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Assessment of Financial Performance of A Traditional Market Rehabilitation in Surabaya

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Abstrak
Pasar tradisional di Surabaya merupakan pusat aktivitas ekonomi yang penting bagi masyarakat setempat. Namun, seiring berjalannya waktu, kondisi fisik dan infrastruktur sebagian besar pasar tradisional mengalami penurunan yang signifikan. Banyak bangunan yang sudah tidak layak secara struktural serta tidak memenuhi standar keselamatan dan kenyamanan yang berlaku. Oleh karena itu, revitalisasi pasar tradisional menjadi kebutuhan mendesak guna meningkatkan kualitas pasar dan memperkuat perekonomian lokal. Revitalisasi pasar tradisional memerlukan berbagai pertimbangan, termasuk aspek desain, konstruksi, dan finansial sepanjang siklus hidup bangunan. Penelitian ini mengkaji kelayakan finansial salah satu pasar tradisional di Surabaya dengan menggunakan dua alternatif perencanaan. Alternatif 1 menggunakan retribusi papan reklame berdasarkan peraturan daerah, sedangkan alternatif 2 mengacu pada pendekatan biaya sewa papan reklame sejenis. Kinerja finansial dianalisis dengan membandingkan biaya dan manfaat yang diperkirakan selama 30 tahun masa layanan menggunakan parameter Net Present Value (NPV), Benefit-Cost Ratio (BCR), dan Payback Period (PP). Hasil penelitian menunjukkan bahwa kedua alternatif menghasilkan nilai NPV negatif dan BCR kurang dari 1, yang mengindikasikan bahwa proyek revitalisasi tersebut belum layak secara finansial. Namun, proyek menjadi layak apabila periode analisis diperpanjang hingga 36 tahun dengan menggunakan alternatif kedua. Analisis tersebut menghasilkan nilai NPV sebesar Rp126.057.465,65 dan nilai BCR >1.
Kata Kunci : Benefit-Cost Ratio, Financial Assessment, Net Present Value, Payback Period, Traditional Market,

Abstract
The traditional market in Surabaya constitutes a critical hub of commercial activity for the local community. However, over time, the physical condition and infrastructure of most traditional market area have markedly declined. Numerous buildings are structurally outdated and fail to comply with current safety and comfort standards. Consequently, the revitalization of the traditional market has become an urgent imperative to enhance market quality and strengthen the local economy. The revitalisation of the traditional market needs many aspects to be decided, including design, construction, and finan-cial aspects during its life cycle. This research studies financial feasibility of the one of traditional market in Surabaya using two alternatives. The first alterntaive utilize the advertising rental charges based on city regional regulation, while the second alternative is derived from a benchmarking approach using simliar billboard rental rate. The financial performance compares cost and benefit estimated over 30 years as its life cycle using parameters of Net Present Value (NPV), Benefit-Cost Ratio (BCR), and Payback Period (PP). The study generates negative NPV and BCR < 1 both two alternatives. It indicates that the revitalization is not fea-sible. The project will be feasible if it estimates over 36 years using the sec-ond alternatives. The analysis generates IDR 126.057.465,65 of NPV and BCR value > 1.
Keywords : *Benefit-Cost Ratio, Financial Assessment, Net Present Value, Payback Period, Traditional Market*

1. Introduction

Traditional market especially in Java Island, is a public facility that supports citi-zens' economic activity where the community trade happens. Besides their primary function as venues for economic and commercial activities, markets also served as venues for social and recreational activities. Markets can be used to capture the cul-ture of the local community (Fahmi et al., 2023).

Surabaya's A Market, particularly its southern side, is a vital trading center for the local community. However, over time, the physical condition and facilities of this southern market have significantly deteriorated. Many buildings are old and do not meet safety and comfort standards, with poor sanitation facilities and inefficient spatial planning. This situation not only negatively impacts the comfort of vendors and shoppers but also reduces the attractiveness of this traditional market compared to modern shopping centers. Therefore, renovation of the southern side of Surabaya's A Market is an urgent need to improve the market's quality and support the local economy.

