Analysis of changes in land value of land use permit (IPT) with tax object sale value (NJOP) 2018 using market data approach (Case Study: Pucang Sewu Village, Gubeng Sub-District, Surabaya)

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Abstract. Surabaya has land management rights called land use permit (IPT) or Certificates. Land use permit (IPT) is different from the status of the other land rights. NJOP market price is also obtained from Fair Market Value that have been calculated by the government. To find out the change in land value of IPT with NJOP, market data approach method is used to discuss market data in each zone that has been classified. The results of the analysis that have been done show that the highest average indication value (NIR) is Rp 34,951,545. The land value of IPT also influences the changes in land values towards NJOP. The highest increase in the GP1 zone is 1,782.65% and the lowest in the GP13 zone is 10.95%. This is caused by factors that affect the land value those are land rights, land location and road accessibility in Pucang Sewu.

1. Introduction
Certificates land is a community settlement on state land with the legality of a Land Use Permit (IPT). The state land resulting from the conversion of western land rights began before the enactment of the UUPA (Basic Agrarian Law) 1960, then formalized in 1971, a compilation was put into effect DPR-GR Decree (SK) of the Municipality of Surabaya No. 03E / DPRGR-KEP / 1971 dated May 6, 1971, concerning Land Leases. In the future, the compilation of many western lands which became the status of the Right to Use (HP) and Management Rights (HPL), then the concept or term of leasing land on the country's land became inappropriate. Then to get around this issue, the Regional Regulation of the Second Level Municipality of Surabaya No. 22 of 1977 concerning Use and Land Retribution Managed by the Regency Government [1].

The definition of Land Use Permit mentioned in Article 1 of the Regional Regulation of Surabaya City Number 3 of 2016 is a permit granted by the Mayor or Officer appointed to use the land and is
not a granting of use rights or other land rights as stipulated in Law No. 5 of 1960 [2]. Land use permit/IPT is a Management Right, namely the right to control the State over land whose authority is partially delegated to the rights holders to plan land use and use, use the land for the purpose of carrying out their duties, and hand over the land to parties third and / or working with third parties [3].

IPT is spread in 26 sub-districts from 31 sub-districts in Surabaya. The district which has the widest certificates land, namely Gubeng Subdistrict covering an area of 1,923,767.44 m² (192.38 Ha). Certificates land with the status of Management Rights, among others, is in Baratajaya Village, Gubeng Erlangga, Gubeng Kertajaya, Pucang Sewu, Dukuh Kupang, Kapas Krampung, Dupak, Tambakrejo, Wonorejo, and Tambaksari. Pucang Sewu Village is one of the most green / IPT certificate land [4]. The Pucang Sewu area has the Central Business District, namely Pucang Sewu Market. Also, accessibility is easy and many offices make land values in the Pucang Sewu sub-district increase. Land value is an embodiment of the ability of the land to produce something that is influenced by social, economic, political, physical and other factors so that it can provide economic benefits if used and utilized properly. IPT has its transaction market so land values can be found by the market price of IPT.

The market for IPT transactions influences the value of land in Pucang Sewu Village. Based on these problems, a study was conducted to determine IPT in Pucang Sewu Village using a market approach. With this research, it is expected to be able to analyze the comparison of IPT land values with the NJOP in 2018 and provide information regarding changes in land values.

2. Methodology

2.1. Study area and data
The location of the case study in this study is found in Figure 1, which is located in Pucang Sewu Village, Gubeng District, Surabaya City, East Java. The geographical location of the Pucang sewu Village is at 7°17'0,28'' LS - 7°17'36,60'' LS dan 112°44'49,74'' BT - 112°45'27,63'' BT.

![Figure 1. Study area map](image)

In this study, it takes some data to support the implementation of research. The following are the data needed in this study:

a) Primary Data:
   - Land value data based on market prices and field surveys.
   - Coordinate data on the location of price sample points in the field.

b) Secondary Data:
   - An Aerial Photogrametry of Surabaya in 2016 from the Cipta Karya Office.
   - Surabaya City Administration Map 2016 from the Surabaya City Government.
2.2. Data processing

a) Initial Zone Delineation

Zone creation is based on the principle of making imaginary boundaries of ZNT is the Director-General of Tax Circular number SE-25 / PJ.6 / 2006 which groups land parcels in one ZNT by considering indications of similar land values and similar characteristics (accessibility and land use).

