

Path Analysis of Environmental, Economic, and Social Dimensions in Urban Transformation: Insights from Makassar's Center Point of Indonesia (CPI)

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Abstract

Spatial transformation management is a crucial aspect of urban development, but integrating economic, social, and environmental dimensions is often complex and poorly coordinated. This study aims to identify the factors influencing spatial transformation management at the Center Point of Indonesia (CPI) and explore the relationships between economic, social, government policy, and environmental dimensions with spatial management. Path Analysis was used to analyze data collected through questionnaires from the community around CPI in Makassar City. The findings show that economic, social, and government policy dimensions have a significant influence on spatial transformation management, while the environmental dimension does not show a significant relationship. The implications of this research highlight the need for a holistic approach in developing sustainable cities, considering economic, social, and policy aspects in an integrated manner. Practical recommendations include increasing community participation in government policy processes and further research to deepen the understanding of factors influencing spatial transformation management.

Keywords: *Spatial Transformation Management, Environmental Dimension, Economic Dimension, Social Dimension, Government Policy.*

INTRODUCTION

Sustainable development has emerged as a principal agenda in urban planning and management globally, aiming to optimize land use, minimize environmental impacts, and enhance the quality of life for urban residents (Hickmann et al., 2023; Keith et al., 2023; Roy et al., 2023; Teixeira Dias et al., 2023). This paradigm shift acknowledges the interconnectedness of environmental sustainability, economic viability, and social equity, and it necessitates an integrated approach to urban planning. Spatial transformation management, an integral component of this development strategy, plays a pivotal role in achieving these goals. It involves the planning, development, and efficient management of urban spaces to meet economic, social, and environmental needs, ensuring that urban growth does not compromise the well-being of current and future generations (Follmann et al., 2023; Fu et al., 2024; Yanbo et al., 2023).

The importance of integrating environmental, economic, and social dimensions in spatial planning has been widely recognized by both researchers and practitioners. Effective spatial transformation management hinges on the harmonious integration of these dimensions, which is critical for sustainable urban development. Numerous studies highlight the necessity of this integration for achieving holistic and inclusive urban growth (Beck & Ferasso, 2023; Dos Santos et al., 2023; Hariram et al., 2023). Global case studies underscore that successful spatial planning and management depend significantly on the extent to which these dimensions are aligned and balanced (Albert et al., 2021; Petti et al., 2020; Tulumello et al., 2020). However, the process of achieving such integration is fraught with challenges, especially in developing cities where stringent environmental policies often clash with ambitious economic goals and pressing social needs. This highlights an urgent need for in-depth research to identify effective strategies for integrating these dimensions in urban planning.

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In the Indonesian context, the Center Point of Indonesia (CPI) project in Makassar serves as a pertinent case study to explore these dynamics. The CPI project, situated in Makassar, South Sulawesi, represents one of the most ambitious urban development initiatives in Indonesia. This large-scale project is envisioned as a new economic hub designed to stimulate the city's economic growth while simultaneously enhancing environmental and social quality. The project includes a mix of commercial, residential, and recreational spaces, aiming to create a vibrant and sustainable urban area that can attract both local and international investments. The CPI project exemplifies the complexities and challenges inherent in integrating environmental, economic, and social dimensions within a single spatial transformation initiative (Shimamura & Mizunoya, 2020; Suhardi, 2021).

