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Analysis of the Effect of Infrastructure Development on Land Prices in Cinere and Beji Districts, Depok City

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Abstract

The surge in housing prices in cities has triggered the emergence of many problems related to urban settlements, starting from the construction of housing that is far from the city center, congestion problems, pollution, to encouraging the occurrence of many informal slum settlements. This causes a shift in settlements to supporting areas, especially Jabodetabek. Residential prices are dominantly influenced by high land prices. Infrastructure development has a major influence on economic growth and the development of an urban area. However, this is not easy to apply in the Depok City area, especially in the Cinere and Beji District areas. Housing development is very rapid but must be followed by the development of facilities and infrastructure. The purpose of this study was to analyze the influence of infrastructure development factors such as road network (accessibility), availability of facilities (transportation network, electricity network, telephone network, clean water network, educational facilities, health facilities) and residential neighborhoods based on the opinions of housing residents on land prices in residential neighborhoods in Depok City, especially in Cinere Dan Beji Districts. The research method used is research using a mixture of quantitative and qualitative methods in stages considering the complexity of the problem. Quantitative methods will be used to look at housing-related data as a basis, then to NJOP analysis as a basis for land prices. The results of this study indicate that in general, the data analysis shows compatibility with the literature that has been done, that land prices are very significantly influenced by the accessibility of the main highway network and the presence of commercial equipment to fulfill needs.

Keywords
development; infrastructure; land prices

I. Introduction

The urbanization process has occurred in Indonesia massively, since the 21st century. Data from the Central Bureau of Statistics (BPS) from 2013-2021 shows that more than 70% of people's living spaces in Indonesia are experiencing a process of urbanization. This condition, as predicted by Adianto and Gabe (2021) through projections with linear regression, will continue to increase to around 75% in 2045.

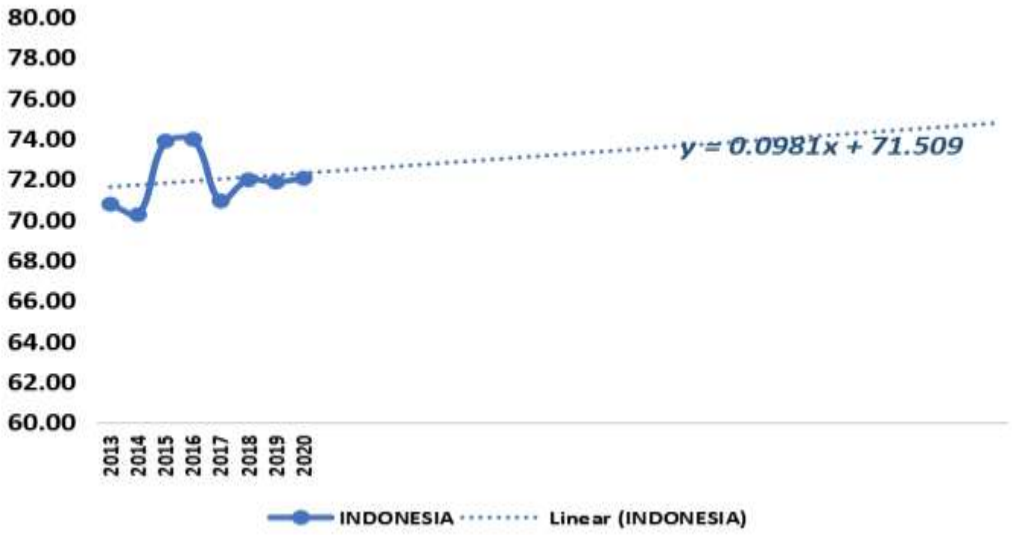

Figure 1. *Projection of urbanization in Indonesia until 2045*
Source: Processed by the author based on 2013-2020 BPS data

Figure 1 shows that the total population of Indonesia from 2020-2045 will continue to increase from around 270 million people to 325 million people or around 19.08%. This condition causes the need for land to meet the needs of the house becomes very important. An increase in the density of the City of Jakarta and its surrounding supporting cities, namely Bogor, Depok, Tangerang and Bekasi (Bodetabek) is unavoidable. According to data recorded by BPS since 2015 in the city of Jakarta itself there has been a continuous population increase every year until 2021 there will be an additional new population of 431,760 people.

In an effort to support themselves, people who have just come to the city of Jakarta and its surroundings will try to meet their needs, one of which is the need for a place to live. Shelter/board is one of the basic needs that must be met apart from clothing and food. This causes the rate of population growth to automatically run parallel to the rate of increase in residential density. According to Sussenas data from 2014 to 2019 there is a tendency to increase the number of inhabited houses.