b) Calculation of Land Value

The process of calculating land values begins with adjusting land price data. Land prices obtained from field surveys cannot be used directly. The data must go through the process of adjusting physical data and the surrounding environmental conditions [6]. Data adjustments are carried out to obtain a more accurate Fair Market Indication Value.

c) Calculation of Average Indication Value (NIR)

Average Indication Value (NIR) is the average value obtained from the Land Value Zone Analysis (ZNT) on data that has been through the adjustment process. Average Indication Value (NIR) by summing at least 3 data values of the land and taken on average so that they get the NIR in each zone. NIR is sought through two ways, NIR in each zone and NIR with other zones.

d) Making a Land Value Zone Map

In this study, there are two Land Value Zone Maps including the Land Value Zone Map of IPT and the Map of IPT Land Value with the NJOP in 2018. In making land value zone maps, administrative boundaries and delineation of new zones are required. - limited land value zone. NIR is classified according to the class in the NJOP which refers to the Minister of Finance Regulation Number 150 / PMK.03 / 2010 concerning NJOP Classification.

e) Comparative Analysis of Land Value

This process is carried out to conclude how the certificates affects land values and the comparison of the land value of the certificates with other ownership rights certificates in a zone. Spatial analysis related to distance and land value determinants with the Market Data Comparison Approach method in each zone that has been made. Policy analysis of government regulations relating to statutory provisions and government policies in the field of development or land use (zoning).

3. Result and discussion

3.1. Result and analysis of delineation
The process of making the initial zone delineation in Pucang Sewu Village is based on similarities and the influence of the surrounding environment such as land designation, land location, and location of the land.

Delineation is used to assist in taking samples of land price points which are then plotted in each zone. Each zone is taken at least 3 sample points by the provisions of the Director-General of Tax Circular Number: SE-25 / PJ.6 / 2006. From the results of the delineation of the initial zone, 25 zones are found in Figure 2. And there are 73 sample points of land prices scattered in the zone.

3.2. Result and analysis of calculation of land values

Land value data obtained from field surveys are then processed to obtain an indication of the market value of the land. To obtain these results, the process of adjusting the land price information data is carried out according to Indonesian Evaluation Standard (SPI) Edition VI 2015 by MAPPI so that the obtained values are accurate. Results from the calculation of IPT land value can be seen in Table 1.

Table 1. IPT land value calculation results

| No. | Point | Zone | Market Value/m² |
|-----|-------|------|-----------------|
| 1   | PS-27 | GP1  | Rp 34,706,667   |
| 2   | PS-28 | GP1  | Rp 34,212,414   |
| 3   | PS-109|     | Rp 35,935,556   |
| 4   | PS-54 | GP2  | Rp 7,305,264    |
| 5   | PS-51 | GP1  | Rp 6,536,169    |
| 6   | PS-52 | GP1  | Rp 6,768,934    |
| 7   | PS-119| GP3  | Rp 23,296,296   |
| 8   | PS-91 | GP3  | Rp 22,342,857   |
| 9   | PS-17 |     | Rp 24,80,219    |
The following is an explanation of the data on land prices that have been processed, including:

a) Data Type Adjustment
   The type of data is divided into two, namely bidding data and transaction data on buying and selling prices. In this study, the transaction data of the sale price is given a percentage of 0%, required a fixed or fixed price that has gone through the process of buying and buying transactions. Bidding data is given a percentage (-) of 10% to (-) 50% because the price of land offered can still be calculated up to a maximum of 50%.

b) Adjustment of Data Sources
   Sources of data are obtained from informants (owners, village officials, developers, agents, brokers, residents, and others). Information obtained from the owner is given a percentage of 0%. For developers, brokers and agents are given a percentage (-) of 5% to (-) 30% because the marketing party will make greater profits. And for information on land prices from residents and village officials, a percentage (-) of 5% (-) 10% is given.

c) Designation Adjustment
   A zone has a variety of land price data, therefore a land allotment adjustment process is carried out. In this study, the allotment of data for houses is given a percentage of 0% in the same designation and a percentage of up to 50% if the data on land prices are in the commercial designation. For land allotments that have commercial values such as boarding houses, shop houses, etc. are given a percentage of 0% in the same designation and percentage up to (-) 50% if the land price data is in the housing designation.

d) Contour Adjustment
   Significant heights of each land will have different values. In the city of Surabaya, it is assumed to have a contour height that is not too significant so that it is given a percentage of 0% which means flat.

