

The Development of a University in a Rural Area-its Impact Towards Property Development

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Abstract: Development of a public university in a rural area have resulted to several changes such as population growth, demographic changes as well as an increasing demand for properties. This research aims to review the demand for residential property development in Parit Raja after development of UTHM as well as to analyse the future demand for residential property development in Parit Raja. The research is carried out within the Parit Raja area, for year 2006-2018. The research adopted quantitative approach by using observation and document review. A mathematical calculation known as Moving Average of order 2, MA (2) and order 3, MA (3) were used to forecast future demand. The results show that the demand for residential property development has increased since development of the university. However, the trend does not sustain for a long run. Moreover, the future demand for residential property development is forecasted to fluctuate due to several reasons. Therefore, this result will help an investor to decide whether to participate in the development in Parit Raja or not in future as well as to establish the UTHM brand's as one of the prominent education provider in Malaysia.

Key words: Development, residential, university, UTHM, property

INTRODUCTION

Rural development is generally referred to as the process of improving the quality of life among the local population and the economic well-being of the people living in an area which is relatively far between and sparsely populated areas (Malcolm, 2003). Moreover, determining the types of development in a particular area is very important for the purpose of land use control. This is because these changes would have a considerable impact towards the quality of the local environment, for example, the changes of land use would stimulate the demand for other development such as commercial and industrial development (Millington, 2000).

Development of a university in a rural area is considered as one of the rural development and this kind of development have resulted to several changes such as population growth, demographic changes as well as increasing demand for properties. For example, for the past 20 years, there is a substantial development that occurred in Parit Raja and commercial and residential property development stand the highest among the others. All the developments that are undertaken in Parit Raja is mainly due to the establishment of a public university which is known as Universiti Tun Hussein Onn Malaysia (UTHM). In fact, accordingly to the Department of Valuation and Property Services (JPPH), Batu Pahat,

the total amount of housing units in Parit Raja has increased continuously since 1998-2012 with an average of 10% each year.

Therefore, this research aims to review the demand for residential property development in Parit Raja after development of UTHM as well as to analyse the future demand for residential property development in Parit Raja.

Literature review

Property development: Property development consists of several interpretations. According to Wilkinson and Reed (2008), property development is an activity which often taken a longer period of time for completion and the end product is unique in terms of its physical characteristics and/or its location. Moreover, it is a complex activity that involves the use of scarce resources and involves a large amount of money that tied up in the production process that produces a product which is relatively indivisible and illiquid. Moreover, Millington (2000) stated that property development is a wider sense of any activities that involve in changing the state of land which is often done in three main ways, namely: construction of a new building; Demolishment of the existing building and replace with a new building and Improvement done on the existing building to make the building more useful for the modern needs.

Land development process in malaysia: Land has varied definitions and interpretations. In general, land may refer to the solid part of the earth’s surface that is not covered by water. More than that, from economic and legal perspectives, land also includes minerals, soil fertility and the resources of the sea; it is determined as the “free gifts of nature”. A more specific definition by the Town and Country Planning Act, 1976 (Act 172) states that land includes the surface and all substances forming the surface of the earth, (b) all substances below the surface of the earth, all vegetation and other natural products, whether or not requiring periodical application of labour to their production and whether on or below the surface of the earth, all things, whether on or below the surface of the earth that are attached to the earth or permanently fastened to anything attached to the earth and land covered by water and any estate or interest in or right over land.

In terms of land development in Malaysia, the process refers to the changing of the original uses of the land for the purposes of residential, commercial, industrial or other activities. From the perspective of land administration, land development is best defined “as any change in the original alienated land, contrary to what was already approved by the State Authority upon alienation” (Jaafar, 2009). More specifically, the Town and Country Planning Act, 1976 (Act 172) looked at developments itself, “as the carrying out of any building, engineering, mining, industrial or other similar operation in, on, over or under land or making of any material change in the use of any building or other land or the subdivision or amalgamation of lands”.