The revitalization of the traditional market needs many aspects to be decided, in-cluding design, construction, and financial aspects during its life cycle. This re-search studies financial feasibility of the one of traditional market in Surabaya using two alternatives. In doing the project, a feasibility study is one of the project's criti-cal success factors before investing and implementing the project. The feasibility study results provide information regarding the viability of the project investment do the decision maker (Velantika et al., 2025)(Hyari & Kandil, 2009). It enables the decision maker too justify whether the project investment feasible or not to be constructed (Jo et al., 2015)(Khoulenjani et al., 2024)(Ng et al., 2012). However, there are many restrictions in selecting optimal financing method such as risk, costs, and expected income (Sovacool & Ryu, 2025) (Habib et al., 2025). Hence, appropriate feasibility analysis and financing method will contribute and support the success of the construction project (Yan et al., 2017) (Navon & Isaac, 2009)(Musarat et al., 2024).

The financial performance compares cost and benefit estimated over 30 years as its life cycle using parameters of Net Present Value (NPV), Benefit-Cost Ratio (BCR), and Payback Period (PP). Net Present Value (NPV) is a technique used to assess the current value of future cash flows from an investment, based on a prede-termined rate of return. A positive NPV indicates that the project is financially via-ble (Danubroto et al., 2024). The Benefit-Cost (B/C) ratio addresses the shortcomings of the NPV meth-od by evaluating a project based on the benefits it generates for each unit of cost. A project is considered viable if its B/C ratio exceeds 1(Tangvitoontham & Chaiwat, 2012). Payback Period is a tech-nique used to determine the time it takes to recover the funds invested in a project. It represents the duration needed to recoup the initial investment through the project's generated cash flow. This measure indicates how quickly an investment reaches its break-even point, with a shorter payback period being more favorable for the project (Ardyn Sari Sinaga et al., 2023).

2. Research Methodology

The traditional market is located in Surabaya, Jawa Timur. The market comprises two floors designed to distinguish its sales system. The ground floor functions as a traditional market in general, offering both animal-based and non-animal-based food products. Meanwhile, the second floor serves as a wholesale center for various snack products, including dry and wet cakes. In the years of 2021, a severe fire occurred int the second floor. It results in the complete destruction of 190 stalls. Inadequate spa-tial planning and zoning have also contributed to the lack of public interest. The insufficient existing conditions, combined with the disorganized waste disposal are-as, have further deteriorated the current condition of the market.

Figure 1. The market location that served as research object

Figure 2. The Existing Condition of The Market in Second Floor (South Side)

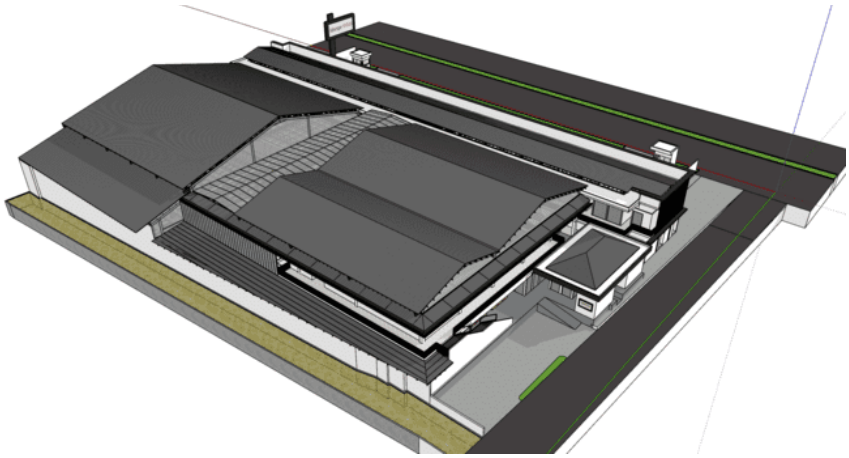

Figure 3. The Rehabilitation Plan of The Market

The renovation plan for the market occupies a total land area of approximately 5,248.90 m², which includes designated parking areas for both motorcycles and cars. The proposed parking capacity consists of 29 motorcycle spaces and 37 car spac-es.On the first floor, the market layout includes 120 dry stalls, 212 wet stalls, 176 dry kiosks, and 14 wet kiosks. The second floor accommodates 220 dry stalls exclu-sively. The total number of stalls, kiosks, and parking spaces will significantly in-fluence the investment revenue. In addition to the rental fees for stalls and kiosks, revenue streams will also be generated from retribution charges, parking fees, and Videotron rental fees.

