

---

## THE IMPACT OF TOLL ROAD DEVELOPMENT ON URBANIZATION TYPOLOGY AND ECONOMIC STRUCTURE (CASE STUDY: PALIKANCI TOLL ROAD IN CILEDUG DISTRICT, CIREBON REGENCY)

Muhammad Fuad Hasyim<sup>1</sup>, Arni Muslimah Handayani Widjaja<sup>2</sup>, Fichri Surya Alamsyah<sup>3</sup>,  
Muhfidlatul Qira'ati<sup>4</sup>

Universitas Swadaya Gunung Jati Cirebon, Cirebon, West Java, Indonesia

[puadmadrid812@gmail.com](mailto:puadmadrid812@gmail.com)<sup>1</sup>, [arni\\_muslimahw@ugj.ac.id](mailto:arni_muslimahw@ugj.ac.id)<sup>2\*</sup>, [fichrisa@gmail.com](mailto:fichrisa@gmail.com)<sup>3</sup>,  
[giraatimuhfidlatul@gmail.com](mailto:giraatimuhfidlatul@gmail.com)<sup>4</sup>

---

### ABSTRACT

This study examines the impact of toll roads on regional growth, specifically focusing on the Ciledug District, which has been crossed by the Palikanci Toll Road since 2009. The research identifies the typology of urbanization and assesses changes in the area's economic structure due to the toll road. A mixed method approach was used, combining qualitative and quantitative data collection, land change analysis via Google Earth and ArcGis 13.1, and field observations of land use. The findings reveal gentrification in the northern part of Ciledug, marked by the growth of business centers in Jatiseeng and rising land prices. This has led to the expansion of settlements toward the southern area, particularly in Jatiseeng Kidul. The toll road and the industrial estate in North Ciledug have accelerated the transformation of the local economy, with residents diversifying their livelihoods to adapt to urbanization. However, the study also notes a lack of improvement in essential infrastructure services, suggesting that regional development policies have not yet adapted to the gentrification, posing risks of urban sprawl.

**Keywords:** gentrification, livelihood diversification, regional transformation, toll road, urbanization

---

Corresponding Author: Arni Muslimah Handayani Widjaja

E-mail: [arni\\_muslimahw@ugj.ac.id](mailto:arni_muslimahw@ugj.ac.id)



### INTRODUCTION

Urbanization is a phenomenon that cannot be prevented due to modernization (Volgyes et al., 1980). In many development contexts, urbanization is expected to accelerate economic growth through investment in the industrial sector and labor absorption. The acceleration of economic growth through urbanization is believed to improve the quality of life of people in countries with high population density, such as China, where the acceleration of the growth rate of the economic sector is expected to keep pace with the speed of population explosion and the pressure on the need for jobs (Guan et al., 2018). On the other hand, urbanization has parasitic effects such as increasing rural-urban inequality, pollution, congestion, the emergence of slum areas, and decreasing environmental quality (Lu et al., 2021; Yao & Jiang, 2021).

Increasing transportation access through infrastructure development is one of the efforts that can trigger the acceleration of urbanization with a more compact time to travel. Toll roads are one of the infrastructures that can generate economic activities, triggering agglomeration of industrial and urban areas (Glaeser, 2020; Hariyanto et al., 2024). Toll roads can summarize commuter travel times, increase access from industrial locations to resources, and optimize the distribution of goods to the market (Glaeser, 2020). Besides its advantages in increasing intra-regional movements, the

---

existence of toll roads has an impact that needs to be anticipated, namely the possibility of triggering *urban sprawl*, which increases the possibility of growth in densely populated areas (Aditya & Husna, 2022). Furthermore, the existence of toll roads needs to be anticipated to increase the benefits to the internal accessibility of the area and create an internally profitable urbanization.

Toll roads are generally associated with efforts to accelerate regional growth, such as increasing growth in new expansion areas, such as developing special economic zones or new metropolitan areas (Siregar & Utomo, 2021). The internal growth of the region crossed by toll roads is often considered for its trickle-down effect in the name of regional economic growth, which is expected for the growth that occurs in the leading sector. In several studies, observations have been made on toll gates against industrial expansion, increasing the amount of travel for tourism activity and commuting activity in the metropolitan area (Andani et al., 2021; Hariyanto et al., 2024). However, in new growth areas, urbanization typologies should be identified to anticipate sprawl and its effects on social and economic aspects (Bennike et al., 2020; Lu et al., 2021; Siregar & Utomo, 2021).