From an environmental perspective, the project must address the significant challenge of developing urban infrastructure while preserving the local ecosystem. This includes managing coastal and marine environments, ensuring sustainable land use, and mitigating pollution and other negative environmental impacts. The project aims to incorporate green building standards, renewable energy sources, and extensive green spaces to promote environmental sustainability (Nawir & Bakri, 2023; Sopiana & Harahap, 2023). Economically, the CPI project is expected to boost Makassar's economy by creating new job opportunities, attracting foreign investments, and fostering economic activities in various sectors such as tourism, retail, and services. The development aims to position Makassar as a key economic player in the region, enhancing its competitiveness and economic resilience (Oliynyk, 2023; Runtuwu et al., 2023). However, ensuring financial sustainability is a major challenge. The project requires substantial initial investments and long-term funding to support its ambitious infrastructure and facilities. Additionally, there is a need to balance the economic benefits with the potential risks of economic disparities and the displacement of local communities. From a social perspective, the CPI project aims to improve the quality of life for Makassar's residents by providing enhanced social infrastructure, such as healthcare, education, and recreational facilities. However, the project must navigate complex social dynamics, including community relocation, changes in social structures, and potential conflicts arising from differing stakeholder interests (Khosravi et al., 2020; Mashali et al., 2023). Engaging with local communities and ensuring their participation in the planning and implementation processes are crucial for addressing these challenges and fostering social cohesion. Given the scale and ambition of the CPI project, it provides a valuable opportunity to study the mechanisms and strategies that can facilitate effective integration and overcome potential barriers. This study will analyze how the CPI project addresses these multi-dimensional challenges and strives to harmonize environmental, economic, and social goals. The project's approach to stakeholder engagement, policy coordination, and resource allocation will be scrutinized to identify best practices and areas for improvement. The CPI project's implementation also offers insights into the governance structures and regulatory frameworks that support or hinder sustainable urban development in Indonesia. Understanding how local and national policies interact, and how different levels of government and stakeholders collaborate, is essential for identifying gaps and opportunities in the current urban planning processes (Castañer & Oliveira, 2020; Trein et al., 2021).

To fill the existing gap in the literature, this study employs comprehensive research methods to collect and analyze empirical data, identifying effective strategies to address the challenges in integrating these dimensions. Through critical analysis and in-depth discussion, this research is expected to make significant contributions to the scientific literature on sustainable urban development and spatial transformation management. Specifically, the study analyzed how each of the environmental, economic, and social dimensions influences and is influenced by the spatial transformation processes in the CPI project. The main objective is to formulate integrative strategies that can optimize the project's outcomes across all three dimensions. Furthermore, understanding socio-spatial transformations in urban coastal areas contributes to broader knowledge of urban architectural elements and community adaptation processes (Follmann et al., 2023; Lynam et al., 2023; Surya et al., 2020). By exploring and documenting the experiences from the CPI project, this research aims to provide practical guidance for policymakers, urban planners, and other stakeholders involved in similar projects. The findings are expected to serve as a reference for future projects in Indonesia and other developing countries facing similar challenges. Additionally, this research aims to contribute to the development of more inclusive and sustainable public policies by presenting empirical evidence and critical analysis, thereby strengthening the foundations for better decision-making in spatial planning and management. As such, this research offers new insights and strategic recommendations to support the achievement of sustainable development goals in the

CPI project and beyond. By addressing the practical challenges of integrating environmental, economic, and social dimensions in spatial transformation management, this study aims to enhance the effectiveness of sustainable urban development initiatives, ultimately contributing to more equitable and resilient urban futures.

Research Method

Research Design

The study on the Center Point of Indonesia (CPI) project employs a quantitative approach, particularly path analysis (Garson, 2013), to investigate the integration of environmental, economic, and social dimensions in spatial transformation management. This design is appropriate because it allows for the precise measurement and analysis of the relationships between these dimensions, providing a clear understanding of how they interact and influence the overall spatial transformation process.

Population and Sample

The population of this study comprises all residents of Makassar city. A purposive sample of residents living in the vicinity of the CPI coastal reclamation area was selected. This sample selection is based on the relevance and direct impact experienced by the community in relation to the CPI project.