The National Land Code (NLC) 1965, is the governing code for land administration in Malaysia. The NLC has rules and restrictions which control and/or guide land development in the country. With reference to the planning requirements for development, the National Land Code provides guidelines on the procedures for planning applications as follows:

- Variation of conditions, restrictions and categories (Section 124)
- Sub-division (Sections 135-139)
- Partition (Sections 140-145)
- Amalgamation (Sections 146-150)
- Simultaneous applications for sub-division and variation of conditions, restrictions and categories (Section 124 A); and
- Surrender and re-alienation-special provisions (Sections 204A-204 H)

A land development is a unique activity in terms of its physical characteristics and locations. Thus, any land

Table 1: Type of property development

Type	Details
Residential property	Residential property is a type of property which includes all the property that contains one or more units which is used for human habitation. Include: landed property, single. Family residence property, duplex property, Condominiums property, town house property.
Open space	Open space included the land that is maintained in an open or natural condition that contributes towards the enjoyment and benefit of the public. This type of land cannot be held for the production of income
Commercial property	Commercial property includes all the property that is use for the purpose of conducting a business. Example: retail store, shop houses, office buildings, shopping complexes, healthcare properties, restaurant properties, hotel properties and etc.
Industrial property	Industrial property includes all the property that is used in manu facturing, processing or extraction purpose. Example: warehouse and automotive property

chosen or required for the purpose of development remains under its agricultural status until approval is gained for the conversion, sub division or partition of land from responsible institutions or agencies and actual developments can take place later.

In addition, in many cases in Malaysia, the private sector is the driver of growth while the public sector facilitates the development and ensures the desired objectives are achieve. Practically with any type of land, the decision for land development is made by the government and all land development must fit with national zoning and planning regulations and also must fulfil the requirements of the government’s urban planning policies done including national and sub-regional levels. The implementation of the actual development is usually offered to private developers.

Types of property development: Table 1 summarizes the type of property development.

Demand factors’ for residential property development:

Factor of demand is varied depending on types of property development that is taking place. However, according to Wilkinson and Reed (2008), most of the property development activity have three basic demand factors, namely: Population growth rates; Income growth rate of the population among the catchment area and; The employments level among local population. Moreover, Wilkinson and Reed (2008) explained that the demand for residential property development is contributed by several factors such as:

- Amount of population in the market area which includes size and number of households, rate of increase or decrease in household formation and composition and age distribution

- Income of the household and per capita
- Employment and unemployment rates as well as type of employment
- Percentage of owners and renters
- Financial considerations such as savings levels and lending requirements
- Land-use patterns and the directions of development and the city growth
- The factors that affect the physical appeal of the neighborhood
- Locally assessed values, taxes and special assessments, tax structure and administration
- Availability of community services and support facilities

Methods to measure demand for property development:

The demand for property development can be measured in terms of the quantity of demand and type of property (residential, commercial, industrial property and its) demanded by a group of potential user in a particular catchment area (Cadman and Topping, 1995). The measurement of demand for property development can be analysed and determined through demand analysis. Furthermore, the demand of property development can analyze and identified through the recent property market transactions within the catchment area (Cadman and Topping, 1995). According to Wilkinson and Reed (2008), the demand analysis that needs to be done for a particular type of property is focused on the end product or services that the property provides. In short, the element of demand analysis of a particular type of property is varied based on the factors that affected the demand for that particular type of property. For example, the demand analysis for a proposed office development would most likely attempted to identify the business that is currently occupying office space and their space or staffing needs in the area.

Methods for measuring demand for residential property development:

The demand for residential property development can be done through demand analysis that specifically focused on investigation of the households in the subject's market area. The research is focused on the growth rates in population (include size and number of households, rate of increase or decrease in household formation, composition and age distribution), disposable income or effective purchasing power of these households and the ages, behavioral patterns and preferences of household members and gender (Wilkinson and Reed, 2008).

Besides, one example stated by Wilkinson and Reed (2008) in analysis of demand for single family homes that is generally base on the analysis of the demographic data by compiling various figures on:

- The current and projected population between the subject or chosen market area
- The current and projected number of households in which must take note that the household size is varying with the age of the head of the household
- Differentiates the number of current and projected households that is headed by owners with those which headed by renters

Then, the data are then broken down into the number of owners-headed household regarding to the income levels to determine the percentage of households that are or will be able to meet the requirement of the mortgage payment by the local banks and lenders, other housing costs which include insurance and rates, outgoing for maintenance and interest rates. The existing and anticipated demand for the types of residential property development is then measured by adjusting the number of owner-occupied households that can or will be able to afford the housing by the vacancy rate in the market.

Forecasting the future demand for residential property development:

Forecasting is a process of predicting the future which includes the prediction done on future demand, sales or production (Lawrence *et al.*, 2009). Forecasting is an integral part of almost all business activities which is important yet unavoidable task. According to Lawrence *et al.* (2009), forecasting is important because it can lead to increase customer satisfaction, lower costs, lead to an important competitive advantage and so on. Moreover, as stated by Wilson and Keating (2007), business decisions are almost always depend on some forecast about the course of events, for example accountants department rely on forecasts of costs and revenues in tax planning for success.