Table 1. Population density of Jakarta, West Java and Banten

	Jakarta		**West Java**		**Banten**	
	Total population	**Enhancement**	**Total population**	**Enhancement**	**Total population**	**Enhancement**
2013	2,098,266	-	10,518,637	-	2,167,038	-
2014	2,144,535	46,269	10,650,005	131,368	2,234,957	67,919
2015	2,266,170	121,635	11,070,812	420,807	2,371,704	136,747
2016	2,334,063	67,893	11,363,087	292,275	2,434,758	63,054
2017	2/293.168	-40,895	11,207,469	-155,618	2,480,544	45,786
2018	2,283,261	-9,907	11,392,586	185,117	2,528,387	47,843
2019	2,302,963	19,702	11,636,928	244,342	2,546,207	17,820

Source: Processed by the author based on BPS data

Unfortunately, the rate of increase in the production of livable houses that are affordable by the government and business entities has not been able to keep up with the rate of population growth so that the number of shortages of houses belonging to Indonesian citizens has not been resolved even though various programs to provide livable housing have been implemented. Based on the results of calculations using BPS data from 2010-2019, the number of property shortages increased slightly from 13,505,866 units (2010) to 13,692,049 units (2019). This fact implies that various programs with public funds seem to be meaningless to reduce the number of property shortages for citizens. One reason is the uncontrolled increase in house prices. The interesting thing from the linear regression analysis based on the house price index published by Bank Indonesia from 2012-2021 is that small-sized houses have experienced the highest price increases compared to medium-sized and even large-sized houses. In fact, small-sized houses have the most affordable prices for people, especially those with low incomes. This condition causes low-income households to not be able to buy a house, but to rent or live freely with relatives.

This has caused settlement developments to shift to the outskirts of Jakarta City to the Bodetabek area (Bogor-Depok-Tangerang-Bekasi). However, instead of solving the problem, shifting the concentration of residential development to the outskirts of Jakarta has created new problems. With so many people arriving as a result of urbanization, there is a density of mobility rates which causes congestion, wastage of energy and time, as well as various kinds of pollution. (Syaodih, 2018) In addition to the impact of the shift in concentration in housing development and the accompanying problems. The increasing need for housing accompanied by unaffordable housing prices seems to provide a signal for informal slum settlements to grow together with the city (Keivani, R, 2010). The condition of the lack of housing causes people, especially low-income people, build houses and housing independently, as a solution to meet their housing needs. This way of building often occurs in urban villages, with limited knowledge and quality of construction, so that the housing and settlements have a "slum" quality. Residents who cannot afford formal housing or pay for transportation have no other choice but to live in informal settlements such as urban kampungs (which tend to be slums) in the middle of Jakarta.

The development of inappropriate settlements that occurred when it is very contrary to the Sustainable Development Goal which is the goal of world development. At point 11 the United Nations invites world cities to form cities and settlements that are inclusive, safe, resilient and sustainable by 2030. Unfortunately, the facts that have occurred have actually led to the opposite result. The increase in house prices is clearly contrary to the target of providing affordable and safe housing, not to mention this has been accompanied by an increase in the growth of informal housing which cannot be considered proper and safe. The inability of the community to obtain proper and safe housing also indicates the low inclusiveness of the city for its people. Without a real solution, the target of the Sustainable Development Goal which is expected to be achieved in 2030 looks increasingly distant and impossible to achieve. Moreover, the fulfillment of housing needs for Indonesian people has actually been guaranteed by the state in Article 28H paragraph 1 of the 1945 Constitution, this shows another reason why the issue of decent and affordable housing prices is very crucial for the community.

In order to find out and understand the problem of affordability of house prices, this research seeks to deeply analyze the component that most influences house prices, namely land prices. Land is the main determinant of house prices (Sahojian et al, 2018). Many studies automatically analyze land prices in the context of housing prices (eg, McMillen and MacDonald, 1990; Day et al., 2007; Negashi, 2022; Lee et al, 2021; Yu, 2022)). The

research will look at the causes of the high cost of land prices, and then look for solutions that can control land prices which then affect the selling price of houses. Thus, recommendations for improving the policy for providing subsidized housing can be formulated in accordance with the housing supply conditions for subsidized housing through critical exploration in this study.

II. Review of Literature

2.1 Buliding the City

In discussing a city and the phenomenon of the occurrence of cities, it cannot be separated from the topic of urban development. Definitive explanations regarding urban development may vary depending on the view of the source. Several sources define urban development through the identification of facilities. The European Union agrees on the definition of urban development as development which includes infrastructure for education, health, justice, waste management, markets, sidewalks and protection of cultural heritage. These developments are often part of a city's capacity building efforts. Another explanation of urban development interprets it as an effort to improve the living conditions of the people in it, providing the needs for facilities such as recreation, labor, health, education, services, and mobilization of residents from their workplaces and homes. (Kouamou & Pettang., 2008) There are also sources that discuss urban development as a form of increasing the capacity and capability of a city. Pego (2022) defines urban development as a concept that discusses the capacities and services created by urban areas. He also argues that Urban development is also a manifestation of the connectivity of key urban supporting sectors such as renewable energy, information technology, mobility and services.

2.2 Problems of Urban Development

The city development process is often followed by various problems, one of which is uneven development. In the book “Uneven Development, Geography of. International Encyclopedia of the Social & Behavioral Sciences” (2008) Neil Smith explains that an easy way to identify uneven development is to look at the urban landscape, if development and underdevelopment are found on the other side, then it can be said that there is an uneven development phenomenon. Uneven development events are considered as a process belonging to capital society manifested and visible in spatial form, a capitalist product that becomes a clear marker for the existence of capitalist geography. In simple terms, capitalist activity wants existing capital assets to continue to grow and provide continuous profits, then this capital is also slowly withdrawn from its built form so that it can be moved to other locations and provide new sources of income. It is this movement of capital in a built form that later emerges in the form of an imbalance in the built environment.