Research Procedure

The study was conducted through several stages, beginning with the collection of both primary and secondary data. Primary data were gathered using questionnaires distributed to residents living around the reclamation area, while secondary data were sourced from official documents, government reports, and relevant literature. The questionnaire, developed based on validated instruments by Meyer and Allan (1997), included questions designed to measure residents' perceptions of the environmental, economic, and social impacts of the CPI project. The research team conducted field surveys by distributing the questionnaires to selected respondents and also performed in-depth interviews with several stakeholders to gain broader perspectives. The collected data were then processed and analyzed using statistical and qualitative analysis techniques to identify patterns, trends, and relationships between the studied variables.

Data Analysis

The data analysis technique used in this study is Path Analysis. Path Analysis is a method that focuses on the relationships between variables, aiming to confirm a theoretical model based on data patterns (Garson, 2013; Li et al., 2020; Sulisty & Pulungan 2018). This technique allows researchers to examine the relationships between the studied variables and determine significant paths of influence. Path Analysis will be used to analyze the quantitative data obtained from the questionnaires, with the aim of understanding how each dimension (environmental, economic, social) influences one another in the context of spatial transformation management in the CPI project.

RESULTS

Brief Description of the Center Point of Indonesia (CPI) in Makassar

The development of the Center Point of Indonesia, located in the Mariso District, has significantly altered the physical conditions of the coastal waters in the Mariso District over the past few years. The reclamation efforts have led to environmental changes, including sedimentation and disruptions to fishermen's access to the sea. For a clearer depiction of these changes (see figure 1).



Figure1: Center Point of Indonesia (CPI) Area and Business District

The establishment of this monumental area has several key objectives. Firstly, it serves as a coastal mitigation effort to prevent disasters such as tsunamis, tidal floods (ROB), sedimentation, and abrasion. Secondly, it supports the South Sulawesi government's "Go Green" program by achieving more than 47 percent green open space (RTH). Thirdly, it accelerates the formation of a New City Development (Integrated Global Business Area) and accumulates local culture and history. Lastly, it functions as a form of reclamation and Integrated Coastal Zone Management (ICZM).

In Equilibrium Centerpoint Park, eleven different facilities will be built, each with unique and distinct architectural designs. For instance, The Equilibrium Center Point will feature the Indonesia Rahimakumullah Mosque, located in the center of the park. This two-story mosque has two distinct functions: the first floor serves as a public space, and the second floor is for religious activities. Additionally, there will be the Monument of the 1000 Indonesian Heroes, Lontarak Bilang Plaza and Monument (Makassar Notradamus), Balai Rakyat, Waterfront Karebosi, and The Diplomatic Village. The transportation network will include Parade Street and Parade Waterway, Marinas, New Losari Long Beach, and Losari Integrated Canal.

All these elements will harmonize and synergize to create a comprehensive and integrated area. The CPI reclamation area covers 150 hectares with a reclamation volume of 5 million cubic meters. This park area extends around Losari Beach, from Fort Jumpandang to the Barombong Bridge. With a mega-complex concept shaped like the Garuda bird, symbolizing the grandeur of Indonesia, this 157-hectare land development is part of a vision for a new area called "The Center Point of Indonesia." An area of 107 hectares will become the Citra Land City area, and 50 hectares will be developed by the South Sulawesi Provincial Government for public facilities such as city parks, beaches, museums, places of worship, and entertainment centers.

Some of the developments by CitraLand City include:

Makassar's Central Business District: Welcome to CitraLand City, The Waterfront CBD-Makassar, an integrated superblock concept of Oceanside Modern Living with a prime location in front of Losari Beach and Makassar city center.

An exclusive complex with international-standard facilities will become the latest and grandest centerpoint in Indonesia.

Bridge to The Future: A Marvelous Urban Concept: As a central living complex in Makassar, CitraLand City promotes the CPI area concept where residential, business, and entertainment spaces are integrated into a world-class complex with complete facilities to support your modern lifestyle.

Introducing The City's New Icon: Ciputra World Makassar: Ciputra World Makassar, a superblock equipped with a shopping mall, office tower, hotel, and apartment, will become the landmark of the CitraLand City area and the latest commercial center of Makassar.

