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# The Study of Attachment between Distribution Pattern of Land Price and Apartments Price (Case Study: Vertical Housing Development in Administration City of South Jakarta)

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**Abstract.** Land and its utilization on housing development undoubtedly have become an essential issue in various studies. The comprehension on each locations of the case has allowed several important studies of particular patterns related to the capacity of land and housing market. Especially Jakarta as the most promising area for property business, also has the highest lands and apartments price in Indonesia. Land and apartment are considered as the most unique commodities, highly profitable. But since 2014, there has been lots of warnings about possibility of apartments oversupply; stagnation of apartment sales also has been indicated in locations at the edge of this city, which will enable the demand's transition from landed house to apartment, as form of vertical housing. Based on fundamental theories of land and apartment pricing, the research presumes that apartment development is considered as an effort of land intensifications, to trigger the enhancement of land prices in particular locations. Therefore, this research means to comprehend the correlation of distribution pattern of lands price with apartments price. The location's selection is based on expansion of the urban development of Jakarta Metropolitan Area to southern region which has become a general tendency.

## 1. Introduction

The essential issue of attachment between land and apartment pricings is derived from the rapid rate of development on various aspects in urban area; in this case, Jakarta as the capital city and still-developing-megapolitan of Indonesia [1]. From the physical aspect of urban development in the related location, scarcity of land supply because of the increasing rate of property development has always become a common condition in areas with extremely high density population. While from the non-physical aspect of urban development in related location, people of Jakarta tend to consider the property as most unique and highly profitable commodities especially with the dominant market mechanism.

### 1.1. Issue

In these recent years, there has been many warnings about the possibility of apartments oversupply in Jakarta. Referred to the market speculation by various property consultant in Indonesia, stagnation of apartment sales also has been indicated in settlement locations at the edge of Jakarta City, which will



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enable the demand's transition from apartment, as form of vertical housing, to landed houses; there is a possibility that this stagnation will influence the sales of related apartments.

### *1.2. Term*

As the research presumes that apartment development is considered as an effort of land intensification, also to trigger the enhancement of land prices in particular locations, there are still needs for further explanation of terms that will be used here. Especially the term of "apartments" on this research, could be defined in three general meanings: (1) Apartment as a residential which are dominantly owned by private sector for market orientation; (2) Rusunami as a public housing which are owned by government for public needs with permanent ownership; and (3) Rusunawa as a public housing which are owned by government for public needs with temporary ownership [2].

### *1.3. Goal*

While this research means to comprehend the correlation of distribution pattern of land prices with distribution pattern of apartment prices, the issue lies behind all of them, mainly case study in the city of Jakarta which is based on expansion of the urban development of Jakarta Metropolitan Area to southern region that has become the general tendency, is about relatively the misfunction between Apartments, Rusunami, and Rusunawa.

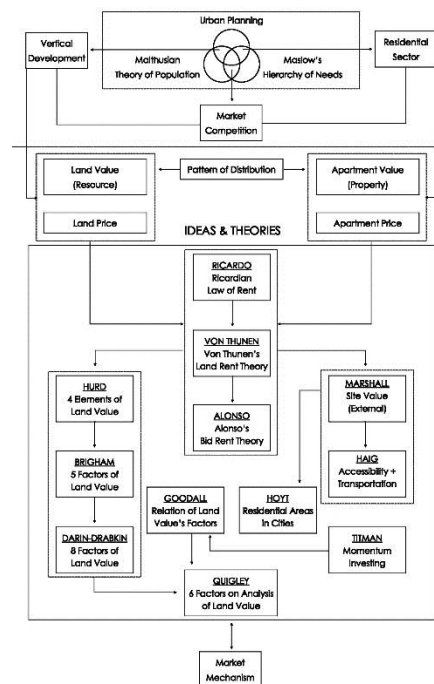
## **2. Theories**

Based on theories that has become the fundamentals of it, the research presumes that the apartment developments are considered as an effort of land intensification, also to trigger the enhancement of land price at particular locations.

The flowchart on the figure 1 shows the relations of ideas and theories that are going to be included, associated, and referred in this research. Mainly, the ideas are regarding property value by private sectors, asset value by public sectors, and housing development (private and public); while the theories that are referred in this research dominantly based on Ricardian Law of Rent, Von Thunen's Land Rent, and Alonso's Bid Rent Theory, with further information and explanation on the public housing such as Rusunami and Rusunawa.