Factors to be considered in choosing methods of forecasting:

There are four important factors must be considered to determine which forecasting techniques to be applied (Lawrence *et al.*, 2009) namely time; data availability; money and who is going to use the forecasting project and what is the purpose of forecasting being used?

Methods of forecasting: According to Wilson and Keating (2007) an overview of the forecasting method is as stated in Fig. 1. Among all these methods, moving-average and exponential smoothing techniques are widely used, often very accurate and quite simple from a computational standpoint (Wilson and Keating, 2007).

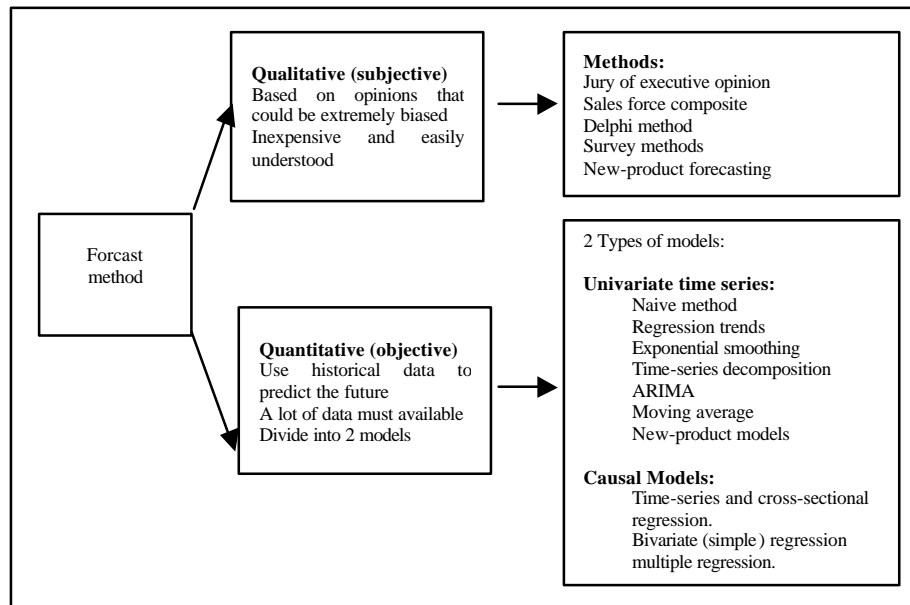


Fig. 1: Forecasting method; (adopted from Wilson and Keating, 2007)



Fig. 2: Location map of parit Raja, Johor

MATERIALS AND METHODS

In this study, a quantitative research strategy has been adopted as a research strategy. The study was carried out within five chosen residential property around the case study boundaries. Several related documents have been also reviewed including trend of housing units and housing transaction record around the case study boundaries from 2006-2013.

Moreover, Moving Average of order k , $MA(k)$ has been chosen as a forecasting method in this study. This method takes the average of the k recent value to predict the value of the series for the future (Lawrence *et al.*, 2009). Two types of Moving Average were applied in this research namely; Moving Average of Order Two, $MA(2)$ and Moving Average of Order Three, $MA(3)$.

Case study area: The case study area is located at one of the small towns in Batu Pahat district, Johor which is known as “Parit Raja”. Parit Raja covers an area about 0.40 square miles or 1.0515 km^2 . It is about 23 km away from the capital of Batu Pahat District and approximately 7 km away from Ayer Hitam. In addition, the location of Parit Raja is about 10 min from the PLUS exit at Ayer Hitam and about 20 min from Batu Pahat. Universiti Tun Hussein Onn Malaysia (UTHM) is located in this region since the year 1993. According to the official portal of UTHM, UTHM started as a Polytechnic Staff Training Centre (PLSP) in the year 1993 and then upgraded to Public University in the year 2007 with a name given as Universiti Tun Hussein Onn Malaysia (UTHM). Figure 2 shows the location map of Parit Raja.