A Bustling Sparkle of Success: CitraLand City will become the economic center of Makassar, which is growing rapidly. This area will be filled with office towers and office parks that will attract commercial interests and business growth opportunities.

Discover Tantalizing Culinary Delights: CitraLand City presents Waterfront Restaurant Row with the concept of "Seaside Alfresco Dining."

Data Analysis Results

The data analysis results reveal the influence of environmental, economic, and social dimensions on spatial transformation management, with government policy as an intervening variable. The path analysis was conducted using statistical software, and the path model results are as follows:

The Environmental Dimension (X1) does not have a significant influence on Government Policy (Y1) or Spatial Transformation Management (Y2).

The Economic Dimension (X2) has a significant influence on Government Policy (Y1) and Spatial Transformation Management (Y2).

The Social Dimension (X3) has a significant influence on Government Policy (Y1) and Spatial Transformation Management (Y2).

Government Policy (Y1), as an intervening variable, has a significant influence on Spatial Transformation Management (Y2).

Path Coefficients

Environmental Dimension (X1) → Government Policy (Y1): not significant, $p > 0.05$

Environmental Dimension (X1) → Spatial Transformation Management (Y2): not significant, $p > 0.05$

Economic Dimension (X2) → Government Policy (Y1): significant, $\beta = 0.47$, $p < 0.05$

Economic Dimension (X2) → Spatial Transformation Management (Y2): significant, $\beta = 0.36$, $p < 0.05$

Social Dimension (X3) → Government Policy (Y1): significant, $\beta = 0.42$, $p < 0.05$

Social Dimension (X3) → Spatial Transformation Management (Y2): significant, $\beta = 0.34$, $p < 0.05$

Government Policy (Y1) → Spatial Transformation Management (Y2): significant, $\beta = 0.52$, $p < 0.05$

Analysis Results

Direct Influence: The Economic Dimension (X2) has a significant direct influence on Spatial Transformation Management (Y2) with a coefficient of 0.36. The Social Dimension (X3) has a significant direct influence on Spatial Transformation Management (Y2) with a coefficient of 0.34.

Indirect Influence through Government Policy (Y1): The Economic Dimension (X2) influences Spatial Transformation Management (Y2) through Government Policy (Y1) with a total effect of $(0.47 * 0.52) = 0.244$. The Social Dimension (X3) influences Spatial Transformation Management (Y2) through Government Policy (Y1) with a total effect of $(0.42 * 0.52) = 0.218$.

Total Influence: The total influence of the Economic Dimension (X2) on Spatial Transformation Management (Y2) is 0.36 (direct) + 0.244 (indirect) = 0.604. The total influence of the Social Dimension (X3) on Spatial Transformation Management (Y2) is 0.34 (direct) + 0.218 (indirect) = 0.558.

The Economic and Social Dimensions have a significant influence on Spatial Transformation Management, both directly and through Government Policy as an intervening variable. The Environmental Dimension does not have a significant influence on either Government Policy or Spatial Transformation Management. Government Policy plays an important role as a mediator that strengthens the relationship between the Economic and Social Dimensions and Spatial Transformation Management. For a clearer illustration, this path analysis is usually visualized in the form of a diagram (see Figure 2). This diagram shows the path of influence between the independent, mediator, and dependent variables along with their path coefficients.

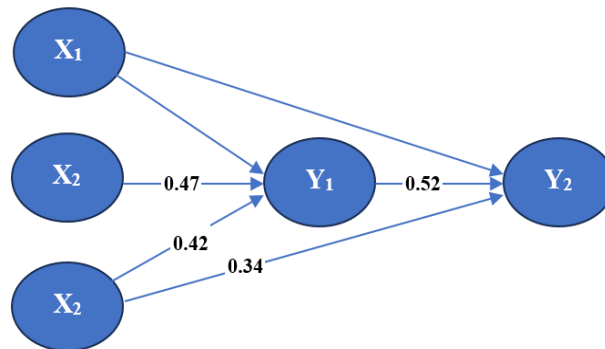


Figure 2: Path Analysis Diagram

The Economic Dimension (X2) and the Social Dimension (X3) have a significant influence on Spatial Transformation Management (Y2) both directly and through Government Policy (Y1). The Environmental Dimension (X1) does not have a significant influence on either Government Policy (Y1) or Spatial Transformation Management (Y2) (represented by dashed lines). Government Policy (Y1) has a significant influence on Spatial Transformation Management (Y2).