Development inequality can be found on various geographic scales, from urban to national. At the city scale, development inequality is usually based on a development focus on suburban areas where these areas continue to receive attention and the construction of various integrated new facilities, while the downtown area gradually escapes attention and makes gentrification more prevalent (Smith, 2001). Harvey (2014) states that the result of unequal development is the emergence of a concentration of wealth, power and influence on a regional scale. Problems in urban development certainly do not stop there. Problems in urban development are complex and protracted. Heinke (1997) argues that the problems faced by big cities, especially in Asia, boil down to the ability or inability of the

government holding power in cities to meet the basic needs of their people. Often what the government is doing is considered not in accordance with the principles of good and sustainable urban development, thus inviting urban development problems to always be present. Heinke (1997) mentions urban development problems that often arise due to administrative incompetence of governments in the form of population growth, industrialization, urbanization, financing, employment, health care, social services, public safety, transportation, water supply, waste disposal, and cultural and recreational facilities.

2.3 Definition of Affordable Home

Home affordability is defined by some experts as a household's ability to rent or buy a house according to their income capability (Bangura & Lee, 2021; Stone, 2006a). Meanwhile, many other experts argue that this concept is a balance between the selling price of a house and household income (Bangura & Lee, 2019, 2021; Chen et al., 2010; Stone, 2006a; Kutty, 2005). The Property Council of Australia (2017), interpreting the affordability of housing is trying for the community to get the housing of their choice that suits their needs, regardless of renting or buying. They also mentioned several ways to measure housing affordability namely: (1) how expensive is a house in comparison to one's income? (2) How easy is it to overcome the 'deposit gap' to save to buy a house? (3) How easy is it to provide a mortgage on a home? And finally (4) how expensive is the rent compared to one's income?

According to AHURI (2012) the affordability of houses is not only limited to the economic price of the house, but also the impact of affordability. AHURI argues that affordable housing is not only seen from decent housing standards, but also from the environment. Even though the house is of the appropriate standard and quality, it will be useless if the environment is not proper. If a household obtains housing at a cost that is considered 'affordable', environmental feasibility aspects also need to be considered. Some experts also express opinions that are in line with AHURI regarding other aspects of affordability besides the price of the house itself (Stone et al, 2011; Leishman and Rowley, 2012).

Earl et al (2017) analyzed King's (1994) opinion in identifying the issue of affordability, in which the three main aspects that are seen in housing affordability are socially acceptable housing standards, housing costs, and quality of life. These three aspects form the basis for assessing whether a house is considered feasible and affordable or not.

2.4 Problems with the Affordable Housing Program in Indonesia

In the 2021 NAHP activity report, the problem of providing affordable housing in the FLPP scheme is focused on the issue of rising land prices, the high cost of permits, and also the inability to reduce the cost of building and infrastructure construction without reducing quality. Regarding difficulties with land issues, it can be seen from the distribution of development projects in the metropolitan area of Java Island which tends to lead to district areas and not in the city area itself. Nearly 54% of housing using the FLPP financing scheme is located in rural and rural areas in non-metropolitan areas. Apart from Java Island, similar things are happening in metropolitan areas outside Java such as Medindingro (Medan, Binjai, Deli Serdang, Karo) and Mamminasata (Makassar, Takalar, Maros, Gowa). These conditions indicate that the price of land in the main cities is no longer affordable for the construction of MBR subsidized housing. Another problem in the FLPP program also revolves around the quality of housing. After the budget was spent on land costs, high construction costs forced housing providers to lower quality, so that 88%

of FLPP respondents felt that the quality of buildings and infrastructure was poor. This issue of occupancy also highlights infrastructure in reducing costs, providers sacrifice infrastructure, there are 17% of respondents who say houses have problems with a lack of electricity/clean water and 44% have bad infrastructure. By looking at the distribution of construction sites under the FLPP scheme (FLPP 2018: 57,939 housing units in 368 districts/cities and involving 2,648 developers), the evaluation of the FLPP program can be a representative picture of the overall supply of MBR housing (treaded houses).

In the One Million Houses Development (PSR) program for the 2014-2019 period, FLPP contributed 15.57% to MBR house financing of the total MBR house construction. So it can be said that the problems mentioned in the FLPP program also occur in the PSR program. The PSR program has been running since 2014, this program seeks to overcome the problem of quantitative deficits (backlog + new housing needs) and qualitative deficits (RTLH and slum settlements.). PSR has now completed its first period (2014-2019) and obtained a pretty good record, PSR in period 1 succeeded in approaching the number of new housing needs per year (around 800 thousand per year), but the results of PSR have not been able to reduce the ownership backlog at 12.7 million (2018) and the occupancy backlog at 7.22 million (2018). The problem with the PSR program is considered to be its limitations, where this program only fills 6.12% of the total 2020-2024 physical development target.