In analyzing financial project assessment, two aspects entail being considered: cost and revenue. The cost includes investment, operational, and maintenance cost. The investment cost is generated from the calculation of the consultant, while maintenance and operational cost is basicly from the

governemnt regulation. One of the regulation that used in this study is Governor Decree No. 188/656/KPTS/013/2023 concerning the minimum wage for regen-cies/cities in East Java for the year 2024. The revenue is projected based on Regional Regulation on Regional Retribution of the City of Surabaya Number 7 of 2023. The construction was starting in 2024 and planned 1 year of the construction process. The cost and revenue are used to calculate the project's cash flow, where the cash flow will generate feasibility aspects: net present value (NPV), bene-fit-cost ratio (BCR), and internal rate of return (IRR). NPV is one of the methods to measure the profitability of the project equity investment. It is similar to the calcula-tion of BCR. The current value of cost and benefit is discounted by their future value (Islami & Hazhiyah, 2020). The NPV's formulas are as stated below:

$$NPV = \sum_{t=1}^{T} \frac{C_t}{(1+i)^t} - C_0 \qquad (1)$$

Ct is net cash inflow during the t period, C0 is total capital investment, i is the discount rate, and t is the projected period time. The calculation of BCR is similar to NPV, which requires cost and revenue parameters. The Benefit-Cost Ratio (BCR) helps put the cost and revenue into a single measurement of project worthiness. Therefore, BCR analysis is an essential part of planning based on forecasts (Odeck & Kjerkreit, 2019).

In determining the feasibility of a project, the internal rate of return (IRR) also has a significant role in judging whether the project is feasible. Internal rate of return (IRR) describes the rate of return based on the discount rate (Ministry of Public Works and Housing, 2017). The IRR's equation is as below:

$$IRR = i1 + (i2 - i1)\frac{NPV_1}{NPV_1 - NPV_2} \quad (2)$$

3. Results and Discussion

3.1. Expenditures

Investment Cost. The investment cost refers to the capital expenditure required by the investor to initiate the renovation of the market. This investment encompasses two primary components: the cost of renovation planning and the cost of construc-tion. The renovation planning cost amounts to IDR 150,550,000, excluding 11% Value Added Tax (VAT). The scope of the planning work includes conducting a feasibility study, a topography survey, and performing a geotechnical investigation. The scope also includes preparing detailed engineering design document covering architectural, structural, and mechanical-electrical-plumbing works.

The total cost required to carry out the comprehensive renovation of the market is estimated at IDR 15,606,218,000, excluding 11% Value Added Tax (VAT). The ren-ovation work scope includes preliminary works, foundation works, concrete and steel construction work, architectural and electrical work, and drainage works. The total renovation cost also includes the installation of a videotron, which is planned to be positioned directly in front of the market entrance area. This component is inte-grated into the overall construction work package to enhance public information dissemination and commercial visibility.

Operational Cost. Operational costs refer to the monthly expenditures required to support the functioning of the market. These costs include salaries for market man-agement personnel, water utilities, and electricity consumption. The market man-agement salaries are assumed to cover 10 personnel with the following: head office, subdivision head of general affairs, market section staff, sanitation staff, building arrangement section staff, as well as security. Based on the East Java Governor Decree No. 188/656/KPTS/013/2023 concerning the minimum wage for regen-cies/cities in East Java for the year 2024, the minimum wage for Surabaya City is set at IDR 4,725,479. Given this minimum wage and the total number of market man-agement personnel (10 individuals), the total monthly salary expenditure amounts to IDR 47,254,790.

Besides monthly salary expenditure, the operational cost is associated with elec-tricity and water utilities consumption. The electricity cost is estimated by multiply-ing the power consumption with the electricity tariff per kilowatt-hour (kWh). The highest electricity demand is recorded in public areas and staircases, each consum-ing 36 watts. Meanwhile, kiosks, stalls, toilets, the prayer room (musholla), lactation room, health room, and market management office are each assumed to consume 18 watts. All electrical usage is assumed to operate for 8 effective hours per day. The total daily electricity consumption is calculated to be 166.61 kWh, resulting in a monthly consumption of approximately 4,998.24 kWh. Based on the current electric-ity tariff for loads exceeding 5,500 kVA, which is set at IDR 1,699.53 per kWh, the total estimated monthly electricity cost amounts to IDR 8,494,658.83.The water utilities consumption must also be calculated in the forecasting. he water utility cost is assumed to be IDR 2,000,000 per month, which is considered a reasonable propor-tion when compared to the monthly electricity consumption.