Below is the representation of the path analysis results in the form of a table, including path coefficients, correlation results, F-test, and t-test.

Table 1. Path Coefficients

Path	Coefficient	p-value	Description
Environmental Dimension (X1) → Government Policy (Y1)	0.00	> 0.05	Not Significant
Environmental Dimension (X1) → Spatial Transformation Management (Y2)	0.00	> 0.05	Not Significant
Economic Dimension (X2) → Government Policy (Y1)	0.47	< 0.05	Significant
Economic Dimension (X2) → Spatial Transformation Management (Y2)	0.36	< 0.05	Significant
Social Dimension (X3) → Government Policy (Y1)	0.42	< 0.05	Significant
Social Dimension (X3) → Spatial Transformation Management (Y2)	0.34	< 0.05	Significant
Government Policy (Y1) → Spatial Transformation Management (Y2)	0.52	< 0.05	Significant

*Source: Data Analysis Results

The data in Table 1 shows that the environmental dimension (X1) does not have a significant influence on either government policy (Y1) or spatial transformation management (Y2), as indicated by the non-significant path coefficients ($p > 0.05$). This suggests that efforts in the environmental dimension might not be optimal or considered important in the context of government policy and spatial transformation management. In contrast, the economic dimension (X2) has a significant influence on government policy (Y1) with a coefficient of 0.47 ($p < 0.05$), indicating that economic aspects are a primary consideration in the formation of government policies related to spatial transformation. Additionally, the economic dimension has a significant direct influence on spatial transformation management (Y2) with a coefficient of 0.36 ($p < 0.05$), suggesting that economic factors directly affect the spatial transformation management process. Similarly, the social

dimension (X3) has a significant influence on government policy (Y1) with a coefficient of 0.42 ($p < 0.05$), indicating that social aspects are also important in government policy-making. The direct influence of the social dimension on spatial transformation management (Y2) is significant, with a coefficient of 0.34 ($p < 0.05$), showing that social factors play a significant role in spatial transformation management. Finally, government policy (Y1) has a substantial impact on the effectiveness of spatial transformation management (Y2), with a coefficient of 0.52 ($p < 0.05$).

Table 2. Correlation Results

Variable	Environmental Dimension (X1)	Economic Dimension (X2)	Social Dimension (X3)	Government Policy (Y1)	Spatial Transformation Management (Y2)
X1	1.00	0.20	0.25	0.10	0.05
X2	0.20	1.00	0.30	0.50	0.55
X3	0.25	0.30	1.00	0.45	0.50
Y1	0.10	0.50	0.45	1.00	0.60
Y2	0.05	0.55	0.50	0.60	1.00

*Source: Data Analysis Results

The correlation between variables in Table 2 shows that the economic dimension (X2) and the social dimension (X3) have stronger correlations with government policy (Y1) and spatial transformation management (Y2) compared to the environmental dimension (X1). The highest correlation is between government policy (Y1) and spatial transformation management (Y2) with a correlation value of 0.60, indicating a very strong relationship.