2.5 Determinants of Affordable Home Selling Prices

With soaring house prices in many countries over the past few years, the determinant factors affecting house prices have become the concern of many parties (Algieri, 2013). Many studies then specialize their research to examine the determinants of house prices. In analyzing the determinants of house prices, some experts divide the factors into several outlines such as Chigwenya & Dube (2019 dividing them into income, supply and demand, or Geng (2018) who divide them into supply, demand and structural. In general it is found that two factors the main determinants of housing prices are supply and demand.

The determinants of housing prices from the demand side generally depend on the ability of households to pay for their housing or mortgage (Cohen & Karpavičiutė, 2017). There is a direct relationship between house prices and income (Abelson et al, 2005). From the demand side of the housing market, Nan Geng (2018) found that disposable income influences housing price trends, along with interest rates, demographic trends, loan and mortgage taxes. But then the demand side doesn't just stop at income and house prices. Community interest in housing is also accompanied by certain residential preferences. This preference ultimately affects house prices (Algieri, 2013). Residential preferences including the form of a house that has a security system, kitchen area, number of rooms and bathrooms also have an impact on house prices (Ebru and Eban, 2011). Occupancy preferences can also be influenced by income, price, age, and household size (Tiwari & Parikh, 1997).

Most of the other studies highlight the growth rate of the housing market itself. Things that are considered as the influence of house prices such as changes in market structure are urgently studied to see the phenomenon of this spike in house prices (Algieri, 2013). This market study focuses on market problems on the availability of housing stock or housing market stock (McCarthy and Peach, 2004; Fitzpatrick and McQuinn, 2004), the limited supply of housing that is not in balance with demand is thought to be the reason for the massive increase in house prices. From the housing supply provider's point of view, the marketing scheme highlighted several aspects including the competitiveness of providers, and land clearing costs, all of which affect the price of housing products, plus external

factors such as property cycles, costs of building materials, and loan rates from banks (Rahadi et al, 2018).

The determinants of house prices that have been extensively studied by experts are macroeconomic aspects such as economic growth, inflation and currency circulation. Cohen & Karpavičiutė (2017) argue that house prices are determined by gross domestic product, unemployment, macroprudential policies and the average house price in the previous period. Mallick & Mahalik (2015) in discussing macroeconomics noted stock prices, non-food bank credit, and foreign investment were responsible for rising house prices. Many experts agree that the loan terms provided by banks that affect house prices (Algieri, 2013) are the loan-to-value (LTV) ratio and debt-to-income (DTI) ratio (Cohen & Karpavičiutė2017) as well as down payment requirements, (Chu, 2014; Cohen & Karpavičiutė, 2017). Liang and Cao (2007) found an indirect relationship between bank loans, property interest rates and macroeconomic aspects such as gross income product to house prices. According to Mallick & Mahalik (2015) bank credit conditions and foreign investment can be determining factors from the market demand side. In general, macroeconomics can be agreed upon in many studies as a factor influencing house prices from the demand side. (Azlan & Lee, 2022; Rao & Ge 2015).

In general, the factors affecting house prices are influenced by supply and demand sides. On demand, house prices are seen from the ability of the community to obtain housing according to their needs and preferences. This purchasing power is also influenced by macroeconomic aspects such as per capita income, inflation, gross domestic product and also bank conditions. Meanwhile, from the supply side, house prices are influenced by several price components related to construction including materials and wages, direct licensing costs as well as costs incurred due to delays in licensing and also tax costs, as well as land-related costs such as acquisition and land prices. The price of land then becomes a special concern considering that land is often a problem in evaluating the provision of subsidized housing in Indonesia.

III. Research Methods

This study uses a mixed method of quantitative and qualitative in stages considering the complexity of the problem. The qualitative method used is by collecting various scientific reference sources from primary and secondary sources through searching related writings such as journals, papers, FGDs, seminars, literature and mass media news about the development and growth of housing in Jabodetabaek. Quantitative methods will be used to look at housing-related data as a basis, then to NJOP analysis as a basis for land prices.

IV. Results and Discussion

4.1 Results of Data Processing

There are 3 (three) variables in data processing, namely (1) NJOP data for 2015 and 2020; (2) road network data; and (3) commercial point data. The results of data processing for each of these variables will be explained in the next sub-chapter.

a. Distribution of NJOP in 2015 and 2020

As previously mentioned, the NJOP data comes from the data on Land and/or Building Rights Acquisition Fees (BPHTB) as a result of recap calculations for 2015 to

2020. From the tabular data, data processing is carried out by calculating the median value of each unit village analysis. This was done because the data did not obtain the coordinates of each existing parcel ID, so the digitization process was carried out using the unit analysis approach for each village in the Cinere District and the Beji District. The median value approach is used instead of the average value because it is considered to better describe the distribution of data where the difference is too far between the highest data value and the lowest data value.

