

THE POTENTIAL OF LAND VALUE CAPTURE FOR A TRANSIT-ORIENTED DEVELOPMENT INITIATIVE IN PEKALONGAN CITY CENTER

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Wisnu Pradoto*, Mardwi Rahdriawan, Muhammad Safrul,
Nurul Anam Ramli

Department of Regional and Urban Planning, Faculty of Engineering,
Universitas Diponegoro, Indonesia

Abstract. Investment is a trigger for increasing the economic potential of a region. Land value is an indicator that not only reflects it, but also shows its development prospects. Government applies variety instruments of land use to improve the attractiveness of an area, especially for commercial activities. This study aims to formulate the Land Value Capture model as an innovation for financing the infrastructure development as well as for generating public revenues. Pekalongan City Center, which is located around the railway station, is an economic magnet that contains several advantages for Transit Oriented Development application. This research examines the determinant variables through Multiple Linear Regression. The model shows the significance of each influencing factor to raise land value. The study finds LVC tools that possibly applied. Discussion regarding the lack of financial capacity on government side while developable land is predominated owned by public institution vis-à-vis the needs for involving private investors to optimize the economic potential for new development is interested to understand about the differences between theoretical and practical point of view.

Keyword: Land Value Capture; Transit Oriented Development; Pekalongan City; Sustainable Urban Development; Economic Benefit

[Judul: POTENSI PENANGKAPAN NILAI TANAH UNTUK INISIATIF TRANSIT-ORIENTED DEVELOPMENT DI PUSAT KOTA PEKALONGAN]. Investasi menjadi pemicu peningkatan potensi perekonomian suatu daerah. Nilai tanah adalah indikator yang tidak hanya mencerminkan potensi tersebut, tetapi juga menunjukkan prospek pengembangannya. Pemerintah menerapkan berbagai instrumen penggunaan lahan untuk meningkatkan daya tarik suatu kawasan, khususnya untuk kegiatan komersial. Penelitian ini bertujuan untuk merumuskan model Land Value Capture (LVC) sebagai inovasi untuk membiayai pembangunan infrastruktur sekaligus menghasilkan pendapatan masyarakat. Pusat Kota Pekalongan yang terletak di sekitar stasiun kereta api merupakan magnet perekonomian yang memiliki beberapa keunggulan dalam penerapan Transit Oriented Development. Penelitian ini menguji variabel determinan melalui Regresi Linier Berganda. Model tersebut menunjukkan pentingnya setiap faktor yang mempengaruhi peningkatan nilai tanah. Studi ini menemukan alat LVC yang mungkin diterapkan. Diskusi mengenai kurangnya kapasitas keuangan di pihak pemerintah sementara lahan yang dapat dikembangkan sebagian besar dimiliki oleh institusi publik, dibandingkan dengan kebutuhan untuk melibatkan investor swasta guna mengoptimalkan potensi ekonomi untuk pengembangan baru, menarik untuk memahami perbedaan antara sudut pandang teoritis dan praktis.

Kata Kunci: Land Value Capture; Transit Oriented Development; Kota Pekalongan; Pengembangan Kota Berkelanjutan; Manfaat Ekonomi

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1. INTRODUCTION

Land is the prominent factor that determine the successful of a livable environment creation. Integrating land use and transport planning is

widely proven to make an area more sustainable, accessible and equitable. Many transport infrastructure programs are developed with concerns about social and economic benefit, but the limitation of funding resource is still the big

challenge. Recently, funding mostly comes from government budgets rather than private funding resource. Indonesia has allocated about USD 600 million for infrastructure development in 2020-2024 based on Transit Oriented Development (TOD) (Ministry of Economic Affairs, 2019). Successful TOD implementation can contribute to one of the barriers for private investors to participate in transport infrastructure projects. Therefore, incentives to stimulate economic opportunity and improving optimal use of land in a particular area is the key approach. World Bank (2015) and Abiad, Farrin, and Hale (2019) are promoting alternative funding of TOD-based urban infrastructure development with Land Value Capture (LVC). In this way, the new pattern of land use would be promoted in order to examine the optimum benefit to be gained (Wang, Samsura, & Krabben, 2019). The land value increase will ultimately become a source of non-government financing through private investment. LVC is expected to be able to resolve the gap between development potentials of the area and the limited financial capacity of the government.