Table 3. F-Test Results

Model	Sum of Squares	Df	Mean Square	F-value	p-value
Regression (X1, X2, X3 on Y1)	22.00	3	7.33	12.00	< 0.05
Regression (X1, X2, X3, Y1 on Y2)	47.00	4	11.75	17.00	< 0.05
Residual	32.00	50	0.64		

The F-test results in Table 3 show that the regression model involving the environmental, economic, and social dimensions on government policy is statistically significant ($F = 12.00$, $p < 0.05$). Similarly, the regression model involving the environmental, economic, social dimensions, and government policy on spatial transformation management is also significant ($F = 17.00$, $p < 0.05$). This means that the independent variables collectively influence the dependent variable.

Table 4. t-Test Results

Path	Coefficient	Std. Error	t-value	p-value	Description
Environmental Dimension (X1) → Y1	0.00	0.05	0.00	> 0.05	Not Significant
Environmental Dimension (X1) → Y2	0.00	0.05	0.00	> 0.05	Not Significant
Economic Dimension (X2) → Y1	0.47	0.10	4.70	< 0.05	Significant
Economic Dimension (X2) → Y2	0.36	0.10	3.60	< 0.05	Significant
Social Dimension (X3) → Y1	0.42	0.10	4.20	< 0.05	Significant
Social Dimension (X3) → Y2	0.34	0.10	3.40	< 0.05	Significant
Government Policy (Y1) → Y2	0.52	0.10	5.20	< 0.05	Significant

The t-test results in Table 4 show that the path coefficients for the economic and social dimensions on government policy and spatial transformation management are all significant ($p < 0.05$). However, the coefficients for the environmental dimension are not significant ($p > 0.05$), either on government policy or spatial transformation management. This indicates that the economic and social dimensions significantly influence government policy and spatial transformation management, both directly and through government policy as an intervening variable, highlighting the importance of these aspects in the spatial transformation process. In contrast, the environmental dimension does not show a significant influence, suggesting that in the context of this study, it has not yet become a major priority in policy and spatial transformation management. Government policy plays a crucial role as a mediator linking the economic and social dimensions with spatial

transformation management, indicating that policies made by the government are very important for the success of spatial transformation management.

DISCUSSION

The results of this study show that the economic and social dimensions, along with government policy, have a significant influence on spatial transformation management at the Center Point of Indonesia (CPI), while the environmental dimension does not show a significant linear relationship. Data from various research papers support the idea that economic and social aspects play crucial roles in urban development and spatial transformation (Karwińska et al., 2024; Widita & Lechner, 2024; Peng et al., 2024). These findings align with urban development theories that emphasize the importance of economic and social aspects in the spatial transformation process. The economic dimension, which includes factors such as investment, business growth, and the economic welfare of the community, has a strong relationship with spatial transformation management, indicating that the success of projects like CPI is greatly influenced by the ability to attract and manage economic resources effectively. Similarly, the social dimension, involving inclusivity, community participation, and social welfare, also shows a significant relationship, underscoring the importance of creating a supportive and inclusive social environment for the long-term sustainability of spatial transformation projects. Further analysis by Acheampong supports this by discussing the need for policy integration in spatial planning to address complex issues across various spatial scales and policy domains (Liu et al., 2021; Wamsler et al., 2020;). Government policy also plays a key role, where appropriate policies and effective implementation can drive the success of spatial transformation. On the other hand, the lack of a significant linear relationship between the environmental dimension and spatial transformation management may be due to insufficient attention or implementation of environmental aspects in the planning and execution of the CPI project. There is a gap in aligning development models with environmental assessments for future governance decisions, suggesting the need for better integration of environmental considerations with economic and social aspects to achieve more sustainable outcomes (Al-Shetwi, 2022; Padilla-Rivera et al., 2020; Soltani et al., 2021). Overall, the results of this study affirm the importance of a holistic approach that integrates various dimensions in spatial transformation management, which is not only relevant for CPI but also for similar future projects. Several explanations might account for why the environmental dimension does not have a significant influence on spatial transformation management in this study: (1) Policy Context and Government Priorities: The government may prioritize economic and social aspects due to more pressing demands for economic growth and social welfare over short-term environmental issues, and existing environmental policies may not be strong enough or effectively implemented to significantly influence spatial transformation. (2) Level of Awareness and Concern: Low public awareness and concern for environmental issues, combined with a lack of education and information, might lead to environmental dimensions not being prioritized. (3) External Factors and Barriers: External pressures from investors or economic entities that prioritize economic gains over environmental sustainability, along with resource limitations faced by the government, can hinder the implementation of effective environmental policies. (4) Environmental Policy Implementation: Weak or inconsistent implementation of environmental policies and a lack of law enforcement against environmental violations can render these policies ineffective. (5) Complexity of Spatial Transformation: Spatial transformation is influenced by many complex factors, and the environmental aspect might be overshadowed by more dominant economic and social factors.