Table 2. NJOP Median Values for 2015 and 2020 for Cinere and Beji Districts per Village

NO.	WARD	AREA CODE	AMOUNT OF DATA	NJOP Median Value 2015 (Rupiah)	NJOP Median Value 2020 (Rupiah)
1	**Bezi District**	**32.76.06**	**1,286**	**1,474,355,500**	**2,232,927,000**
1.1	Beji	32.76.06.1001	321	185,790,000	293,544,000
1.2	East Bay	32.76.06.1006	69	393,250,000	615,600,000
1.3	Pecan Face	32.76.06.1004	185	240,812,000	321,024,000
1.4	Steamed	32.76.06.1002	176	199,240,500	342,966,000
1.5	China hut	32.76.06.1005	132	202,195,000	285,795,000
1.6	New Land	32.76.06.1003	403	253,068,000	373,998,000
2	**Cinere district**	**32.76.09**	**933**	**2,290,379,500**	**3,170,159,000**
2.1	Cinere	32.76.09.1001	418	763,668,000	1,076,329,000
2.2	Gandul	32.76.09.1002	209	286,875,000	391,425,000
2.3	Teak Base	32.76.09.1003	212	738,336,500	992,387,500
2.4	New Teak Base	32.76.09.1004	94	501,500,000	710,017,500
Total Data			**2,219**	**3,764,735,000**	**5,403,086,000**

Source: Data Processing, 2022

From the results of the NJOP data processing, a joint table process was then carried out with village administrative data. This is done so that the tabular data can be seen spatially distributed. The results of the joint table process can be seen in the following figure:

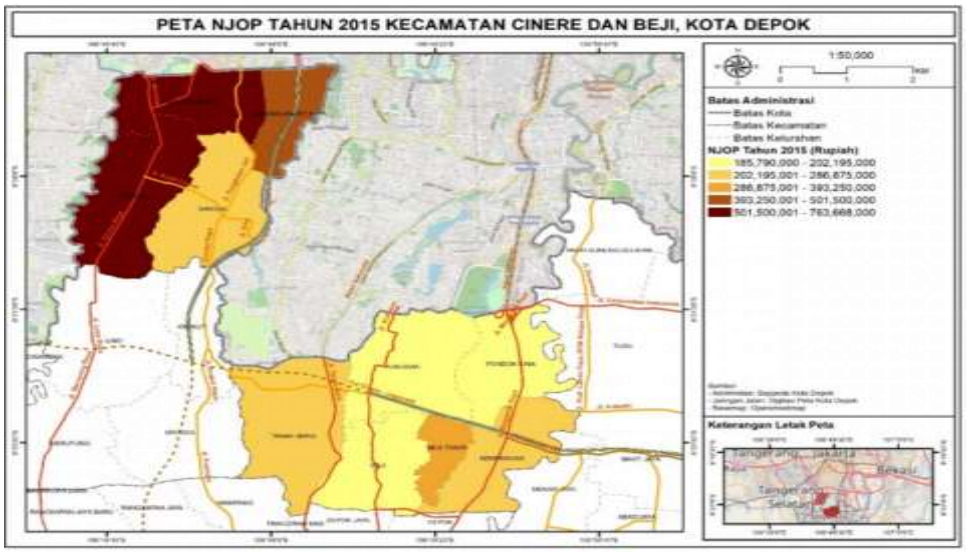

Figure 2. *2015 NJOP Distribution Map of Cinere and Beji Districts, Depok City*
Source: Data Processing Results, 2022

From the two maps, it is shown that in 2015 the areas with the absolute highest NJOP were only in Cinere District, with Pangkalan Jati Village and Cinere Village having the highest NJOP values, while in 2020 Beji District began to have areas with high NJOP values where apart from the Pangkalan Jati and Cinere Subdistricts in the Cinere Subdistrict, the Beji Timur, Tanah Baru, Kemiri Muka, and Kukusan Villages in the Beji Subdistrict have an increasing NJOP value.

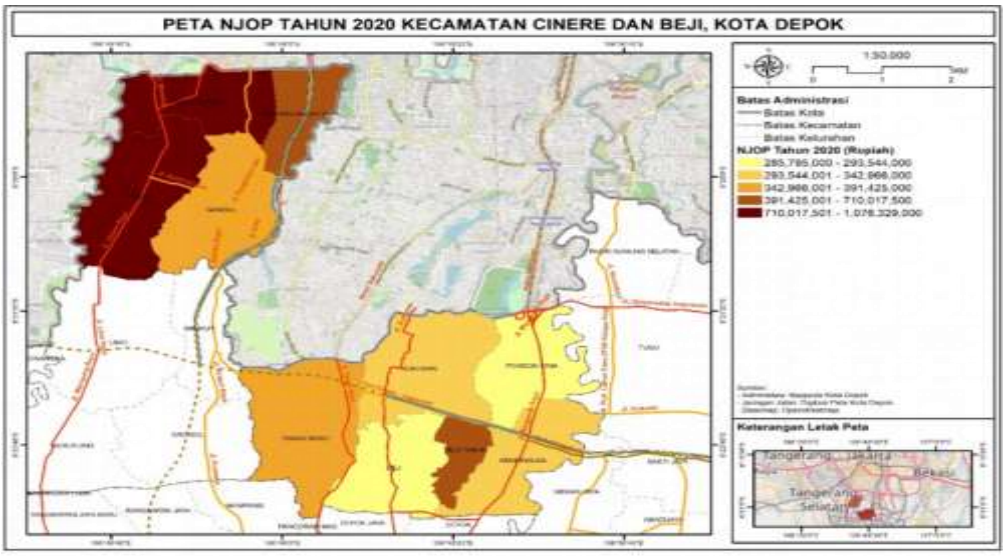

Figure 3. *2020 NJOP Distribution Map for Cinere District and Beji District, Depok City*
Source: Data Processing Results, 2022