Maintenance Costs. The market maintenance cost is generally estimated at 10% of the total rental and retribution fees. The monthly retribution from stall and kiosk rentals amounts to IDR 26,240,000. Consequently, the monthly maintenance cost is IDR 2,624,000. On an annual basis, the total maintenance cost is calculated to be IDR 31,488,000.

Table 1. Expenditure of the whole projected years

Expenditure	Cost (Rp)
Investment Cost	15,756,768,000.00
Operational Cost	20,789,801,578.80
Maintenance Cost	941,640,000.00

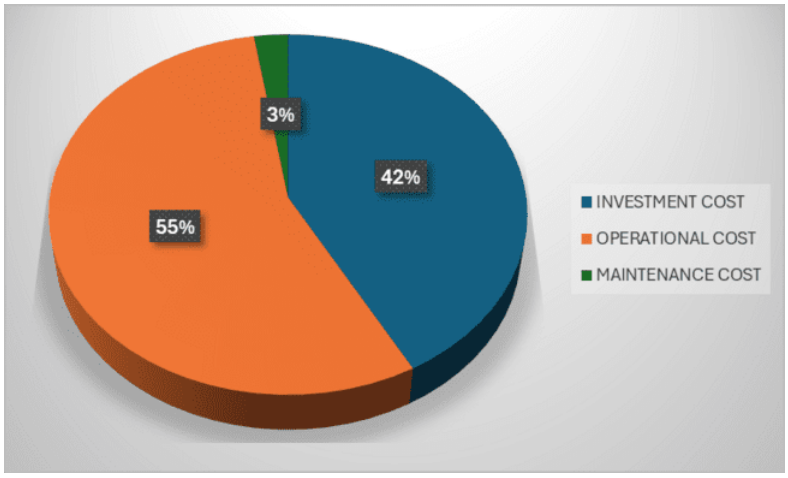

Figure 4. Percentage of Expenditures

3.2. Revenue

Market revenue is derived from various sources, including stall and kiosk rental fees, retribution charges, parking area fees, and videotron rental income.

Stall and Kiosk Rental Retribution. The revenue from stall and kiosk rentals is based on the Regional Regulation on Regional Retribution of the City of Surabaya Number 7 of 2023. According to this regulation, the rental rate for stalls and kiosks follows the minimum rate applied to food centers, which is IDR 20,000 per square meter per month. The number of kiosks and stalls has been described in the previous chapter. A total of 190 kiosks are provided on the ground floor, each occupying a floor area of 4 m². In addition to the kiosks, the same floor accommodates 332 mar-ket stalls (los), with each unit covering an area of 1 m². The second floor comprises approximately 220 market stalls, each also measuring 1 m² in area. The cumulative monthly revenue generated from the rental of kiosks and stalls amounts to IDR 26,240,000. This figure reflects the existing market leasing structure and serves as a

critical input in evaluating the financial viability and revenue potential of the market facility. The spatial distribution and rental returns from these commercial units are integral to the overall investment appraisal, especially in relation to space utilization efficiency and income optimization strategies.

Electricity Retribution. Electricity retribution refers to the charges imposed for the utilization of electrical services. This concept is often associated with taxes or ser-vice fees levied by government authorities or electricity providers—such as the State Electricity Company (PLN) in Indonesia—on end users or consumers of elec-tricity. Pursuant to Surabaya City Regional Regulation No. 7 of 2023 concerning Local Levies and Distribution, the electricity retribution is set at IDR 15,000 per month for a power capacity of 100 watts and IDR 25,000 per month for a capacity of 200 watts. In the context of market facilities, the estimated electricity consumption per stall or kiosk typically does not exceed 100 watts, thereby incurring a standard monthly retribution of IDR 15,000. This regulated fee plays a crucial role in project-ing operational costs and informs the financial planning and feasibility assessment of public market infrastructure.The total monthly electricity retribution derived from the rental of kiosks and stalls amounts to IDR 11,130,000. This figure repre-sents the cumulative charge imposed on all market units based on their estimated energy consumption levels, in accordance with the standardized levy regulated by the local government. The consistent application of a fixed retribution rate—primarily IDR 15,000 per unit per month for stalls and kiosks consuming less than 100 watts—facilitates transparent budgeting and operational forecasting.