TOD is conceptualized as a mixed, high-density, land use-oriented development that utilizes train stations as mass public transportation nodes (Staricco & Vitale Brovarone, 2018). TOD research has broadly undertaken. Based on those practices, we can draw the knowledge gaps (Thomas & Bertolini, 2017; Thomas et al., 2018). These gaps are related to: 1) the size of mobility and accessibility effects of TOD projects and their impact on land rents; 2) how 'equitable' these TOD projects are and what their socioeconomic and environmental impact is; 3) institutional capacity, the effectiveness of governance and upscaling barriers; and 4) the use and effectiveness of LVC instruments.

It would be fruitful to research the cases of different institutional settings and set in different urbanization patterns, to analyze the extent to which LVC, as one type of a beneficiary funding approach, can foster TOD projects and sustainable urban development. Based on those studies, the respective actions are developing a Land Rent Model and examining socioeconomic impact, conducting institutional audits of institutional capacity to implement LVC strategy for TOD. For

Indonesia, Nasution (2017) and Talitha, Firman, and Hudalah (2020), claim that the government decentralization program in 2000 has failed to make the local government to be well-prepared in the implementation of new policies. In a study of the integration of transport and land use planning for Semarang, World Bank (2017), argues that the current planning system in Indonesia does not encourage policy integration. Institutional capacity problems often act as a barrier to successful international policy transfer. Both World Bank (2015) and Abiad et al. (2019) promote the use of LVC as a funding mechanism for TOD. In a review of the use and effectiveness of LVC instruments in Indonesia, PwC (2019) reports that, while many regulations actually support LVC, a policy on guiding how these relevant regulations should be integrated to implement a Value Capture Framework is still missing.

In the late 1990s, the first proposals for TOD appeared in the form of development consolidation along rail lines (Budiati, Grigolon, Brussel, & Rachmat, 2018; Susantono, 2019). A new rail-based system, the Jakarta Mass Rapid Transit, is currently under construction. The MRT project is the most prominent project in Indonesia's ambitious national transport infrastructure investment program that however includes many more planned investments in the most urbanized regions of Indonesia. In a recent evaluation of transit investments in Jakarta, the Asian Development Bank advises to implement this program based on a virtuous cycle of value capture (figure 1) (Abiad et al., 2019). This concept is based on: 1) improvement of accessibility by new infrastructure investment is a driver of connectivity, value and real estate development and generates profound economy-wide benefits; 2) many different beneficiaries will profit from this, e.g. in terms of travel time saving, reliability, reduced road congestion, environmental and social

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*Email: wisnupradoto@lecturer.undip.ac.id

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benefits and land or property market impact in

terms of increment land value and increased property prices; 3) capturing part of that value uplift can help to close the funding gap for future investments and create more attractive conditions for private sector investors financing these investments. Much of the literature on the interactions between transit and development focuses on station area property values (Debrezion, Pels, & Rietveld, 2007; der Krabben Erwin & Needham, 2008; Ko & Cao, 2013). Most of that literature finds a positive impact of station area development on property values (Dawkins & Moeckel, 2016; Khan, 2004). For Indonesia, a number of studies have analyzed variation in real estate prices and impact of TOD on real estate values (Syabri & Septiandiani, 2020).

The implementation of TOD in Indonesia is often hampered by conventional financing systems. The large costs of development, investment, operations and maintenance often exceed urban fiscal capabilities. According to the 2019 APBN, state income is still much lower than state

expenditure. This illustrates that conventional financing which relies on the APBN cannot be carried out (Septiandini & Syabri, 2019).

Pekalongan is one of the vibrant cities in the north coast of Central Java due to batik industry and its strategic location on the super economic corridor of Java. Unesco designated it as a Creative City of Crafts and Folk Arts in 2014. The Pekalongan City Government is directing a TOD Center development program around Pekalongan City Station with an estimated investment of IDR 200 billion with national funding resource as stated on Presidential Decree Nomor 79 of 2019 concerning the Acceleration of Economic Development in Central Java Province

According to the potential of TOD in creating the more attractive places with better public amenities, the development of the TOD area at Pekalongan City Station is interesting to be studied to examine its potentials in creating higher land value through the LVC mechanism.