b. Existence of Road Network Access

The existence of the road network plays a very important role in facilitating the flow of transportation for the movement of people as well as being a mode of distribution of goods so that it becomes something that cannot be separated from human needs (Adler, 1983). Therefore the road network data is processed to see how accessible it is in the Cinere District and Beji District. The road network data is sourced from shapefiles obtained from Bappeda Depok City with a scale of 1:25,000 in 2015. The data is then updated with a digitization process on Googlemaps data to add the presence of toll roads and also several secondary collector road corridors that are not yet available in 2015 data. The road network data is differentiated based on road function, namely: (1) secondary arterial road; (2) primary collector roads; (3) secondary collector roads; (4) toll roads; and (5) toll road plans.

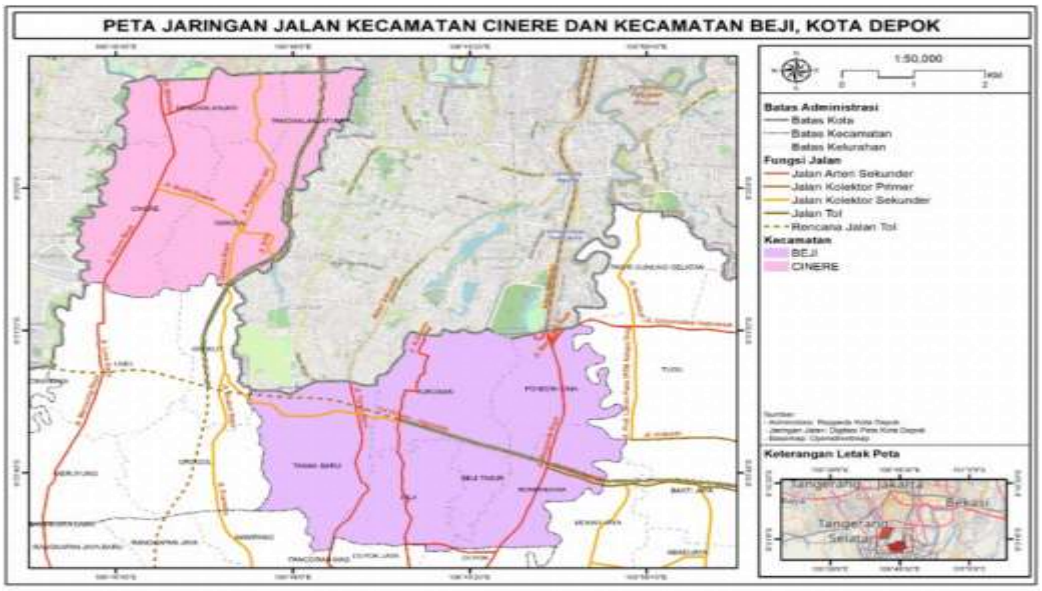

Figure 4. *Road Network Map Based on Road Functions in Cinere and Beji Districts*
Source: Data Processing Results, 2022

The road network map illustrates that both Cinere and Beji Districts have access to main highways in the form of arterial roads that connect Depok City with commercial centers such as offices, commerce and services in Jakarta. Since 2018, there have been additional DESARI (Depok-Antasari) toll roads and CIJAGO (Cinere-Jakarta-Bogor) toll roads that cross the Cinere District and Beji District. This increases the accessibility of the two sub-districts to the capital city of Jakarta as a commercial center which is a pull factor for regional development.

c. Commercial Point Spread

The distribution of commercial points is grouped into 5 (five) groups, namely: (1) Banks; (2) Hotels/Inns; (3) Market; (4) Shops/shops; and (5) Supermarkets/supermarkets obtained from Bappeda Kota Depok with an accuracy level (scale) of 1:25,000 in 2015. The data will then be updated through online media searches such as Google maps. This commercial point data is used to see the strategic level of an area. The assumption used is that the more complete the commercial points in an area, the more strategic the area will be so that it will affect the NJOP value of that area.

The results of this commercial point data processing show that in Cinere District, there are 2 (two) urban villages that have complete commercial categories, namely Cinere Village and Pangkalan Jati Village, while in Beji District there are also 2 (two) urban villages that have complete commercial categories, namely Village Kemiri Muka and Pondok Cina Village. From the tabular data, a geo-referencing process is then carried out so that the data can be seen spatially on the map.