Billboard Rental Taxation. Billboard taxation refers to fees or charges imposed by the local government on individuals or companies that install billboards or advertis-ing media in public areas. In this study, billboard rental taxation is divided into two options, first is referred to government regulation, and second is referred to the common market prices.

First Alternatives. The legal basis for billboard taxation is regulated under Surabaya City Regional Regulation and Regional Retribution No. 7 of 2023. The advertising plan for the market involves the use of a videotron billboard or LED display bill-board measuring 7.5 x 3.4 meters. According to the aforementioned regulation, the retribution rate for billboards, banners, films, videotron, and similar media is set at IDR 100,000 per day for each unit with a maximum size of 4 x 6 square meters. For billboard dimensions exceeding this size, a proportional calculation is applied. Ac-cording to the standard retribution rate stipulated in the regional regulation, a bill-board measuring 4 x 6 meters is subject to a daily fee of IDR 100,000. Given that the planned videotron billboard for the market in Surabaya measures 7.5 x 3.4 meters, a proportional calculation is applied to determine the appropriate retribution. Based on this calculation, the daily fee for the planned billboard is IDR 106,250. Accordingly, the total monthly retribution for the videotron billboard amounts to IDR 3,187,500.

Second Alternatives. The estimation of videotron billboard rental costs can be de-rived by referencing market rates applied to comparable advertising structures locat-ed on Mayjend Sungkono Street and Basuki Rahmat Street—two of Surabaya's prime commercial corridors. In 2021, the total rental expenditure for two videotron billboards, each measuring 5 x 10 meters (50 m^2), with lease durations of one and three months, respectively, amounted to IDR 426,140,000. From this data, the aver-age monthly rental rate for a 50 m^2 videotron can be approximated at IDR 106,535,000. In comparison, the proposed videotron installation at the market is designed with dimensions of 3.4 x 7.5 meters, equating to a surface area of 25.16 m^2. By employing a proportional cost approach based on area, the corresponding month-ly rental fee for the market videotron is estimated at IDR 53,608,412. This method assumes a linear cost relationship relative to billboard size and serves as a reasona-ble proxy in the absence of direct market pricing for smaller-scale videotron instal-lations in secondary commercial zones.

Parking Retribution. Parking retribution represents a form of user charge levied by municipal authorities or licensed private operators for the utilization of designated parking spaces. These fees function as a fiscal instrument to regulate the use of pub-lic infrastructure while simultaneously contributing to local revenue streams. In the context of the market renovation project, the proposed design accommodates 29 motorcycle parking units and 37 car parking units. For the purpose of this study, it is reasonably assumed that market visitors remain on-site for no longer than two hours per

visit, thereby enabling an estimated turnover rate of four vehicle cycles per day. Pursuant to Surabaya City Regional Regulation No. 7 of 2023, a fixed-rate tariff of IDR 5,000 is applied per entry for four-wheeled vehicles—including sedans and minivans—while motorcycles and equivalent two-wheeled vehicles are subject to a fee of IDR 2,000 per entry. Utilizing these regulatory benchmarks in conjunction with projected turnover rates, the monthly aggregate parking retribution is estimated to reach IDR 29,160,000. This projection assumes full utilization of parking capacity across all operational days within a standard month and serves as a basis for fore-casting revenue contributions from parking facilities as part of the broader market infrastructure investment.

Table 2. The revenue each year of first alternative

No	Revenue		Cost/year
1	Stall and Kiosk Rental Retribution	Rp	314,880,000.00
2	Electricity Retribution	Rp	133,560,000.00
3	Billboard Rental	Rp	38,250,000.00
5	Parking Retribution	Rp	349,920,000.00
	TOTAL	**Rp**	**836,610,000.00**