## **3. Methods**

The data collecting method that will be conducted in this study is by interviews with reference, primary observations, and studies of related literature [3]. Considering the topic or issue about development of land prices and apartment prices in part of Jakarta, it is not only related to the market condition, which is commonly being researched by the private sector such as land and property developers, but also Rusunami and Rusunawa that have been mentioned before as part of them. It makes the references of this research, both stakeholders interview as primary survey and archived data as secondary survey, are primarily from the government executive institutions: (1) Kementerian Agraria dan Tata Ruang Republik Indonesia (Agrarian and Spatial Planning Ministry of Indonesia Republic) with Badan Pertanahan Nasional (National Land Council), (2) Kementerian Pekerjaan Umum dan Perumahan Rakyat Republik Indonesia (Public Works and Housings Ministry of Indonesia Republic), (3) Dinas Perumahan dan Gedung Provinsi DKI Jakarta (Housings and Buildings Agency of DKI Jakarta), and (4) Dinas Cipta Karya, Tata Ruang, dan Pertanahan DKI Jakarta (Development, Spatial, and Lands Agency of DKI Jakarta).



**Figure 1.** Research Theoretical Scheme.

### 3.1. Scope

This research will be done strictly within Jakarta, it will be done periodically from year to year and viewing the progress each year. The time scope of research has to be precise in as far as the data collecting method may able to retrieve. Considering the present time of this research is being conducted is the mid of 2017 (before the end of third quarter), the oldest data that has been collected through networks, mostly by secondary survey, is from 2009; then we have approximately 8 years of time range of data.

### 3.2. Phase

With the new condition of dividing apartment term into three categories: Apartment, *Rusunami*, and *Rusunawa*, the methods of analysis that will be conducted in the study first started with categorization between those three. The categorization is simply conducted by the basic function or market target between: (1) Apartment: general market by profit orientation, (2) *Rusunami*: specific market of public needs for permanent ownership, (3) *Rusunawa*: specific market of public needs for temporary ownership. This phase will decide the more advanced or further phase to analyze the sample in order to recognize their true function in the context of vertical housing development, part of the residential sector. After the first phase of categorization, then it is named characterization as the samples are going to be analyzed by their characters based on various elements or variables related to the urban development such as: location, accessibility, urban design, regulation, supply and demand, etc. [4, 5, 6]. With the result of characterization per categories of samples, the data is prepared to be included in the final phase of comparison by interpolation using Geographic Information System which is capable for the formulation of spatial data [7].

The result of those three phases: categorization, characterization, and comparison are capable to recognize the distribution pattern of housing-related-elements in rapid-developing-urban-area and comprehend how it is going to influence the sustainability of one region through settlement technology.

#### 4. Situation

Around 8,500 units of apartments have been released or published to the market with price range of more than Rp 50,000,000/m<sup>2</sup>, in this first quarter of 2017 have been taken up to 72% [8]. There is a lot of apartments in Jakarta with price range of approximately Rp 60,000,000/m<sup>2</sup> which could be considered to be in the category of premium-level property in Singapore, the neighboring country of Indonesia which has a more advanced and higher rate of economic level. It is clearly stated that those overpriced apartments in Jakarta are not only influenced by the variable of location and accessibility, but also the internal facility, unit capacity, and building quality.

**Table 1** Apartments in Jakarta, 2017

	2Q 2017	Prediction 2017
Supply	3,130	21,167
Take-Up Rate	84.86%	87.00%
Average Price*	Rp 32/m <sup>2</sup>	Rp 33/m <sup>2</sup>

Until July 2017, there has been 3,130 units of apartments from the total prediction of 21,167 units. The take-up rate or units of apartment that have been taken by market is 85%. It is projected to be increased to 87% along with the stable macroeconomics conditions and supporting by “upgrade rating” from S & P that is able to take FDI (Foreign Direct Investment) to Indonesia which is going to contribute directly in improvements of property development in Jakarta [9].

##### 4.1. Problem

The supply trend of vertical housing development from mid-class to high-class economy population is considered to be contrast compared to the low-class economy population in Jakarta, which affordable housing facility is still their most important needs. From the new policy occurred in city of Jakarta related to residential sector, government has issued the higher rate of development of *Rumah Susun* (*Rusunami* and *Rusunawa*) as the low-class economy population, family with monthly income of less than Rp 7,000,000 should be the main priority and primary target. However, the program is proven unnable to define the problem for mid-low-class economy population with monthly income in range of more than Rp 7,000,000 to less than Rp 15,000,000. They are not suitable for the criteria of ownership on *Rumah Susun*, a form of housing for low income family in population who are not able to afford apartments which price range have been increased rapidly to unaffordable level or so called overpriced.

That kind of rate of imbalance development or contrast between two neighbouring sides made Jakarta faces its problem in distribution pattern of the lands price and apartment price, in this case also including *Rusunami* and *Rusunawa*.