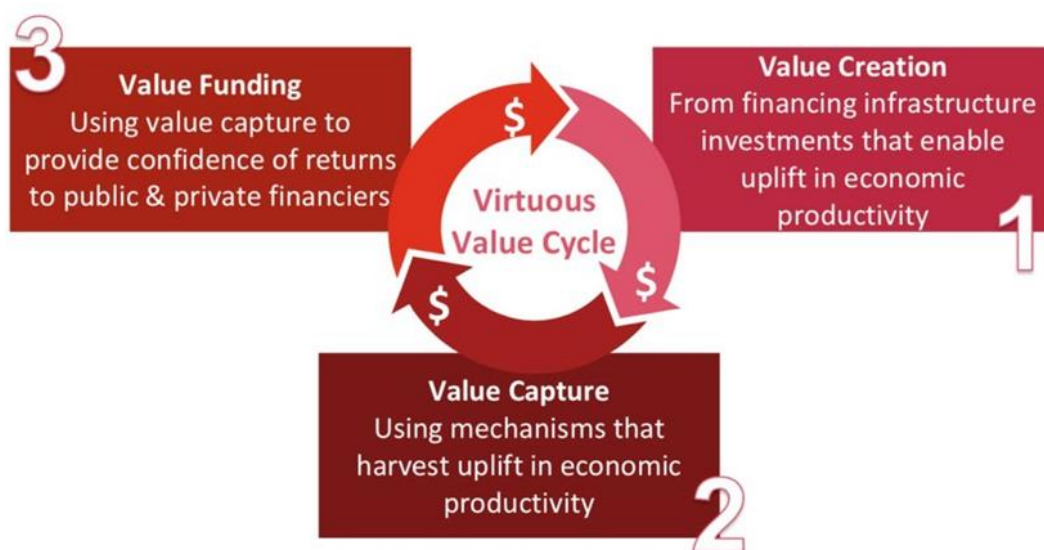


Figure 1 The Virtuous Cycle of Value Capture
Source: Abiad et al. (2019)

2. RESEARCH METHOD

This research aims to formulate the LVC model as non-government financing for development in the Pekalongan City Station area through the TOD concept. This research focuses on the station area with a radius of 800 meters (Figure 2) with the consideration that this area is considered to have

economic potential to be developed as a growth center that has the highest investment value compared to other areas in Pekalongan City. This is in line with the LVC principle of creating opportunities to increase land value in certain areas that are considered to have investment attractiveness.

This research uses mixed methods. A quantitative approach in this research was carried out to analyze the factors that most influence the increase in land value and determine potential areas for LVC development. Meanwhile, the qualitative approach is intended to determine the appropriate LVC instrument to be implemented in potential areas and determine the most appropriate strategy for implementing the LVC instrument.

Data was collected through field observations, interviews & questionnaires to support literature studies and document reviews. The value increase analysis uses multiple linear regression analysis which is used to determine the factors that most influence land value. Analysis in determining potential areas is carried out by overlaying Average Land Price Zone (Local: Zona Nilai Tanah/ZNT), land use and road networks.