e) Adjustment of Soil Conditions
   Soil conditions can be analyzed by looking at soil elevation. If the soil elevation is the same as the road height, the land will be better compared to the land that is too low or too high for the road height. In this study, the area of Pucang Sewu Village was assumed to have the same elevation on the road height or it could be said to be flat so that it was given a percentage of 0%.

f) Adjustment of Land Forms
   The shape of the square plots is better than the irregular shape of the plots. In this study, the shape of the parcel in the area of Pucang Sewu Subdistrict did not have many different forms and almost had similarities, which were square so that they were given a percentage of 0%.

g) Adjustment of Land Area
   Soil is affected by land area. Land that has a larger area then the price will be cheaper when compared to land that has a smaller area. In this study, for a land area of less than 100m² a percentage of 0% will be given, each increase in the land area of 100m² will be given a 1% increase percentage. If there are special conditions in a zone where the allocation is different from the land price data, then it can be deducted or added to a maximum (-) of 50% to 50%.

h) Land Position Adjustment
   The location of the land is influenced by the position of the land's presence on the road. In this study, the road is divided into two, namely the collector road or the main road and local roads that are in access to housing or settlements. For the collector road category, it is divided into roadside with a percentage of 10% to 30% and a street corner with a percentage of 0%.
to - 10%. For the category of local roads divided into road locations in the middle with the percentage given 0% to 10%, the corner with the percentage given 10% to 20%, hook with the percentage given 20% to 30% and front door main with a percentage of 20% to 30%.

i) Adjustment of Types of Land Rights
The type of land rights has a legal force that can give deeper value to the property of the land. Types of Land Rights include SHM, SHGB, HPL, and others. IPT is government-owned state land but there is a transaction market so that it can be traded. In this case study, IPT is given a percentage of 0% because it is compared to the same market. And other land rights, for SHM the percentage is 0% and the SHGB is given a percentage of 5% to 10% if the zoning is different.

j) Timing Adjustment
Time adjustment helps to determine the transaction market or offer land prices. Adjustments are made by adding the percentage of time in this study calculated as of March 2019. If the transaction or bidding time is more than March 2019 then 1% per month will be added, vice versa if it is less than March 2019.

3.3. Result and analysis of calculation of average indication value (NIR)

a) NIR Calculation for Each Zone
In processing indications of land values / m², each land price is then taken on average for each zone. Based on the Indonesian Appraisal Standards (SPI) Edition VI 2015, a minimum of 3 indications of land / m² value are taken and averaged to obtain the results of the Average Indication Value (NIR) of the Land. Some results of NIR calculations can be seen in Table 2.

| No | Point | Zone | Market Value /m² | Average Indication Value (NIR) /m² |
|----|-------|------|------------------|-----------------------------------|
| 1  | PS-138| GP6  | Rp 20,410,600    | Rp 20,572,925                     |
| 2  | PS-25 | GP6  | Rp 21,303,563    |                                   |
| 3  | PS-28 | GP6  | Rp 20,004,612    |                                   |
| 4  | PS-132| GP6  | Rp 4,863,989     |                                   |
| 5  | PS-133| GP13 | Rp 3,712,356     | Rp 4,352,692                      |
| 6  | PS-81 | GP19 | Rp 4,481,730     |                                   |
| 7  | PS-119| GP13 | Rp 7,794,022     |                                   |
| 8  | PS-91 | GP19 | Rp 7,958,000     | Rp 7,566,289                      |
| 9  | PS-17 | GP19 | Rp 6,946,846     |                                   |

The NIR in the GP6 zone is larger, which is IDR 20,572,925 because it is located to the east of Pucang Sewu Market and is located on Pucang Sewu Street which is one lane to Pucang Sewu Market. The physical condition of the land is dominated by simple 2-story houses and shophouses which increase the value of land for commercial functions.

Compared to GP13 and GP19 zones which are dominated by houses but different designations. GP13 zone land allotment is used for settlements while GP19 zone is used for housing.
b) Calculation of NIR from other NIR zones

In the area of Pucang Sewu Village which is certified green / IPT, there are 18 Land Value Zones. There are 13 Value Zones and 5 Zones in Table 3 that do not have data on land price information. Therefore, the determination of the NIR is carried out by the calculation process following the Director-General of Tax Circular number SE-25 / PJ.6 / 2006.