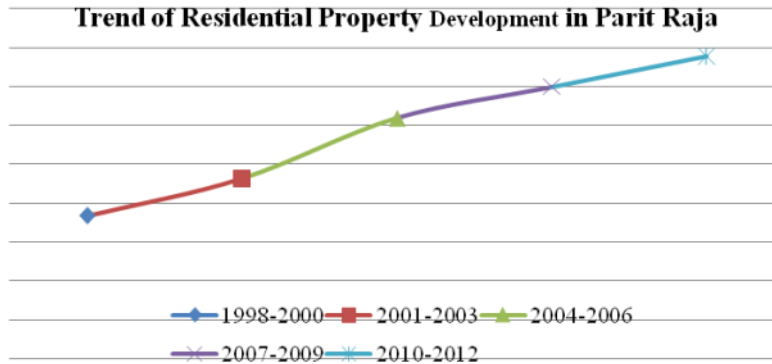


Fig. 3: Trend of residential property development in Parit Raja (1998-2012)

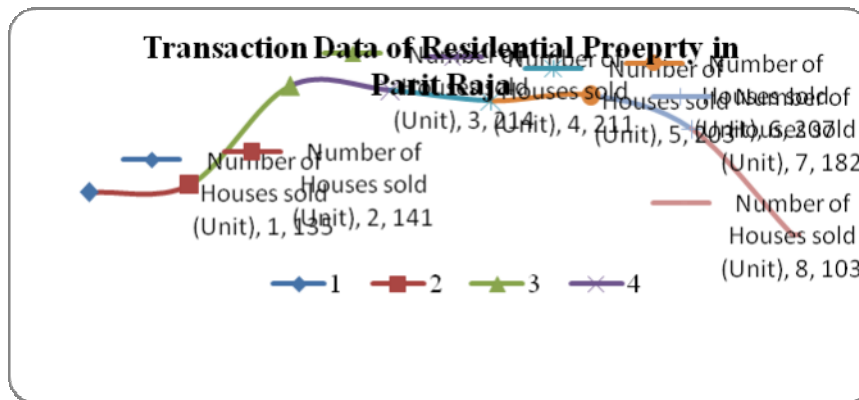


Fig. 4: Transaction data of residential property in Parit Raja (2006-2013)

RESULTS AND DISCUSSION

Trend of residential property development in parit raja:

Figure 3 shows the trend of Residential Property Development in Parit Raja in year 1998-2012. According to Fig. 3, generally the numbers of residential property development in Parit Raja has increased gradually throughout 15 years back, with average 10% each year. For example, there were 1834 numbers of housing units developed in year 1998-2000 as compared to 2316 in year 2001-2003.

Transaction data of residential property in parit raja:

Figure 4 shows the transaction data of residential property in Parit Raja from the year 2006 to May 2013. From Fig. 4, the number of transaction for residential property in Parit Raja fluctuated between the year 2006 and 2013. The figure shows a significant increase for the first 3 years (2006-2008). However, the numbers of transaction were decreased consistently for the next 5 years and year 2013 was recorded as the lowest transaction data for residential property in Parit Raja.

Future demand for residential property development in parit raja for the year 2013-2018:

The future demand for residential property development is determined through forecasting the current transaction data. The forecasting methods that use in this research are “Moving Average of Order 2, MA (2) and Moving Average of Order 3, MA (3)”. Period of forecasting is 5 years which is from 2013 to year 2018.

Moving Average of order 2, MA (2): The result shows that the future demand for residential property in Parit Raja for the year 2013 is 195 units with a total absolute deviation of 142 units. Table 2 shows the results.

Measure of forecasting performance for Moving Average of order 2, MA(2): Table 3 shows the results of the measurement of forecasting performance for Moving Average of Order 2,MA(2) by using a measurement method known as Mean Absolute Deviation, MAD. The result shows that the future demand of residential property in Parit Raja for year 2013 is 195 units with a MAD of 28 units.

Forecasting through Moving Average of order 3, MA (3):

Table 4 shows the forecasting of the transaction data of residential property through Moving Average of order 3, MA(3). The result shows that the future demand of residential property in Parit Raja for the year 2013 is 197 units with a total absolute deviation of 89 units.

Measure of forecasting performance for Moving Average of order 3, MA(3):

Table 5 shows the results of the measurement of forecasting performance for Moving Average of Order 3, MA(3) by using a measurement method known as Mean Absolute Deviation, MAD. Therefore, the result shows that the future demand of residential property in Parit Raja for year 2013 is 197 units with a MAD of 22 units.

