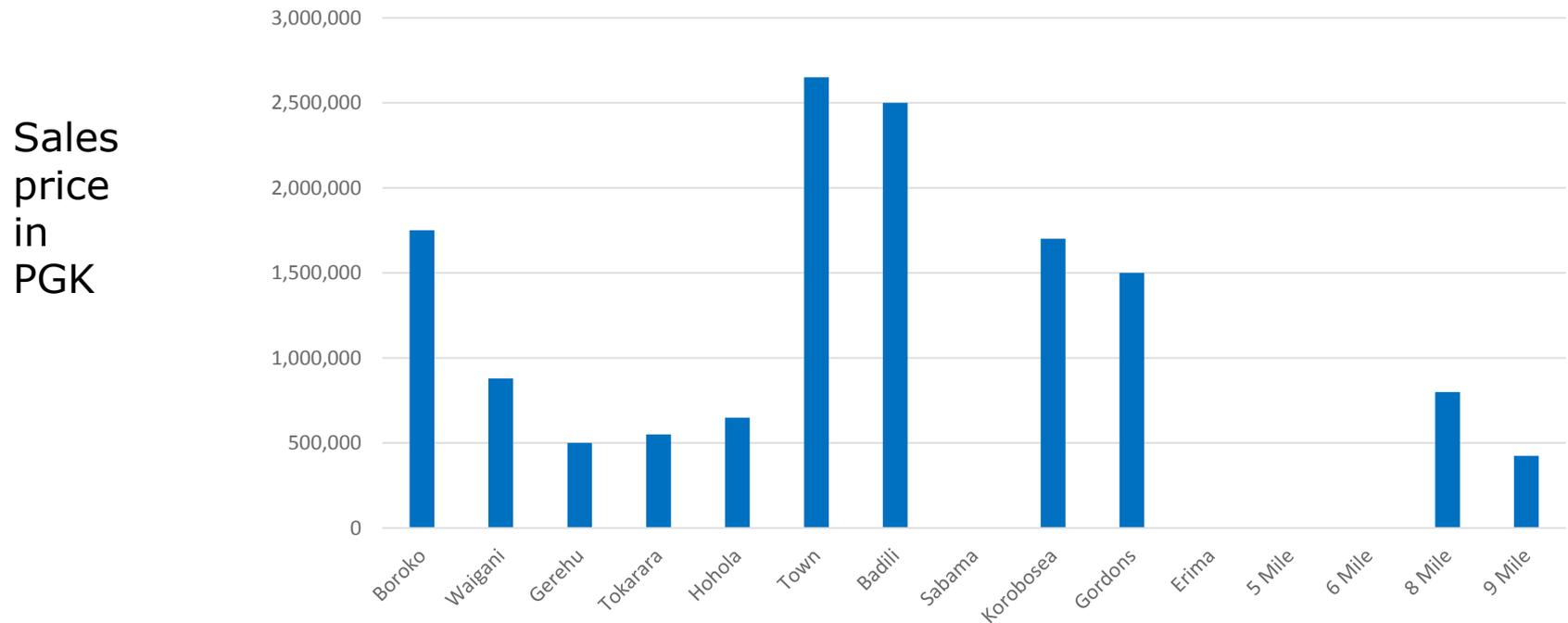


Table 1 Description of variables used for statistical analysis

Variable	Description	Mean	SD
RentP	Weekly house rental price in Kina	2,159	1,347
H_type	Type of house: Apartment=1, Standalone=0	0.75	0.44
BedR	No. of bedrooms in the house	2.81	0.74
CBD	House located in CBD: Yes=1, No=0	0.16	0.37
M_Area	House located in historical medium income areas (Boroko, Korobosea): Yes=1, No=0	0.29	0.46

Continuation of Table 1

EN_Mile	House located in 8 or 9 Mile: Yes=1, No=0	0.02	0.13
L_Area	House located in historical low-income areas (Gerehu, Tokarara, Hohola): Yes=1, No=0	0.30	0.45