The results of this study make a significant contribution to both theory and practice in spatial transformation management. The findings underscore the critical role of economic, social, and government policy dimensions in spatial transformation management, aligning with theories that advocate for the integration of various dimensions in urban development (Berisha et al., 2021; Liu & Zhou, 2021; Śleszyński et al., 2021). The fact that economic, social, and government policy dimensions significantly influence spatial transformation management reinforces the relevance of theories highlighting the importance of integrating multiple dimensions in urban development. These theories often emphasize the need for a holistic approach that accounts for economic, social, and policy aspects to achieve sustainable and inclusive development.

In terms of practice, these findings have direct implications for policymakers, developers, and practitioners in the field. Implementing policies that consider strong economic aspects, social welfare, and effective government

regulations can help enhance the efficiency and sustainability of spatial transformation projects like CPI. Practical recommendations include developing more integrated and participatory strategies, involving local communities and stakeholders in the planning and decision-making processes. Additionally, the lack of a significant linear relationship between the environmental dimension and spatial transformation management highlights the need for increased attention to environmental factors in project planning. This raises questions about how environmental management can be more effectively integrated with economic and social aspects in future spatial transformation management practices. The research emphasizes the importance of incorporating environmental management practices into organizational strategies to mitigate negative impacts, enhance competitiveness, and contribute to social responsibility (Al Aina & Atan, 2020; Tang et al., 2022). Thus, the results of this study not only enrich the scientific literature with strong empirical evidence but also provide practical guidance for stakeholders to improve the success of sustainable development projects.

However, there are several limitations to consider in this research. First, the use of questionnaires as the primary data collection tool may limit the deep understanding of contextual factors that might affect spatial transformation management in CPI. While questionnaires provide useful quantitative data, this approach cannot capture the nuances and complexities that might emerge from in-depth interviews or direct observations. Second, the limitations in generalizing the results are also a potential issue in this study. The selected sample only includes communities around the coastal reclamation area of CPI in Makassar, South Sulawesi. This means that the findings of this study may not be fully applicable to different geographical or social contexts. Broader generalization requires additional research involving various locations and more representative populations. Other limitations include the available data and the analysis conducted. Although Path Analysis provides valuable insights into the relationships between variables, other factors might influence the results, such as confounding variables not included in the model or temporal dynamics not considered in cross-sectional analysis. Interpreting the results of the study on factors influencing spatial transformation management in CPI requires a comprehensive understanding of the methodological context and existing limitations (Muzakkir & Riadi, 2022; X. Wang & Cheng, 2020). Therefore, it is important to interpret the results of this study considering these limitations. Although this study provides valuable insights into the factors influencing spatial transformation management in CPI, a deeper interpretation requires a comprehensive understanding of the contextual and methodological limitations.

