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

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Name of presenter
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 heteroscedasticity consistently 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

![Median weekly rental price for 3-bedroom house](image_url)
Fig 4 Median sales price for 3-bedroom house
Table 1 Description of variables used for statistical analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>RentP</td>
<td>Weekly house rental price in Kina</td>
<td>2,159</td>
<td>1,347</td>
</tr>
<tr>
<td>H_type</td>
<td>Type of house: Apartment=1, Standalone=0</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td>BedR</td>
<td>No. of bedrooms in the house</td>
<td>2.81</td>
<td>0.74</td>
</tr>
<tr>
<td>CBD</td>
<td>House located in CBD: Yes=1, No=0</td>
<td>0.16</td>
<td>0.37</td>
</tr>
<tr>
<td>M_Area</td>
<td>House located in historical medium income areas (Boroko, Koroboasea): Yes=1, No=0</td>
<td>0.29</td>
<td>0.46</td>
</tr>
</tbody>
</table>
Continuation of Table 1

<table>
<thead>
<tr>
<th>EN_Mile</th>
<th>House located in 8 or 9 Mile: Yes=1,</th>
<th>0.02</th>
<th>0.13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No=0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 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:

\[ \log(\text{RentP}) = \alpha + \beta_1 H_{type} + \beta_2 \log(\text{BedR}) + \beta_3 \text{CBD} + \beta_4 M_{Area} + \beta_5 EN_{Mile} + \beta_6 L_{Area} + \varepsilon \]
Table 2  OLS results for factors influencing house rental price

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. error</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>6.66</td>
<td>0.08</td>
<td>85.95**</td>
</tr>
<tr>
<td>H_type</td>
<td>0.01</td>
<td>0.05</td>
<td>0.16</td>
</tr>
<tr>
<td>Log(BedR)</td>
<td>0.72</td>
<td>0.06</td>
<td>11.93**</td>
</tr>
<tr>
<td>CBD</td>
<td>1.12</td>
<td>0.05</td>
<td>18.71**</td>
</tr>
<tr>
<td>M_Area</td>
<td>0.22</td>
<td>0.04</td>
<td>5.15**</td>
</tr>
<tr>
<td>EN_Mile</td>
<td>-0.21</td>
<td>0.10</td>
<td>-2.02*</td>
</tr>
<tr>
<td>L_Area</td>
<td>-0.36</td>
<td>0.05</td>
<td>-7.26**</td>
</tr>
</tbody>
</table>

R²          0.44
Adjusted R² 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

*Increase 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.
 Provide trunk infrastructure such as roads, piped water and electricity where it is lacking and carry out 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 as 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:


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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