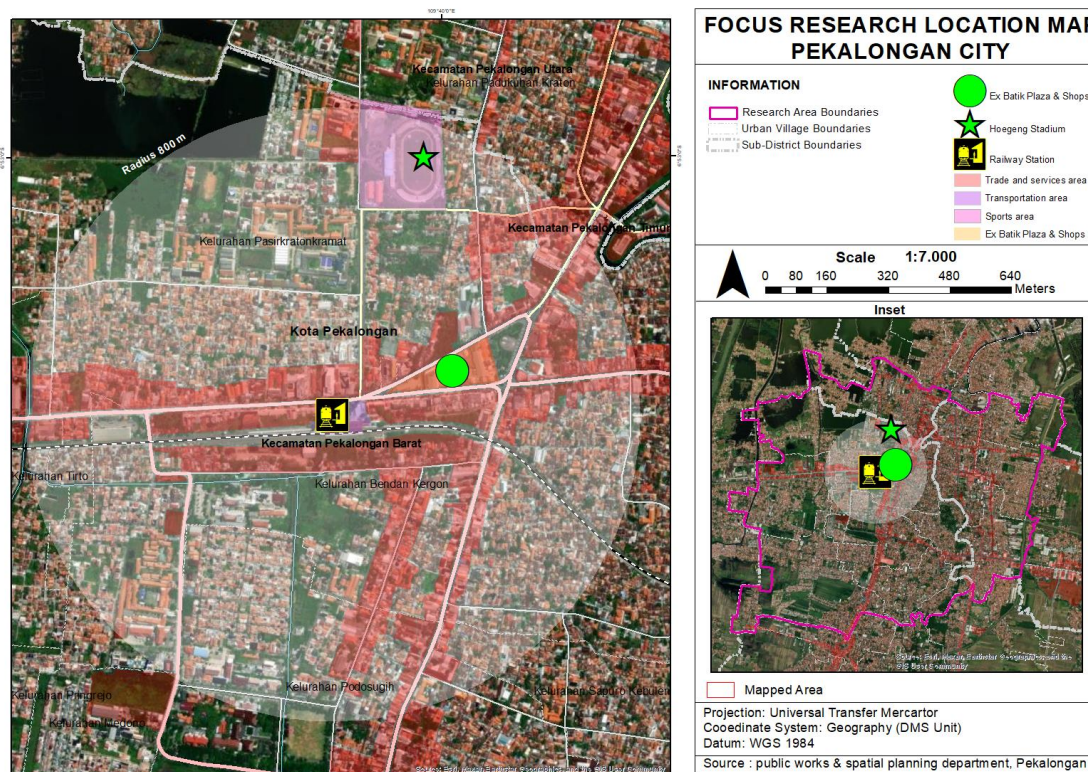


Figure 2. Focus Research Location Map, Pekalongan City

3. RESULTS AND DISCUSSION

3.1 Analysis of Factors that Influence Land Value in the Pekalongan City Station Area

According to Subroto (2018), the factor that influences the increase in land value is accessibility. Accessibility can be created through developing public transportation infrastructure, strengthening zoning and land use regulations and is a factor that can increase land value (Pramana, 2018). The more accessible of some place, the higher the price of property and land (Prasetya & Sunaryo, 2013).

Analysis of factors influencing the increase in land value in the Pekalongan City Station area was

carried out using the multiple linear regression method. The dependent variable used is the ZNT. Meanwhile, the independent variables used include accessibility factors (distance to stations (X1); main roads/access (X2); commercial centers (X3); offices (X4); education (X5); and distance to health facilities (X5)). Those variables were chosen because the conditions and land prices are relatively higher compared to other locations (Dirgahayani & Choerunnisa, 2018). Below is the resulting multiple regression model.

$$Y = 10.253.396,397 + 208.656,548X1 - 181.459,005X2 - 3.640.001,106X3 + 357.511,737X4 - 296.359,017X5 + 510.996,458X6.$$

Based on the regression equation above, the constant value is quite large (10,253,396.397) indicating that the independent variable used still does not describe the magnitude of the influence on dependent variable (ZNT). The large value of this constant can also be caused by the value of the dependent variable, in this case ZNT is an average value so it does not describe the existing conditions per sample point. However, the linear regression equation in this research can be used because it has passed the classical assumption test and model feasibility test.

From the regression equation it can also be seen that the independent variables that have an unidirectional relationship are the variable distance to the station (X1); distance to office facilities (X4); and distance to health facilities (X6). Meanwhile, other independent variables such as distance to main road (X2); distance to commercial center (X3); and distance to educational facilities (X5) has an opposite relationship with the dependent variable (ZNT). For example, the distance to commercial center variable has the opposite relationship to the dependent variable (ZNT). This means that the further the area/sample point is from the commercial center, the lower the value of the land at that location. On the other hand, the closer the area/sampling point is to the commercial area, the higher the land value will be.

The variable that has quite a large influence on increasing the land value of the Pekalongan Station Area is the variable distance to the commercial center. The implication for this research is that these variables can be taken into consideration in formulating implementation strategies as an effort to increase land value due to transit/TOD-based area development projects. So, to increase land value in the Pekalongan City Station Area, the variable distance to the commercial center by providing good access is a necessary effort.

3.2 Analysis of Potential LVC Development Areas in the Pekalongan City Station Area

Rahardian (2015) stated, that land value is a manifestation of the ability to exploit and utilize land. The potential locations for this research were obtained from land value patterns resulting from overlay analysis between ZNT, land use and road

network support in the Pekalongan City Station area.

1) Average Land Price Zone (ZNT)

ZNT is data released by ATR/BPN which can represent the value and price of land in an area. The land value reflected in the average land price zone (ZNT) data is analyzed from land transaction data in a particular year. Land values in the research area are highest in areas directly adjacent to the main road which intersects with Jl. Raya Pantura, City Center and other commercial places with a price range of IDR 10,500,000/m².

2) Land Use

Land use in the research area is dominated by residential activities, trade and services as well as public and social facilities. Settlements in the research area are dominated by medium to high density settlements, especially in areas located not far from Pekalongan City Station. Land use for trade and service areas is the second largest use after settlements. This condition is in line with the Pekalongan City Government's development plan as stated in the TOD Center Development document around the ex-Sri Ratu Pekalongan City, one of which is making it a business activity center (commercial strip) along Jl. Hayam Wuruk to Pekalongan City Square. This condition certainly strengthens the fact why land use for trade and service activities dominates compared to other land uses apart from housing and settlements.