Ciledug District is the westernmost part of Cirebon Regency and is a border area between West Java and Central Java. In 2008, there was the construction of the Kanci Toll Road Section 1 (Kanci-Ciledug) and Section 2 (Ciledug-Pejagan), which gave a change in the urban morphology in the Ciledug District area (NUGROHO et al., 2020). Ciledug District was originally a rural area engaged in the agricultural sector, with the existence of toll roads transformed and became an urban area. Rural transformation resulting from infrastructure development not only changes the hue of the region through land conversion but also changes the economic structure of the community towards the changes in access to resources and jobs where the structure of rural communities dominated by agrarian activities cannot necessarily directly adjust to the rate of urbanization that occurs (Widjaja, 2022).

In addition to its benefits in increasing intraregional accessibility, local communities must cope to take advantage of the momentum of urbanization and participate in economic growth. However, in some studies, the urbanization conditions that occur in agrarian areas have an impact on the change of urban identity through the fusion of socioeconomic boundaries, the emergence of economic inequality in local communities, social exclusivity caused by social and economic disparities, and increasing the potential of urban sprawl (Aditya & Husna, 2022; Chen et al., 2020; Schmidt et al., 2024; Vela-Jiménez & Sianes, 2021; Wulandari et al., 2021).

Agglomeration from the increasing intraregional activity needs to be identified to explain the typology of urbanization that occurs. As a result, mitigation efforts can be carried out to control the effects of urbanization. This study aims to explain the typology of urbanization that occurs in Ciledug District as an impact of the existence of the Kanci Toll Road and its impact on the economic structure of the region. This research can contribute to providing recommendations for spatial planning and regulations to increase the resilience of local communities in taking advantage of urbanization momentum.

This study specifically examines the impact of the Palikanci Toll Road on the urbanization typology and economic structure of the Ciledug District in Cirebon Regency. While urbanization can foster regional economic growth by improving transportation access, it also brings challenges such as urban sprawl, economic disparity, and changes in local socio-economic conditions. The novelty of this research lies in its localized analysis of how toll roads impact rural regions transitioning into

urban areas. Unlike other studies that focus on macroeconomic growth or large urban centers, this research delves into the micro-level effects of urbanization on local communities, particularly in terms of land use, population shifts, and economic transformations. The study also highlights the importance of infrastructure planning in ensuring that urbanization benefits are equitably distributed and do not exacerbate socioeconomic inequalities.

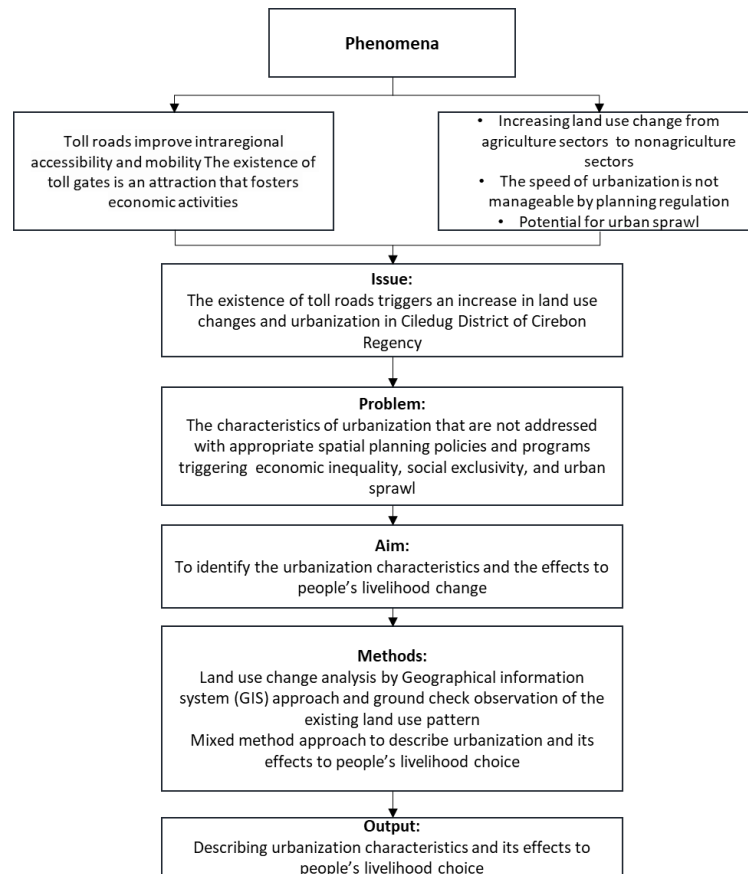
In summary, this research is necessary because it addresses a pressing issue in regional development: how infrastructure projects like toll roads can transform small rural districts into urbanized areas, often with unintended socio-economic consequences. By providing a comprehensive analysis of the specific impacts of the Palikanci Toll Road on the Ciledug District, this study offers valuable insights for academic researchers and policymakers seeking to manage the urbanization process more effectively.