The log-linear OLS model estimated:

$$\text{Log}(\text{Rent}P) = \alpha + \beta_1 H_type + \beta_2 \text{Log}(\text{Bed}R) + \beta_3 \text{CBD} + \beta_4 M_Area + \beta_5 \text{EN_Mile} + \beta_6 L_Area + \varepsilon$$

Table 2 OLS results for factors influencing house rental price

Variable	Coefficient	Std. error	t-value
Constant	6.66	0.08	85.95**
H_type	0.01	0.05	0.16
Log(BedR)	0.72	0.06	11.93**
CBD	1.12	0.05	18.71**
M_Area	0.22	0.04	5.15**
EN_Mile	-0.21	0.10	-2.02*
L_Area	-0.36	0.05	-7.26**
R ²	0.44		
Adjusted R ²	0.43		
F value	75.36		
Observations	591		

The OLS results show that:

- An increase in the number of bedrooms
- The presence of CBD
- The presence of historical medium-income areas

Increases house rental price

- The presence of 8 Mile and 9 Mile suburbs
- The presence of historical low-income areas

Decreases house rental price

Can public service workers afford house rent in Port Moresby?

- ❑ According to the international commonly used housing affordability criteria, housing is affordable when a household uses not more than 30% of its monthly income to pay for monthly house rent.
- ❑ The least weekly house rental price is K550; month is K2,357.
- ❑ Least paid worker (PS01) gets K691 per month; 30% is K207.
- ❑ Worker at median income gets K2,116; 30% is K635.
- ❑ Highest paid worker gets K12,328; 30% is K3,698.
- Most public service workers have housing affordability problem.

Interventions to increase supply of houses to lower house rental and sale prices

- ❑ More houses should be built in low-income areas such as 9 Mile, 8 Mile and historical low-income areas.
- ❑ The state, through its agencies such as the National Housing Corporation (NHC) should facilitate the private sector to build more houses that meets preferences and demand of Port Moresby residents.
- ❑ Supply more customarily owned land to formal market as highlighted by PNG Vision 2050.

Supply more customarily owned land to formal market
Should focus on:

- Freeing up more customary land through a strategy that leads to “win-win” situation for stakeholders.
- Developing an effective and efficient customary land administration.
- ❑ Review import duties on building materials, as highlighted in Sub-section 1.14 of PNG Vision 2050.

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- ❑ Provide trunk infrastructure such as roads, piped water and electricity where it is lacking and carryout maintenance on existing infrastructure.
 - ❑ State support research on the use of locally available materials for building houses.
 - ❑ SMEs to focus on the production of simple tools such as bolts and nuts.
 - ❑ Review activities of real estate agencies.

- ❑ Establish more vocational institutions for training more people in professions such plumbing, carpentry, and bricklaying.

- ❑ Housing voucher rental scheme could be introduced to increase access to quality housing for low-to-medium income households.

You can read more in:

Ezebilo, E., Hamago, L., Yala, C. (2016). Assessment of market prices for residential properties in Port Moresby: Do location and property type matter? (Issues Paper No. 19). Port Moresby: National Research Institute.

Ezebilo, E., Nao, L., Hamago, L. and Thomas, M. (2017). Dynamics of market prices for residential properties in Papua New Guinea: Evidence from Port Moresby. Discussion Paper (in-press). Port Moresby: National Research Institute.

Ezebilo, E. (2016). Papua New Guinea's drive to provide affordable housing: Are we ready? (Issues Paper No. 23). Port Moresby: National Research Institute.

PNG NRI website and social media

For more information on PNG NRI activities,
see PNG NRI website and social media sites:

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Acknowledgements



The Papua New Guinea National Research Institute acknowledges and appreciates the support of the Australian government to its 2017 Research Program.

THANKS FOR YOUR ATTENTION

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