3) Access Network

Pekalongan City is a city in Central Java with a strategic location because it is a transportation node on the West Central Java Pantura Route and acts as a center for MICE activities in the Petanglong Regional Area (Pemalang, Batang and Pekalongan). This is supported by the availability of a road network with easy access. According to the hierarchy, the condition of the road infrastructure is also quite good in accommodating the daily activities of the population. Most of the arterial, collector and local roads are paved and equipped with road signs, signage, crossing facilities and pedestrian paths in several spots, such as on Jl. Gajah Mada. Judging from the road width, the road conditions in Pekalongan City are in accordance with road width standards in Indonesia. This pedestrian path makes Pekalongan City feel more

humane for pedestrians. The availability of supporting road facilities certainly adds to the ease of access in Pekalongan City, including in the research area.

4) Development Potential Area

After obtaining the land value pattern resulting from the ZNT overlay analysis process and land use supported by the availability of the road network, we can identify areas that have the potential for LVC development. In general, the potential area is within a radius of 800 meters from Pekalongan City Station. This limitation is in accordance with the LVC application in this study which refers to the

TOD principle. Potential development locations in the research area (Figure 3) focus on new development in locations that are considered to have the most potential for development compared to other areas. Another important consideration is government ownership of assets which will facilitate the land acquisition process. Based on all the considerations and analyzes that have been carried out, 3 (three) locations were selected. The locations in question are (1) Hoegeng Stadium (A1); (2) Shopping area on Jl. Gajah Mada (Ex Sri Ratu and shops to the east); and (3) Shopping Area on Jl. Raya Pantura (east of the station).