Table 3. NIR Calculation Result from the NIR zone certificates/IPT

| No | Code | Zone  | NIR Comparison Results /m² |
|----|------|-------|-----------------------------|
| 1  | GP1  |       |                             |
| 2  | GP20 | GP10  | Rp 16,585,454               |
| 3  | GP6  |       |                             |
| 4  | GP9  |       |                             |
| 5  | GP11 | GP12  | Rp 5,852,374                |
| 6  | GP19 |       |                             |
| 7  | GP11 |       |                             |
| 8  | GP18 | GP15  | Rp 5,952,972                |
| 9  | GP19 |       |                             |

In the calculation of the NIR, each zone will be obtained as the reference NIR determinant so that the Land Value Zone that does not have data on land price information can be calculated by determining the reference object value from the nearest Land Value Zone land price information data. The process of calculating the Average Indication Value (NIR) of other zones is carried out by using comparable data from the NIR for each known zone. The data used is at least 3 other NIR comparative zones following the provisions of the Director General of Taxes Circular Number: SE-25 / PJ.6 / 2006. From the 3 other NIR data zones, the data adjustment process was carried out so that the appropriate land values were obtained. Then 3 land value data are added up and averaged so that the average Indication Value (NIR) is obtained in that zone. The adjustment of data in NIR calculations from other NIR zones includes:

- Designation Adjustment
  Housing zone designation will be of greater value compared to settlement zone designation. And the commercial zone allocation will be of greater value compared to the housing zone designation. In this study, zone designation adjustments were made by giving a percentage (-) of 50% to 50% according to the zone to be compared.

- Land Position Adjustment
  Adjusting the location of the land depends on the accessibility of the zone to the road. Each zone has different accessibility. Accessibility of roads is divided into collector / main roads and local roads (residential and residential roads). In this study, the adjustment of the location of the land is given a percentage (-) 50% to 50% according to the zone to be compared.

3.4 Result and analysis of maps of land value zones for certificates/IPT

a) Spatial Analysis

The Land Value Zone map of IPT has the highest NIR in the GP1 zone of Rp. 34,951,545 and the lowest in the GP13 zone of Rp. 4,352,692. The GP1 zone is in the Central Business District
(CBD) of Pucang Sewu Market, which functions as a support for the economic activities of the community in Pucang Sewu Village. So that the GP1 zone designation is commercial / shop. The GP13 zone is limited by railroads, there is a PJKA land on South Kalibokor Road which is sold at a low price because the land area is less than 100 m². GP13 zone land allotment is the settlement.

![Image](https://example.com/image.png)

**Figure 3.** The land value zone map for the certificates/IPT

**b) Government Policy Analysis**

Article 1 of the City Regulation of Surabaya Number 3 of 2016 states that a Certificates / IPT (Permit for Land Use) is a permit granted by a Mayor or Officer appointed to use land and is not a granting of use rights or other land rights as stipulated in Law - Law Number 5 Year 1960. This confirms that the land of IPT island owned by the City of Surabaya. But in Chapter V Article 9 of the Regional Regulation of Surabaya City number 3 of 2016 concerning Transfer of IPT, it is stated that the transfer of IPT can occur if it is caused by the sale and purchase of buildings that stand on IPT land.

Land use permit/IPT is one of the Management Rights because the state-owned land can also be used for its purposes, can also be used by other parties or third parties with the approval of the City Government. The owner of IPT does not obtain land rights, but the right to use land owned and/or controlled / managed by the Surabaya City Government.

The people of Surabaya City, especially the Pucang Sewu Village area, choose IPT because the selling price was cheaper compared to other property rights (SHM). However, IPT land still has to pay land use retribution following Surabaya City Regional Regulation Number 2 of 2013.

### 3.5. Result and analysis of maps of changes in IPT land value with NJOP 2018

Map of Changes in IPT Land Values is made through the process of overlaying IPT Map in Figure 5 with the NJOP Map in 2018 in Figure 4. There is a change in land values in the map. The following are some of the results of changes in the value of green land certificates / IPT with NJOP 2018 land values in Table 4.
Table 4. Percentage of Change in Land Value of Certificates/IPT

| No | Zone Land Value of NJOP 2018 | Zone Land Value of Green Certificate / IPT | Change of Land Value(%) |
|----|-----------------------------|-------------------------------------------|-------------------------|
| A059 | Rp 1,862,000                | GP1 Rp35,055,000                          | 1,782.65%               |
| A056 | Rp 2,352,000                |                                          | 1,390.43%               |
| A045 | Rp 5,625,000                | GP1 Rp35,055,000                          | 523.2%                  |
| A036 | Rp 12,195,000               | GP1 Rp35,055,000                          | 187.45%                 |
| A059 | Rp 1,862,000                | GP1 Rp35,055,000                          | 1,782.65%               |
| A059 | Rp 1,862,000                | GP2 Rp6,805,000                           | 265.47%                 |
| A064 | Rp 1,147,000                | GP13 Rp4,155,000                          | 253.92%                 |
| A049 | Rp 3,745,000                | GP13 Rp4,155,000                          | 10.95%                  |