**Table 2** Rusunawa Total in Jakarta by Administrational Cities, 2017

Administrational City	Total Amount
Kota Administrasi Jakarta Barat	3
Kota Administrasi Jakarta Pusat	2
Kota Administrasi Jakarta Selatan	0
Kota Administrasi Jakarta Timur	13
Kota Administrasi Jakarta Utara	5

The total amount of *Rusunawa* (*Rumah Susun Sewa*) in the Jakarta by 2017 has become one illustration of how low the supply of vertical housing for populations which are considered the low-class economy population, family with monthly income of less than Rp 7,000,000. It is suitable with the master plan of Jakarta or RTRW (*Rencana Tata Ruang and Wilayah*) which has planned and aimed East Jakarta (*Kota Administrasi Jakarta Timur*) as a region for mostly residential sector. However, the high amount of population that was distributed all over the city, both in inner core and perimeter areas, is still in contrast with the affordable supply.

Moreover by considering the Master Plan of DKI Jakarta [10], there is still a missing target for residential sector development in areas such as South Jakarta (*Kota Administrasi Jakarta Selatan*) which also has a high amount of population but not even one *Rusunawa* on it. The residential sector development in South Jakarta is highly concentrated for apartment development; which is almost fully-controlled by the private sector with market orientation for the high-class economy population. It is somehow a contradiction to the general situation or demographic condition in several areas, except inner core or Jakarta Central Business District, in South Jakarta which still have lot of mid-low-class economy population and also commuters from Depok, Tangerang Selatan, and Bogor.

#### 4.2. Quantitative Data

The existing amount of *Rusunawa* as form of vertical housing in residential sector, which is considered as an example for public housing in Indonesia, with the data from government executive institute, is still facing a huge gap compared to the demand from low-class and mid-low-class economy population which has been distributed all over the city of Jakarta.

**Table 3** Total Unit of *Rusunawa* in Jakarta by Administrational Cities, 2017

Jakarta	Tower	Type	Unit
Jakarta Barat	15	18 - 36	1,969
Jakarta Pusat	6	18 - 30	540
Jakarta Selatan	0	-	0
Jakarta Timur	78	14 - 30	7,568
Jakarta Utara	62	21 - 30	6,274
Total	161	18 - 36	16,351

Total of 16,351 units, or it could be calculated with assumption of one average family with 5 persons, of *Rusunawa* obviously is unequal to the amount of population's demand. While there is estimated to be more than 100,000 families with primary and urgent needs in housing facility, in existing condition, there is no more than 20,000 units of public housing offered by the government in order to fulfill their population's needs. It is worsen by the average size of the *Rusunawa*'s unit with just around 18 m<sup>2</sup> to 30 m<sup>2</sup>; not really enough for families of four and more, which is still considered as the demographic issue in Indonesia, especially Jakarta, based on the standard of general quality living (SNI 03-1733-2004) [11]. It is also influenced by the fact that Jakarta has been successfully importing approximately 4 million people as commuters every day from the satellite cities as the impact of urban sprawl: Bekasi, Tangerang, Tangerang Selatan, and Depok; the result of this mismatch between job and housing has been a perfect example of problem in high-density urban area with no development control.

#### 4.3. Qualitative Data

The qualitative data in this research was mostly retrieved from interviews with stakeholders from The Housings and Buildings Governmental Agency of DKI Jakarta. Discussed dominantly about *Rusunami* and *Rusunawa*, clearly it has not only differ in terms but also their function in society, different



stewardship, physical requirement such the maximum of 5 floors per tower (defined as KLB or *Koefisien Lantai Bangunan*), etc. Many issues which are considered new has been found during this qualitative survey occurred in the context of vertical public housing in Jakarta. Such as the optimalization of *Rumah Susun*'s function as part of instruction from the governor until several cases of where there are more occupied units than the supply or offered units in one apartment.

The answer to that case or issue is somehow about trans-function between commercial units to residential units in some *Rusunami* and *Rusunawa*. It is obviously a form of coercion and proof of backlog in the supply of those public housing facilities compared to the demand from populations that urgently need housing facility but cannot afford more than the offered units which are categorized as *Rumah Susun*.