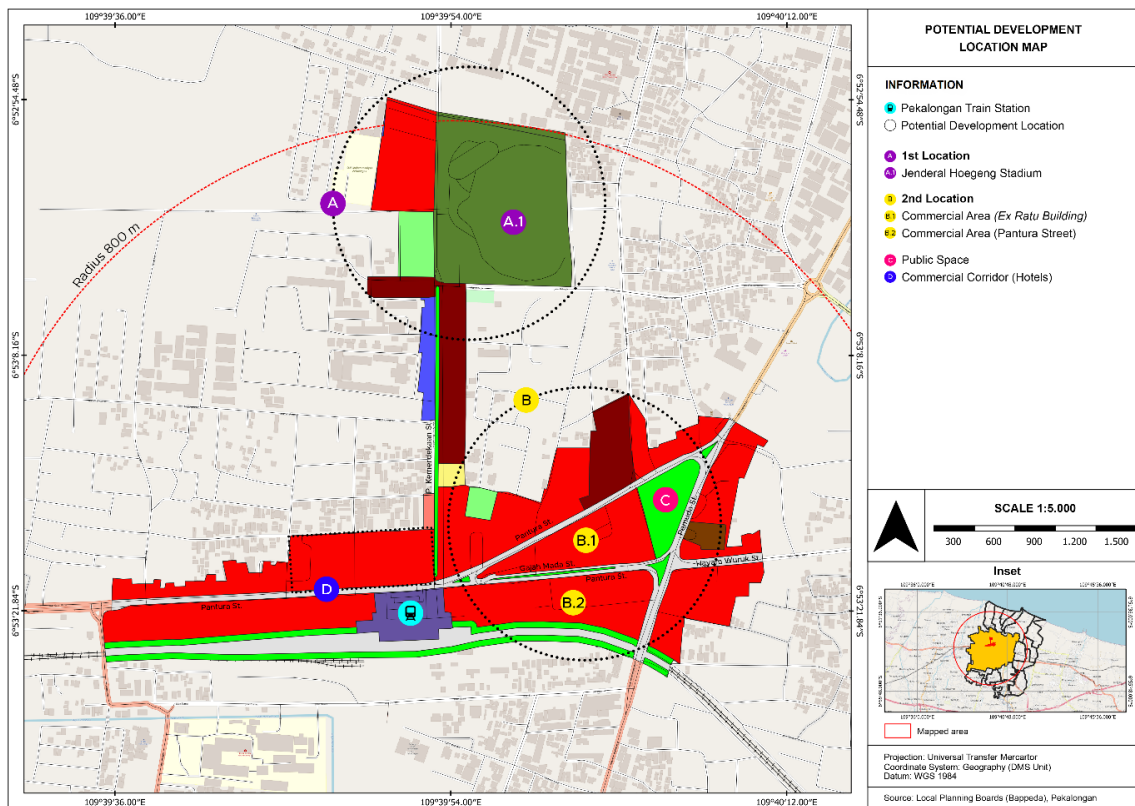


Figure 3. Potential Development Area
Source: Research Analysis, 2024

3.3 Analysis of Determining LVC Instruments for the Transit Oriented-Based of the Pekalongan City Station Development

According to Suzuki, Murakami, Hong, and Tamayose (2015), LVC instruments can be grouped into 2 (two), namely Tax-and Fee-Based LVC Instruments, and Development-Based LVC Instruments. Each LVC category has advantages and disadvantages in its application which must be adjusted to the conditions and characteristics of the area to be developed. Governments and

landowners and/or developers can use value capture to obtain greater economic profits, while the local community will benefit socially and environmentally from infrastructure and new public facilities investment. Reflecting on the implementation of LVC in several countries, the government usually uses a tax and fee-based mechanism, while investors as government partners use a development-based mechanism. Tax- and fee-based LVCs are implemented through government legal and regulatory frameworks.

The Land Development Policy is contained in Pekalongan City Regional Regulation No. 9 of 2020 concerning Amendments to Pekalongan City Local Law Nomor 30 of 2011 concerning Pekalongan City Spatial Planning for 2009-2029. The regulation explains urban development plans by integrating between activity centers through road networks, intermodal and TOD facility development. Apart from that, zoning arrangements are also regulated including building intensity for each activity, and other explanations that can help and support the implementation of LVC for the development of the Pekalongan Station TOD area. Likewise, regulations regarding taxation. Regulations related to taxation focus on regional tax rates relevant to the implementation of LVC such as Land & Building Rights Acquisition Fees; 2) Hotel Tax; 3) Restaurant Tax; 4) Rural & Urban Land and Building Tax; 5) Parking Tax; Advertisement tax; Entertainment Tax. This policy clearly explains the provisions and amount of regional tax rates. Therefore, the availability of this regulation certainly supports and can be used as a guideline for determining the

amount of value that can be obtained through the implementation of LVC, especially tax-based instruments.

Determining the LVC instrument in this research refers to the analysis of aspects or dimensions formulated by Iacono, Levinson, and Zhao (2010) to formulate an instrument with appropriate criteria. Furthermore, these aspects or dimensions are modified according to the needs in the research area. After that each aspect or dimension is compared. The following are the results of a comparison of the suitability of the criteria for determining the LVC instrument with potential areas in the research area. The black dots indicate the need and possibility of LVC instruments that can be applied to aspects used in value generation. It is referred to the concept proposed by Iacono et al. (2010). While the red dots represent potential area development needs that are adapted to the same aspects or dimensions. They come from the physical characteristic and infrastructure condition of the sites or building plots.

Table 1. Possible LVC Instruments for Hoegeng Stadium

Land Capturing (LVC instruments)	LVC Instrument Criteria								
	Contributor		Area of Development			Type of Development		Asset Ownership	
	Land Owner	Developer	On-Site Area	Certain Surrounding Area	Wider Administration Area	New Development	Partial Development	Public	Private
Land Value Tax	•	•	•		•	•	••	••	
Special Assessments	•	•	•	•			••	••	
Leveraging G. Land	•	•	•	•			••	••	
Joint Development		••	••	•		•	••	••	•
Air Right		••	••			•	•	••	•
Land Readjustment	•	••	••				••	••	•

Source: Iacono et al. (2010) with modification, 2024

1) Hoegeng Stadium

Based on Table 1, the appropriate LVC instruments to be implemented in the Hoegeng Stadium Area are Land Readjustment and Joint Development, of which Joint Development is considered the most relevant to implement. The stadium is a city government asset that does not receive enough maintenance so that several facilities were

damaged, such as the stands that collapsed on the east and south sides (Prabowo, 2018). The government has limitations in budgeting and personnel to maintain the stadium which has an area of ± 4 ha (Radio Kota Batik Pekalongan, 2020). Therefore, investor involvement is needed to develop the area. The stadium area has the potential to be converted into a more profitable

commercial area such as an Exhibition Hall which can support Pekalongan City's activities as a Batik City, Petanglong service trade center, and Meeting, Incentive, Convention and Exhibition (MICE).