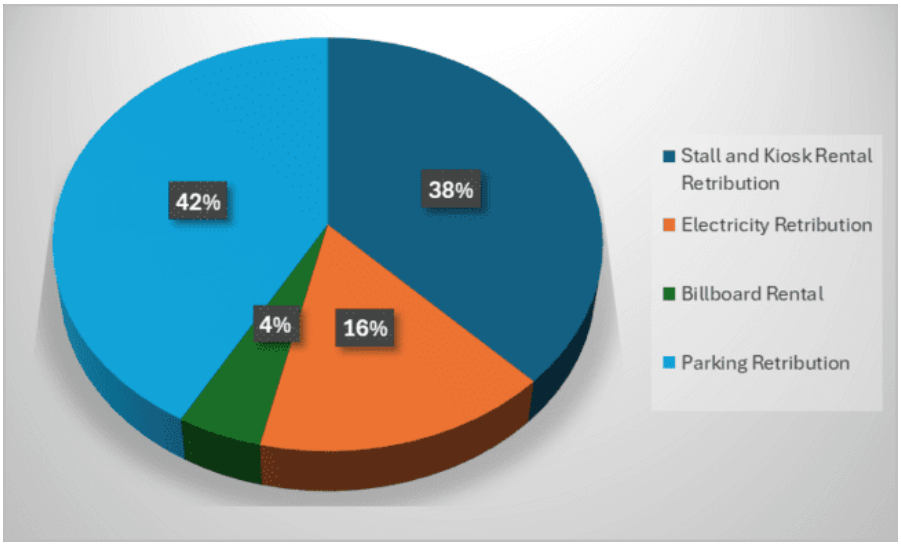

Figure 5. Percentage of Revenue Referred from First Alternatives

Table 3. The revenue each year of second alternative

No	Revenue		Cost/Tahun
1	Stall and Kiosk Rental Retribution	Rp	314,880,000.00
2	Electricity Retribution	Rp	133,560,000.00
4	Billboard Rental	Rp	643,300,944.00
5	Parking Retribution	Rp	349,920,000.00
	TOTAL	**Rp**	**1,441,660,944.00**

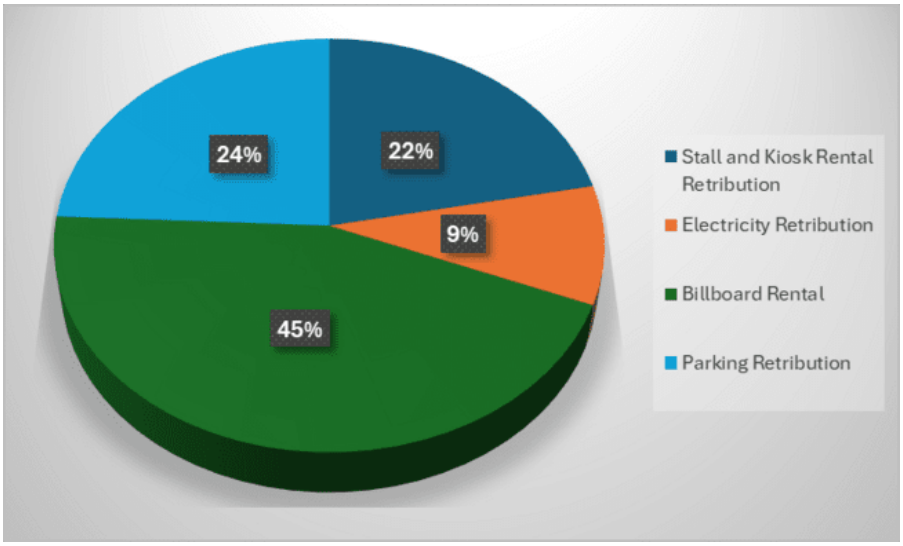

Figure 6. Percentage of Revenue Referred from Second Alternatives

3.3. Financial Feasibility Analysis

The financial analysis is conducted to evaluate the overall feasibility of the proposed project. The assessment employs four standard financial indicators: Net Present Value (NPV), Benefit-Cost Ratio (BCR), Payback Period, and Internal Rate of Return (IRR). Prior to the implementation of these investment appraisal techniques, it is essential to establish a comprehensive cash flow projection. Cash flow refers to a financial statement that records the inflow and outflow of funds over a specific time period, and it plays a critical role in determining whether the project will yield a favorable return for investors or stakeholders.

In this study, the projected cash flow comprises two key components: the initial capital investment and the recurring revenue stream generated from regular retribution payments. Both elements have been detailed in the preceding subsections. Moreover, the calculation of cash flow must also incorporate key macroeconomic parameters, including the inflation rate and the discount rate. The inflation rate adopted in this analysis is 3.25%, based on the latest data released by the Central Bureau of Statistics for the East Java region. Meanwhile, the discount rate is set at 6.25%, reflecting the average commercial bank interest rate. These parameters serve as critical inputs in adjusting nominal cash flows to their present values, thereby ensuring an accurate reflection of the project's real economic performance over time.