Establishment of *Rumah Susun*'s project also could be planned and executed by the private sector such as land and property developer as form of Corporate Social Responsibility with the calculation from proportion of constructed apartments (form of residential sector that has been categorized as mostly for the general market with profit orientation, unlike *Rusunami* and *Rusunawa*). Those kind of acts from government's policy for sure is aimed to balance the housing development for the high-class and mid-high-class economy population, also mid-low-class and low-class economy population. However, it needs to be restated again, which has been an issue in this research along with the actual problem in the system especially in Jakarta, that there are perpetrators who are using the liberal system and market mechanism for profit orientation. The example of such things is identification of subject or cases report about people who is marketing the units of *Rusunami* and *Rusunawa*. Either in small amount or huge scale, it has become a problem that ruins the system of public housing which is basically targeted for people who urgently need housings to fulfill their primary needs but considered with low economy capacity; now as the problem were occurring in various apartments which legally has been categorized as *Rumah Susun Milik* or *Rumah Susun Sewa*, the vertical public housing have become a form of long-term investment; not directly functioning as a place for living, but tools for mid-high-class and high-class economy population.

## 5. Analysis

### 5.1. Categorization

From the phase of categorization, the term of apartment, especially in Jakarta, has been defined based on its function in the city, price range that is referred to the population's affordability capacity, and also the specification of mainly physical elements on it.

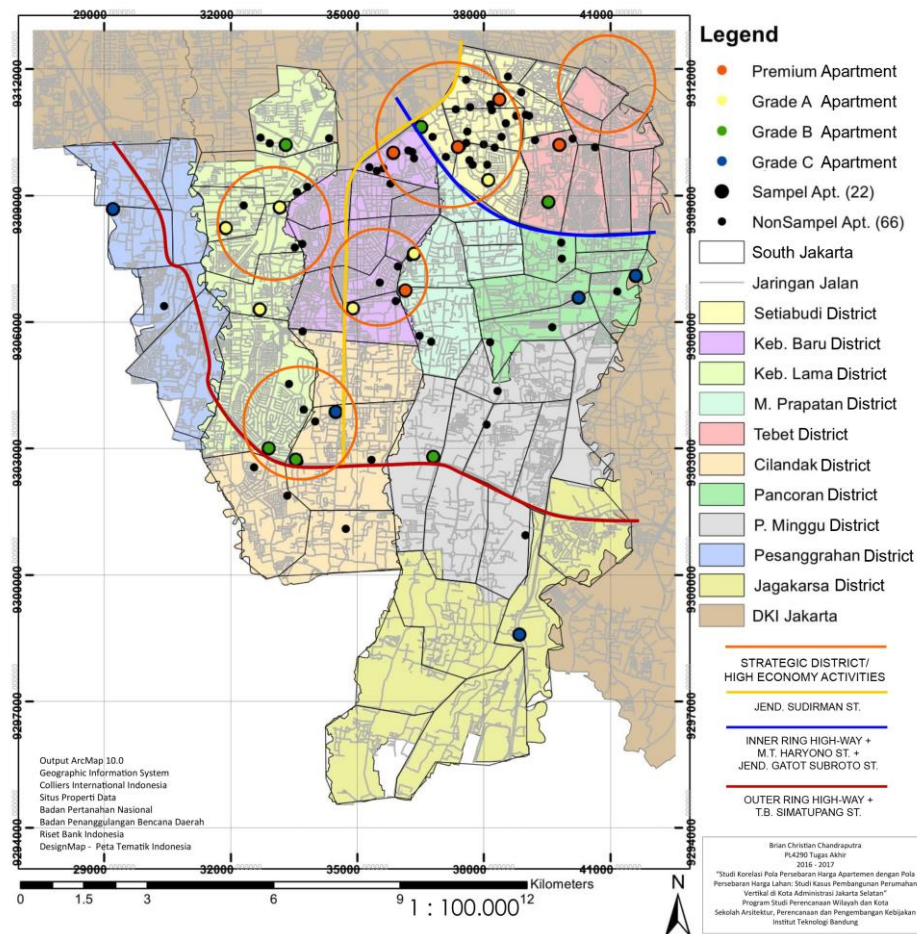
**Table 4.** Apartments Categorization

Housing	Definition
<i>Apartemen</i>	Form of vertical housing, part of residential sector development, dominantly planned and executed by the private sector such as property developers, for general market (mid-class, mid-high-class, high-class) with profit orientation.
<i>Rusunami</i>	Form of vertical housing, part of residential sector development, dominantly planned and executed by the public sector such as government agencies, for specific market (mid-low-class, low-class) for public needs and permanent ownership.
<i>Rusunawa</i>	Form of vertical housing, part of residential sector development, dominantly planned and executed by the public sector such as government agencies, for specific market (mid-low-class, low-class) for public needs and temporary ownership.

Still with a lot of functional violations by individuals, the *Rusunami* and *Rusunawa* have failures that are still occurring in the system with misfunctionality of public vertical housing for the specific market in population with huge diversity of economics capacity.