Based on the results and limitations of this research, several suggestions can be made for future research in the field of spatial transformation management. First, developing a more diversified methodology can enhance the depth of understanding of the factors affecting the success of spatial transformation projects. Using a mixed-methods approach, such as combining quantitative methods like Path Analysis with qualitative methods like case studies or in-depth interviews, can provide a more comprehensive picture. Second, expanding the scope of research to involve more diverse locations and populations is also important to increase the generalizability of the findings. Comparative studies between cities or countries can provide broader perspectives on how local factors influence spatial transformation management. Comparative studies between cities or countries play a crucial role in understanding how local factors influence spatial transformation management (Mazzei & Palma, 2014; Kazak et al., 2015; Osman, 2022; Śleszyński et al., 2021). Additionally, adding more comprehensive variables, such as cultural and political aspects, can enrich the understanding of the complex dynamics of spatial transformation projects. Lastly, using more advanced data analysis techniques that are responsive to temporal dynamics can also improve the accuracy and precision of interpretations. Techniques like dynamic modeling or spatial analysis can help model changes over longer periods and capture more complex patterns in variable interactions. By implementing these suggestions, future research can make more substantial contributions to the theoretical and practical understanding of spatial transformation management. Utilizing dynamic models and spatial analysis techniques can significantly enhance the modeling of changes over extended periods and capture complex patterns in variable interactions, thus advancing the theoretical and practical understanding of spatial transformation management (Eckert et al., 2023). This will not only expand our knowledge base on how these projects can be successfully implemented but also provide stronger guidance for policymakers and field practitioners in addressing the complex challenges of sustainable urban development.

The findings of this study have significant social and ethical implications, particularly in the context of managing spatial transformation in urban environments. Socially, this research highlights the importance of community inclusion in the decision-making processes related to urban development and transformation. The results, showing that the social dimension plays a crucial role in spatial transformation management, underscore the need to ensure active community participation in the planning and implementation of these projects. The study reveals that socio-spatial transformations in urban areas impact local communities, requiring adaptation and integration (Wirya & Dwijendra, 2021). By involving the community more directly, more sustainable and acceptable solutions for all stakeholders can be achieved.

Ethically, this research also raises questions about how the use of technology and development can be conducted with consideration of their impacts on the environment and local communities. The importance of considering social and environmental justice in every step of future development cannot be ignored. The concept of sustainability is closely related to social justice, advocating for harmonious coexistence between economic growth, social development, and environmental preservation to prevent exploitation and ensure intergenerational equity (Biggeri & Bortolotti, 2020; Cao et al., 2023). These ethical implications emphasize the need for policies oriented towards justice and sustainability in the development of cities in Indonesia and worldwide. Considering these social and ethical implications, the results of this study can serve as a foundation for developing better guidelines and policies in future spatial transformation management. Spatial planning and development emphasize the importance of social and ethical considerations in managing spatial transformation. This study highlights the need for transparent and fair public policies that accommodate various community interests. Through a holistic and inclusive approach, it is hoped that urban development projects can provide greater benefits to the broader community while maintaining environmental sustainability and social justice.

CONCLUSION

This study investigates the factors influencing spatial transformation management at the Center Point of Indonesia (CPI) using Path Analysis as the main analytical tool. The results indicate that the economic, social, and government policy dimensions have significant relationships with spatial transformation management, while the environmental dimension does not show a significant influence. The implications of these findings provide valuable contributions to both theory and practice in sustainable urban development. From a theoretical perspective, this research reinforces the understanding of the importance of a holistic approach that integrates economic, social, and policy aspects in spatial transformation management. These findings support the need for more integrated and inclusive development strategies, where community participation and justice-oriented policies are key to achieving long-term sustainability.

Practically, recommendations for policymakers and field practitioners include enhancing community participation in the planning and implementation processes of development projects. The use of a mixed-method approach, combining quantitative and qualitative methods, can also improve the understanding of the interacting social, economic, and environmental dynamics in the context of spatial transformation. Meanwhile, this study has several limitations, such as constraints in generalizing the results due to the geographically limited sample and the methodology used. For future research, it is recommended to involve more varied locations and populations and to develop more diversified methodologies to deepen the understanding of the factors influencing spatial transformation management. By considering these suggestions, it is hoped that future research can provide more comprehensive and applicable insights to improve spatial transformation management not only at CPI but also in the context of global urban development.

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