This research applies two alternative approaches to the feasibility assessment, distinguished by the treatment of billboard rental taxation. The first approach adheres to government regulations, whereas the second adopts a market-based valuation. The use of both alternatives is intended to provide a broader comparative perspective, recognizing that the rates prescribed by government regulation may underestimate the actual economic value.

First Alternatives. The cash flow projection under alternative 1 utilizes projected revenues derived from billboard retribution, with tariff structures strictly aligned to the provisions stipulated in Surabaya City Regional Regulation No. 7 of 2023 concerning Local Taxes and Charges. By anchoring revenue assumptions to a legally established framework, this scenario ensures regulatory compliance and fiscal predictability. The cash flow projection incorporates both capital expenditures and recurring income over the analysis period, offering a comprehensive overview of the project's financial viability within the defined regulatory environment.

Under Alternative 1, the Net Present Value (NPV) is calculated at IDR 13,529,942,238.50. This result is based on a 30-year cash flow analysis that adopts billboard retribution rates as stipulated in Surabaya City Regional Regulation No. 7 of 2023. The negative NPV indicates that, when discounted over the project's operational lifespan, the present value of expected revenues is insufficient to recover the initial investment and associated operating costs. Consequently, this scenario renders the investment financially unfeasible under current regulatory conditions and assumptions.

The benefit-cost ratio (BCR) for Alternative 1 represents the quantitative comparison between the total projected benefits and the total projected costs associated with this investment scenario. The BCR for Alternative 1 is calculated at 0.55. As this value falls below the threshold of 1.0, it indicates that the expected benefits are insufficient to offset the incurred costs. Therefore, based on this metric, the investment under Alternative 1 is deemed financially unviable and should not be pursued under the current assumptions and regulatory framework.

Second Alternatives. Under Alternative 2, the Net Present Value (NPV) at year 30 is calculated at IDR 1,524,599,032.17. However, the NPV turns positive in year 36, reaching a value of IDR 126,057,465.65. This analysis employs a rental-based approach, using market-referenced billboard leasing rates in Surabaya as the basis for revenue estimation. The eventual shift to a positive NPV indicates that, while the investment may not achieve financial viability within a 30-year horizon, it becomes feasible over an extended timeframe. A positive NPV reflects the potential for long-term profitability, suggesting that the project may be considered financially viable under Alternative 2, provided that stakeholders are willing to accept a longer investment recovery period.

The benefit-cost ratio (BCR) for Alternative 2 is calculated based on a 36-year projection period, as the net present value (NPV) becomes positive in year 36. The resulting BCR value is 1.00, indicating that the present value of projected benefits is equal to the present value of projected costs. A BCR equal to or greater than 1.0 signifies that the investment is financially viable. Therefore, under the assumptions applied in this extended timeframe, Alternative 2 demonstrates economic feasibility and may be considered a justifiable investment option.

The payback period is a financial metric used to evaluate the length of time required for an investment to generate sufficient cash flows to recover its initial capital outlay. It serves as a straightforward indicator of both investment risk and liquidity. Based on the analysis conducted, Alternative 1 does not achieve payback within the 30-year evaluation horizon, indicating the need for an extended concession period to potentially reach breakeven. In contrast, Alternative 2 achieves full cost recovery in year 36, marking the point at which cumulative net cash flows surpass the initial investment. This finding underscores the significantly longer investment horizon required for Alternative 2, while also highlighting its eventual financial feasibility relative to Alternative 1.

4. Conclusion

The investment feasibility analysis reveals distinct outcomes for each alternative scenario. In Alternative 1, where the advertising rental charges are based on the provisions stipulated in Surabaya City Regional Regulation No. 7 of 2023 concerning local retributions, the investment projected over a 30-year horizon is financially unfeasible. This conclusion is supported by a negative Net Present Value (NPV) and a Benefit-Cost Ratio (BCR) below unity, indicating that the projected revenues are insufficient to justify the capital outlay. Meanwhile, in Alternative 2, where rental rates are derived from a benchmarking approach using comparable billboard installations, the investment also appears infeasible within the same 30-year period. How-ever, under Alternative 2, the investment becomes viable when the projection period is extended to 36 years, as the payback period is achieved in the 36th year. This sug-gests that while regulatory-based pricing may hinder financial viability in the medi-um term, market-based pricing mechanisms offer a more favourable long-term out-look, albeit with a delayed return on investment.

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