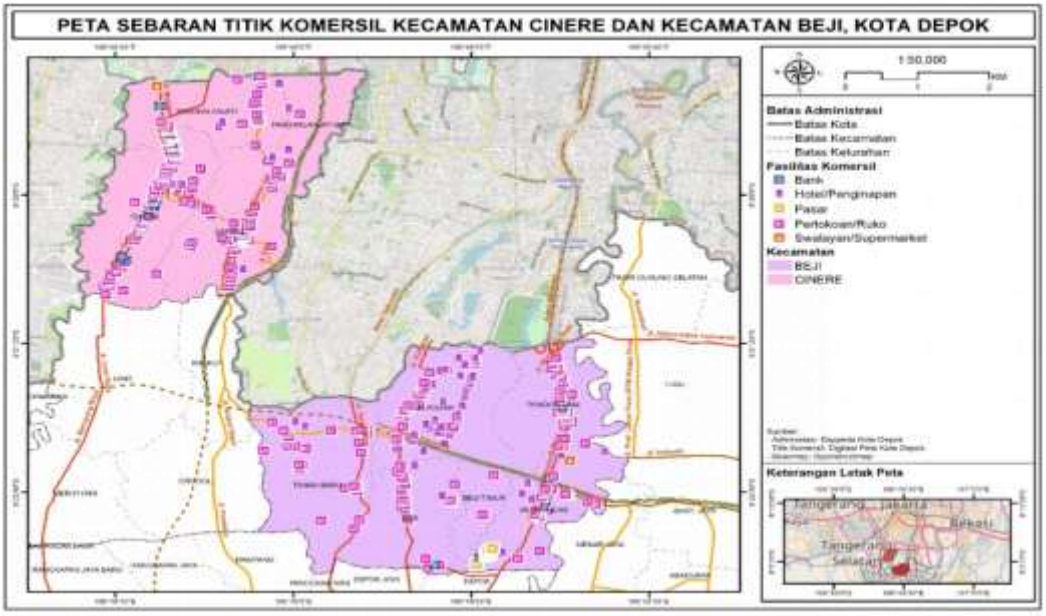

Figure 5. *Distribution Map of Commercial Points in Cinere and Beji Districts*
Source: Data Processing Results, 2022

The map illustrates that the entire area in the Cinere and Beji Subdistricts has commercial facilities, so that the area is in a strategic location relative to existing commercial facilities. The sub-districts such as Cinere, Pangkalan Jati, Kemiri Muka, and Pondok China are the most strategically located sub-districts based on the completeness of commercial facilities.

4.2 Data Analysis

The analysis used in this study is a descriptive analysis of the overlay results between the NJOP increase map and the map of the road network and map of the distribution of commercial points that have been pre-processed.

a. Increase in NJOP for the 2015-2020 period

The increase in NJOP in this period is used to see the direction of increase in NJOP values in the study area. The increase in NJOP was obtained from the calculation of the 2020 NJOP minus the 2015 NJOP. The results of this calculation show that the distribution of the NJOP increase in the high category is heading south in each sub-district. For Cinere District, the NJOP value leads from Pangkalan Jati Village, Pangkalan Jati Baru, to Cinere Village. Meanwhile, in Beji District, the increase in the NJOP value for the high category also headed south, namely from Kukusan Village to Tanah Baru, Beji and East Beji Villages.

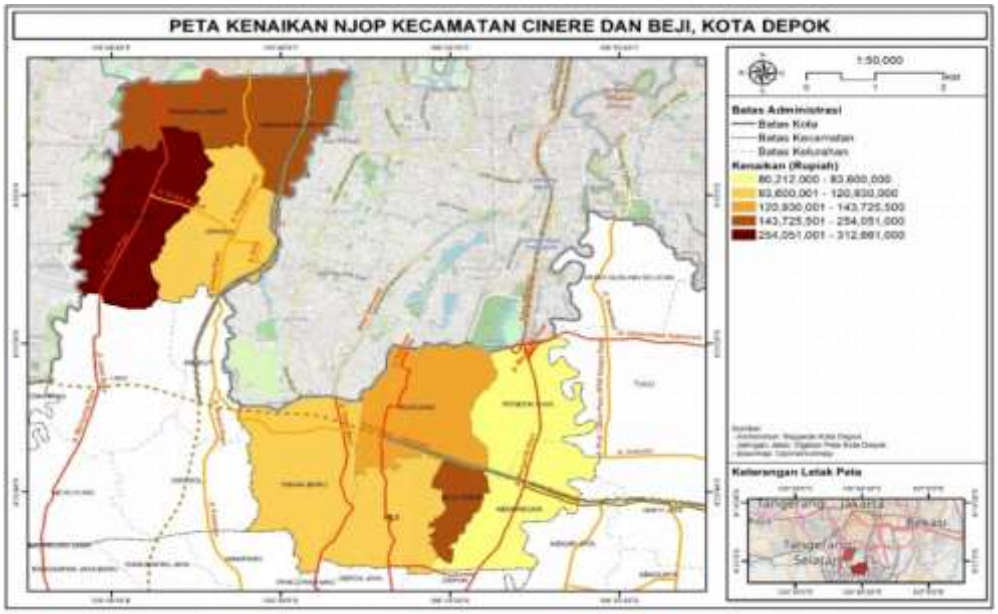

Figure 6. *Map of the increase in NJOP in Cinere and Beji sub-districts*
Source: Results of Data Processing and Analysis, 2022

Proximity to the Capital City of DKI Jakarta as a business and commercial center and the existence of easier access has made these 2 (two) sub-districts have a higher increase in NJOP values compared to other sub-districts in Depok City.

b. Increase in NJOP for the 2015-2020 period

The result of the overlay between the increase in NJOP and the road network shows that areas that have a high value increase are bypassed by access to the main highway network that connects the area to the capital city of Jakarta which is a business and commercial center. Cinere District has access to the Cinere Raya road network that connects Cinere with Cilandak sub-district, and Kebayoran Baru, South Jakarta and direct access to Jalan Sudirman which is the business and commercial center in Jakarta. Cinere District since 2018 also has the Depok-Antasari (DESARI) toll road section which makes it easier to access business and commercial centers in Jakarta.