## 5.2. Characterization

Referred to the historical data of apartment developments in Jakarta, by Housings and Buildings Agency of DKI Jakarta, it was identified that there is a major agglomeration of Apartments development instead of Rusunami or Rusunawa, which are more substantial for a lot of specific market in the population. From Rumah Susun Klender of Jatinegara, which has been established in 1990, to the newest one, Imperium Tower Apartment at this June 2017, the trend is showing how private sector dominates the development of vertical housing in this urban area.



**Figure 2.** Character of Distribution

As the property developers become more dominant than government institutions in the matter of vertical housing development, it tends to create a plan and execution based on market preference; the agglomeration of it, which is considered as an inequal distribution pattern, could be easily identified from the map above. Not because of the basic needs, but location, accessibility, urban design, regulations, supply and demand, and others from the perspective of general market which is obviously influenced by the market mechanism. It creates the trend of development in some characters: (1) Location with potential to offer properties in high range of price based on its lands value, (2) Accessibility to working place or shopping center with potential to increase the market value, (3) Regulations that could be influenced in order to maintain stable increasing rate of properties value, and more economical reasons that in long term would be negatively impacted on the sustainability of one urban area.

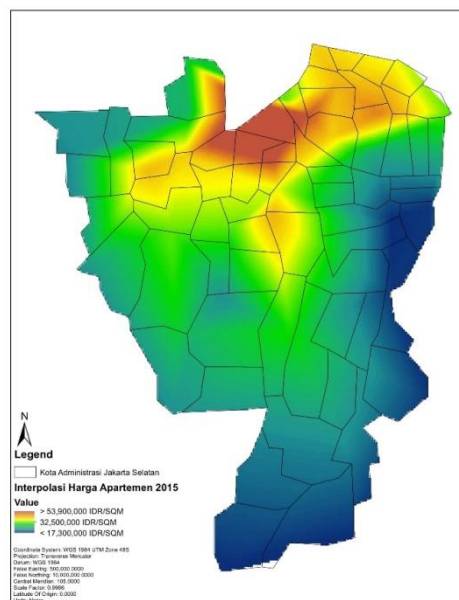


### 5.3. Comparison

In order to understand the correlation between the distributional patterns of land prices with distributional patterns of apartment prices, it needs to be compared not just between the land and property but also the division of property itself. Using GIS, it is able to be conducted through spatial data with variables of price range and specific location [12]. The result of it is the statistically and scientifically processed distributional pattern between the elements such vertical housing: Apartment, *Rusunami* and *Rusunawa*.

This interpolation map below shows South Jakarta as one sample in the city of Jakarta, part of this primary case study, which has become the agglomeration of extremely high property price or overpriced apartments based on the affordability of the major population [13].

Those are only for the apartments which has been categorized in the previous phase as form of vertical housing for general market with profit orientation. A contrast condition both in quantitative and qualitative aspect with *Rusunami* and *Rusunawa* by estimating the existing also future situation.



**Figure 3.** Interpolation of Apartments

**Table 5.** Recently Released *Rumah Susun*

Rumah Susun	Unit Released	Unit Occupied
Tubun	524	300
Cakung Barat	300	300
Rawa Bebek	400	400
Jalan Bekasi	200	300
Lokbin Semper	235	235
Marunda	300	300
Rawa Buaya	358	0
Total	2,317	1,835

## 6. Conclusions

There are difference both in terms, functions and specifications, between Apartment with *Rusunami* and *Rusunawa*, form of vertical housing development in Indonesia, especially the city of Jakarta. While apartments is considered to be marketed through the market mechanism with their general market target, *Rusunami* and *Rusunawa* basically should be aimed through government regulations for specific target within the population.

In reality, the amount of planned form of residential for general market such as Apartment is several times higher than the development or planned supply of *Rusunami* and *Rusunawa*. The similar situation also occurred to future condition as the increasing rate of demand for affordable *Rumah Susun* is still rising.

However, it gets worse because there are proven violations of *Rusunami* and *Rusunawa*'s marketing through market mechanism with increasing price by some perpetrators that ruins the system. The Government failed to fulfill the urgent and primary needs of those specific population because there are lack of control and monitoring for the related issues.

There is an attachment in positive orientation and similar direction between distribution patterns of land prices with the distribution patterns of apartment prices in urban area which has been the study case.

These kinds of conditions in rapid-developing urban area with high density and various aspects of discrepancy tend to fail the aim and plan to create a sustainable city, in this case from perspective of public housing as part of residential sector development. A monitoring act and development control through this research of distribution pattern and mapping technology are essential as the process to achieve the sustainable and maintain ideal condition.

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