In the case of Hoegeng Stadium, it is shown a contrast approach between Iacono et al. who propose land owner to be the contributor regarding land value tax, special assessments, and leveraging government land, which all categorized into Tax- and Fee-based LVC (see black dots in the public contributor column in Table 1). In the meanwhile, the fact shows that government as the land owner do not have enough capacity to finance the redevelopment of the stadium (see red dots in the private contributor column in Table 1). Therefore, the proper way in this sense is joint development in which developers are invited to take part and predominated in budget provision. However, Iacono et al. also mention the possibility of building public-private partnership for any kind of redevelopment of government-owned asset or properties as indicated by both black and red dots in the of development and asset ownership column as can be seen in joint development row in Table 1.

2) Ex-Sri Ratu (Ex-Batik Plaza) and the Shopping Mall in the East Side

Based on Table 2, the appropriate LVC instruments implemented in the ex-Sri Ratu area (Ex Batik Plaza) & shops on the east side are land readjustment, joint development, land value tax,

and air right sale. The joint development instrument can be applied considering that the ex-Sri Ratu Convention Hall Atrium and atrium parking area were previously developed by the developer. According to *Laporan Konsep Desain Pengembangan TOD Center Di Sekitar Batik Plaza Kota Pekalongan, (2020)* (Design Concept Report for the Development of a TOD Center Around Batik Plaza, Pekalongan City) the form of collaboration is in the form of Build Operate Transfer (BOT) for ex-Sri Ratu and a Build to Handover (BGS) system for the Atrium Convention Hall and Atrium parking area. Starting in 2019 the building has been closed and has no activity, because the lease has expired. This commercial facility has a strategic location, close to the location of Pekalongan City Station and located in the center of Pekalongan City. However, there are obstacles in the form of limited parking space, inadequate pedestrian paths. In this context, land readjustment is needed to provide parking spaces and pedestrian networks. Considering the location of the shop facing the Pantura road and movement is less comfortable and less safe because it is right at the corner of the Pantura road which has high mobility. Land Value Tax could also potentially be applied by the government for infrastructure development in the area. Along with this, land values will increase both in this area and in the surrounding areas. Meanwhile, the Air Right Sale cannot yet be implemented because there are no regulations for providing incentives and disincentives that can be implemented through FAR regulations.

Table 2. Possible LVC Instruments for ex-Sri Ratu Area and the Adjacent Commercial Area

Land Capturing (LVC Instruments)	LVC Instrument Criteria								
	Contributor		Area of Development			Type of Development		Asset Ownership	
	Land Owner	Developer	On-site Area	Certain Surrounding Area	Wider Administration Area	New Development	Partial Development	Public	Private
Land Value Tax	••	•	•		••	•	••	••	•
Special Assessments	••	•	•	•	•		••	••	•
Leveraging G. Land	••	•	•	•	•		••	••	•
Joint Development	•	••	••	•	•	•	••	••	••

Land Capturing (LVC Instruments)	LVC Instrument Criteria								
	Contributor		Area of Development			Type of Development		Asset Ownership	
	Land Owner	Developer	On-site Area	Certain Surrounding Area	Wider Administration Area	New Development	Partial Development	Public	Private
Air Right	•	••	••		•	•	•	••	••
Land Readjustment	••	••	••		•		••	••	••

Source: (Iacono et al., 2009) with modification, 2024

Referring to Ex-Batik Plaza and the shopping mall situation, the Iacono et al. concept is aligned with the fact, since the building has been built by the developer while the government contributed the land (see land owner contributor column in Table 2). In the case of regeneration of those buildings, the developer would still be the proper agent whose main roleplay to make betterment in order to attract further investment that finally will raise the land value (see developer contributor column in Table 2). In this context, joint development through public-private partnership would be again proposed as can be seen in the joint development row in Table 2).