Beji sub-district has started to increase its NJOP value since the construction of the toll road connecting Cinere-Jakarta-Bogor (CIJAGO) in 2019. Beji sub-district has access to the Margonda Raya road network that connects cinere with Jagakarsa sub-district, and a Sunday market in South Jakarta and direct access to Jalan Gatot Soebroto which is the business and commercial center in Jakarta.

c. NJOP Increase with Commercial Point Spread

The overlay results between the increase in NJOP and the distribution of commercial points show that areas with high increase values have complete commercial points, namely banks, hotels/inns, markets, shops/shops, and supermarkets/supermarkets. The Cinere sub-district, namely the Cinere sub-district and the jati base and new teak bases have a complete distribution of commercial points. Meanwhile, the commercial point of the Gandul Sub-district is not as complete as those in the other 3 (three) Sub-districts. Gandul sub-district does not have a supermarket or market. The Beji sub-district, namely the Kukusan sub-district, has complete commercial points, while the Beji Timur sub-district, which is an area with a high increase in value in this sub-district, only has commercial points such as shops and shophouses.

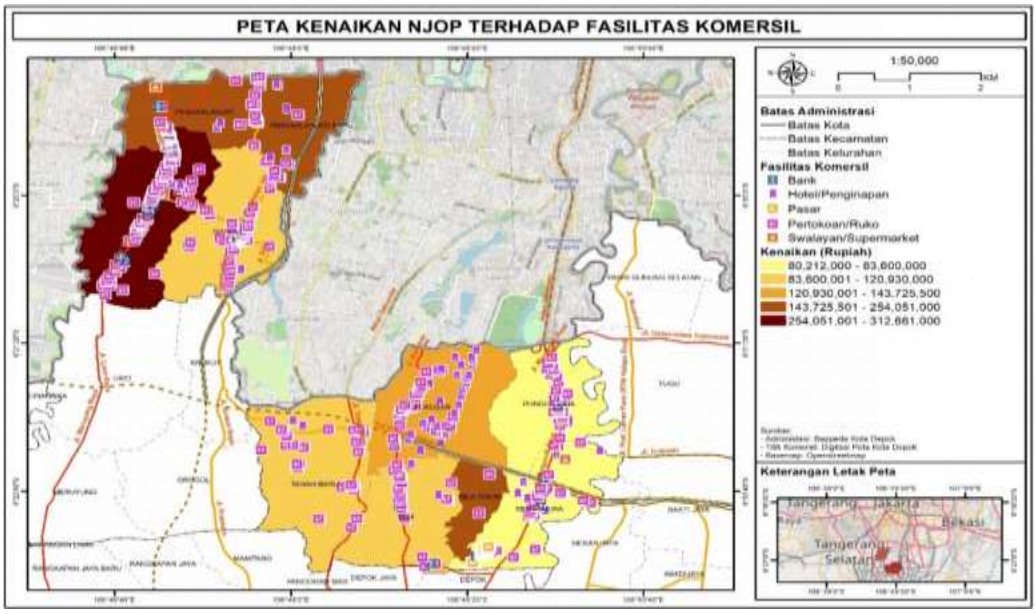

Figure 7. *Map of NJOP Increase in Commercial Facilities*
Source: Results of Data Processing and Analysis, 2022

The increase in NJOP values in the Cinere sub-district has a pattern similar to much of the literature that has been discussed in the Literature study, while Beji is not affected as significantly as Cinere. It can be seen that from an accessibility point of view, the results of the identification of the pattern of increase in the NJOP value if it is overlaid with the existence of access to the road network, indicate that the areas that have experienced an increase in the NJOP value are located near the main highway network. Even though the increase in value is not directly proportional to the proximity to the main road, as in Beji District. This is different from the Cinere Subdistrict, where the Cinere Subdistrict has the highest NJOP increase and is located close to the main highway strategic location analysis, showing the pattern of increasing NJOP values with the presence of commercial points reveals that areas that have high value increases have complete commercial points, namely there are banks, hotels/inns, markets, shops/shops, and supermarkets/supermarkets. However, in Beji Subdistrict, while for Cinere Subdistrict, the opposite is true, that the Cinere Subdistrict, which has complete commercial facilities, has a higher NJOP compared to other areas.

V. Conclusion

In general, the results of the data analysis show compatibility with the literature that has been done, that land prices are very significantly influenced by the accessibility of the main highway network and the presence of commercial equipment to meet needs. Even though there are differences especially in the Beji area, in general this is the same as in previous literature studies. Therefore, for further similar studies, it is necessary to carry out another analysis to identify the reasons why in certain areas these factors are not as significant as in other regions, even though they are under the same administrative area. This research still has limitations, it is also recommended for similar research to look for case studies in a wider area to obtain more comprehensive data.

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