Forecasting of future demand for residential property in Parit Raja (2013-2018):

Figure 5 shows the future demand for residential property in Parit Raja from the year 2013-2018 by using Moving Average of order 3, MA(3). Moving Average of order 3, MA(3) is used due to the reason that it has a lower mean absolute deviation compared to Moving Average of order 2, MA(2). In which a lower MAD shows a lower forecast error that the forecasting model can produce; therefore a more accurate forecasting results will be produced. The result shows that the future demand of housing units in Parit Raja for year 2013-2018 are 197, 195, 192, 195, 194 and 193 units, respectively.

From the results, the future demand for residential property in Parit Raja is expected to fluctuating and decreases in most of the time based on the current transaction condition. Therefore, these results shows that the development of UTHM in Parit Raja since the year

1993 do bring an effect to the demand for residential property development in this region whereby the demand for residential property development has increased since the year 1993. Unfortunately, this effect does not

Table 2: Forecasting of transaction data of residential property through Moving Average of order 2, MA(2)

Years	Transaction (units)	Forecast MA (2), (units)	Deviation (units)	Absolute deviation (units)
2006	135			
2007	141			
2008	214	138	76	76
2009	211	178	34	34
2010	203	213	-10	10
2011	207	207	0	0
2012	182	205	-23	23
		195	-	142

Table 3: Measurement of forecasting performance for Moving Average of order 2, MA(2)

Variables	Values
Forecasting for the year 2013, MA(2)	195
Total absolute deviation	142
Mean Absolute Deviation, MAD	28

Table 4: Forecasting of transaction data of residential property through Moving Average of order 3, MA(3)

Years	Transaction (units)	Forecast, MA(3)	Deviation	Absolute deviation
2006	135			
2007	141			
2008	214			
2009	211	163	48	48
2010	203	189	14	14
2011	207	209	-2	2
2012	182	207	-25	25
2013		197		89

Table 5: Measurement of forecasting performance for Moving Average of order 3, MA(3)

Variables	Values
Forecasting for the year 2013, MA(3)	197
Total absolute deviation	89
Mean Absolute Deviation, MAD	22

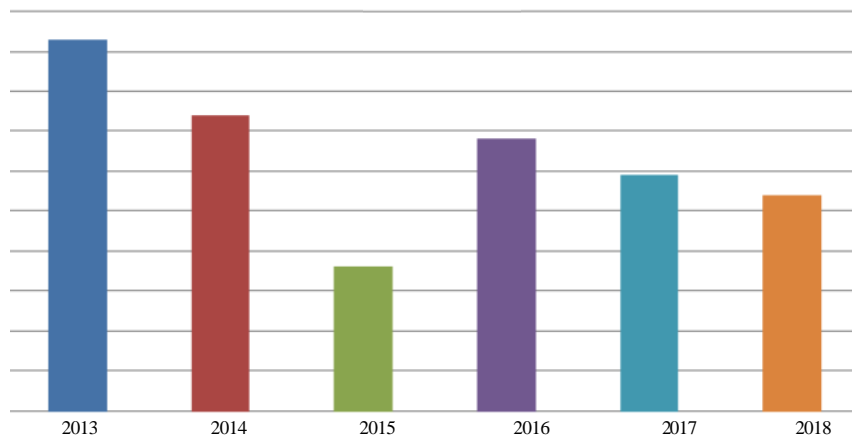


Fig. 5: Future demand for residential property in Parit Raja from the year 2013-2018

sustained in long run and in fact the current transaction data shows that the demand for residential property is decreasing recently since the year 2008. There were several reasons contributed to the results such as increasing numbers of student residential college and increasing of house rental in an area near to the university. On the other hand, the demand for residential property is mainly to cater for the university's staff. At one point, when the numbers of the university staff have reached its maximum capacity and the staff have already owned or purchase houses, the demand will decrease. These results indicate that the university does not seem to be a good indicator to effectively increase the demand in residential property in a direct way. According to Wilkinson and Reed (2008), population growth rate is one of the factors affected housing demands. Since, the transaction result shows that demand for residential property is decreasing, therefore, population growth rate is said to be decreasing or does not shows a significant increase in the recent year. This explains that why today Parit Raja is still being known as a rural area.

CONCLUSION

The findings of this research show that development of a university in a rural area is considered as one of the indicator contributing towards rural development in many aspects especially in property development in line with

the growth in population. However, the effectiveness of this indicator to develop the residential property in a rural area will be slowing down after some years of development when the university started to provide accommodation for their students. Therefore, university does not seems to be a good indicator to effectively increase the demand in residential property in a direct way which will contribute towards urbanisation of a rural area through stimulating the increase in population to this region.

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