3) Shopping Area in the East Side of the Station

Based on Table 3 below, the appropriate LVC instruments to be implemented in the east station shopping area are joint development, land readjustment, and land value tax. According to *Laporan Konsep Desain Pengembangan TOD Center Di Sekitar Batik Plaza Kota Pekalongan, (2020)* (Design Concept Report for the Development of a TOD Center Around Batik Plaza, Pekalongan City), information from sources, and observations of existing conditions in the area. The shopping land on the east side of this station belongs to Indonesian Railway Company (PT KAI) which was rented by the developer for shops facing Jalan Gajah Mada and at the former Sayun Market. The ex-Sayun Market shop has problems because it does not face the main road and currently the shop is used for warehousing. The ex-Sayun Market land is currently used as a truck parking area for loading and unloading goods and there is still an ornamental fish seller. The

obstacles experienced include a quiet location, less strategic entry access at a road bend adjacent to the railway tracks which can cause congestion when accessing the ex-Sayun Market location. In this area there is also the PT KAI Logistics Building, Pekalongan City, which is currently used as a sports hall and kiosk/food stall. Even though this building is one of the heritage buildings in Pekalongan City. The obstacle experienced in reviving the building was the lack of strategic access.

Joint development can be implemented to provide parking space, construct entrance & exit roads to the ex-Sayun Market, and restore the function of the PT KAI Logistics Building as a heritage building that needs to be maintained. This is because the ex-Sayun Market is currently still empty and can be developed to build a parking lot and improve access in and out of the ex-Sayun Market. Therefore, it is necessary to involve PT KAI as an asset owner and developer. It is also possible to apply land readjustment to arrange pedestrian paths in front of shops, considering that the area is close to the train tracks, and is next to the Pantura route which has high mobility. Pedestrian comfort needs to be considered considering that the area is included in the TOD development area.

Land value tax is also possible to apply because the land belongs to PT KAI which is rented by the developer for shops. The TOD development around the station will increase land value. Land owners and investors benefit from infrastructure development and regional development. From the increase in land value, the government can obtain additional income from land taxes.

According to Shopping Center Area on East Side of Railway Station, we can see the particular situation with those another two cases before, since the land owner here is the Indonesian Railway Company (PT. KAI) as a private corporation. In this sense, PT. KAI represents both public and private interest since it is a state-owned enterprise. It is assumed that PT. KAI would play as the developer that build partnership both with the government of Pekalongan City and any private investors to redevelop the shopping center area. Any kind of cooperation including joint development and/or joint venture between PT. KAI as the asset owner

with other parties would create profit from the increasing land rent, while the community will benefit the new shopping facilities and better public spaces even though the people should pay higher property tax that become the revenue for the government. We can see the possibility of the interplaying role between PT. KAI as the land owner and any potential investors in redeveloping the area in Table 3. It is shown that in almost each cell it is possible to build a collaboration between land owner (PT. KAI) and developer (private investors).

Table 3. Possible LVC Instruments for Shopping Center on East Side of Railway Station

Land Capturing (LVC Instruments)	LVC Instrument Criteria								
	Contributor		Area of Development			Type of Development		Asset Ownership	
	Land owner	Developer	On-Site Area	Certain Surrounding Area	Wider Administration Area	New Development	Partial Development	Public	Private
Land Value Tax	••	•	•		••	•	••	••	
Special Assessments	••	•	•	•	•		••	••	
Leveraging G. Land	••	•	•	•	•		••	••	
Joint Development		••	••	•	•	•	••	••	•
Air Right		••	••		•	•	•	••	•
Land Readjustment	••	••	••		•		••	•	•

Source: Iacono et al. (2010) with modification, 2024

4. CONCLUSION

This research gives insights about the potential of Pekalongan Railway Station to be developed as TOD area using LVC approach. From the model in the form of a multiple linear regression equation, seven factors or variables have been obtained that influence the increase in land value, namely Distance to Stations (X1), Distance to Main Roads (X2), Distance to Commercial Centers (X3), Distance to Office Facilities (X4), Distance to Educational Facilities (X5), and Distance to Health Facilities (X6). The factor or variable that has the greatest influence on the value of land in the research area is the distance to the commercial center (X3). Locations that are closer to commercial centers have the potential to increase

land value even higher. This variable can be a consideration in providing good access to commercial areas. Furthermore, based on the analysis of areas that could be developed using the LVC approach, three potential areas were produced, namely (1) the Hoegeng Stadium area; (2) the ex-Sri Ratu area and shops on the east side, as well as; (3) shops on the east side of the station. Areas 1 and 2 are assets belonging to the Pekalongan City Government, while area 3 is an asset belonging to PT KAI which is a state-owned company.

Although the scope of the study area is limited to train station and the surroundings, the findings obtained can be generalized considering that the characteristics of spatial patterns and forms of activity represent the dynamics of the transit area.

The TOD-based LVC instruments that have been examined in this research can be used as a reference for analyzing the potential for TOD development in the other areas with similar characteristic.

5. ACKNOWLEDGEMENT

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