Changes in land values that occur have increased. The highest increase was in the GP1 zone on Jalan Raya Kalibokor, the direction to Pucang Sewu Market was 1,782.65% from the land value of Rp 1,862,000 to Rp 34,055,000. This is because in the GP1 zone land changes occur from residential land to commercial/industrial land. The lowest change in land value is located in the GP13 zone in Kalibokor Kencana Road at 10.95% of the land value of Rp 3,745,000 to Rp 4,155,000. Changes in land values can be seen in Figure 4.

![Figure 4](image_url)

Information:

3.6. Comparison of land value analysis

Changes in land values that occur have increased. The highest increase was in the GP1 zone on Jalan Raya Kalibokor, the direction towards the Pucang Sewu Market was 1,782.65% of the land value of Rp 1,862,000 to Rp 34,055,000. The lowest change in land value is located in the GP13 zone on Kalibokor Kencana Road at 10.95% of the land value of Rp. 3,745,000 to Rp. 4,155,000, because in the GP13 zone there is no change in land designation and remains following the residential area.
In addition to changes in land values, there was a zone change from the Land Value Zone Map of the NJOP 2018 to the IPT Land Value Zone Map. This is due to several factors, namely, the condition of land allotment, surrounding environmental factors and accessibility of roads such as the width of the road. The value of land is higher because the width of the road in front of a land property makes it a very strategic location and has high accessibility compared to land located on a small road. In this study, the GP1 zone which has the highest percentage change value was on Jalan Raya Kalibokor with road accessibility of more than 2.5 meters and easy mobility towards Pucang Sewu Market, although the land allotment factor for settlements on the NJOP 2018 land value zone map had an effect the greater one.

4. Conclusion
- In the IPT zone, the highest NIR in the GP1 zone is Rp 34,951,545 and the lowest NIR in the GP13 zone is Rp 4,352,692. The GP1 zone is in the Central Business District (CBD) of Pucang Sewu Market as a support for community economic activities in the Pucang Sewu Village.
- The change in land value in the GP1 zone on Jalan Raya Kalibokor in the direction of Pucang Sewu Market was 1782.65% of the land value of Rp 1,862,000 to Rp 34,055,000. The lowest land value change is located in the GP13 zone in Kalibokor Kencana by 10.95% from the land value of Rp 3,745,000 to Rp 4,155,000.

5. Reference
[1] Sukaryanto. “Konflik Tanah Surat Ijo di Surabaya (Sebuah Perspektif Teoritik-Resolutif)” Surabaya (2016).
[2] Santoso, U. “Pengelolaan Tanah Asset Pemerintah Kota Surabaya”, Yuridika Vol. 25 No. 1, (1-4) (2010) (1-12).
[3] Santoso, S, “Pengenaan Retribusi Oleh Pemerintah Kota Surabaya Kepada TVRI Ditinjau Dari Peraturan Daerah Nomor 1 Tahun 1997 Tentang Izin Pemakaian Tanah”, Calyptra: Jurnal Ilmiah Mahasiswa Universitas Surabaya Vol2 No.1 (2013).
[4] Ksamawan, K. “Studi Zonasi Nilai Tanah Menggunakan Model Regresi Linier Berganda Sebagai Bahan Pertimbangan Perencanaan RDTK, Institut Teknologi Sepuluh Nopember (2010).
[5] Malik, A. “Analisa Peningkatan Nilai Tanah dengan di Area Pembangunan Pusat Pemerintahan (Studi Kasus: Kelurahan Kanigoro, Kabupaten Blitar)” Surabaya (2015).
[6] Safitri, H Y. “Analisis Pengaruh Lokasi Central Business District (CBD) Terhadap Nilai Tanah Di Daerah Sekitarnya (Studi Kasus: Daerah Pusat Perbelanjaan dan Daerah Industri di Surabaya)” Institut Teknologi Sepuluh Nopember (2016).