## **METHOD**

This research was conducted using a mixed approach with qualitative and quantitative descriptive methods, where both data were used to describe the phenomena by triangulation (Dash & Gupta, 2023). Land changes were observed by analyzing Google Earth satellite images in 2009 and 2024 using the Arc Gis 13.1 application, then validated by ground checks on existing land use conditions. Descriptive quantitative data was obtained by distributing a questionnaire to 100 sample people determined by random sampling with the Slovin approach for accuracy with an alpha of 10% ( $\alpha=0.1$ ) for the population of Ciledug District of 48,114 people in 2023 (Wibowo et al., 2023).

Quantitative data were collected using a structured questionnaire distributed to 100 households. The questionnaire used a Likert scale (1 to 5) to measure residents' views on land use changes, migration, livelihood diversification, and access to infrastructure. A random sample was chosen using the Slovin formula to ensure representativeness. The data included factors like household income, land ownership, and employment.

The survey was carried out on a livelihood scale to test the urbanization criteria determined based on changes in land use, population structure, and utilities shown by the fulfillment of basic infrastructure needs. The questionnaire results are then presented descriptively through graphs and then validated with the interview results. The interview activities were carried out using the purposive method, through semi-open-ended questions, and processed in a triangulation manner through content analysis, combining multiple data sources—questionnaires, interviews, and satellite imagery—for a more comprehensive understanding. Methodological triangulation was also employed, using quantitative and qualitative methods to strengthen the study's validity. Cross-validation between these methods ensured robust conclusions. The flow of the research process can be seen in Figure 3, and data requirements in Table 1.



Source: Analysis, 2024

**Figure 1.**  
**Research Flow Chart**

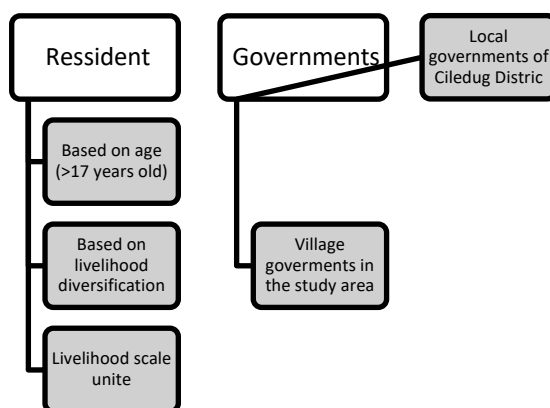
**Table 1. Data Requirements**

No.	Aims	Variable	Data Requirements	Parameters
1	Describing the effects of toll roads on the urbanization typology of the study area	Land use change In migration Infrastructure provision for basic needs (transportation, clean water, electricity, telecommunication, education, solid waste, management, health care facility, business facility)	<ul style="list-style-type: none"> <li>Google Earth satellite image (in 2009 and 2024)</li> <li>Demography aspect (population size and density in 2009 and 2023)</li> <li>Questioner and interview</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of land use change</li> <li>Ground check and observation of the existing land use and activity.</li> <li>Questioner with Likert's scale from 1-5 (strongly disagree to strongly agree)</li> </ul>

				<ul style="list-style-type: none"> <li>• Interview with purposive sampling</li> </ul>
2	Describing the correlation between urbanization phenomenon on people's livelihood choice	Livelihood diversification, income change, access to livelihood, access to choose livelihood strategy	<ul style="list-style-type: none"> <li>• Questioner and interview</li> </ul>	<ul style="list-style-type: none"> <li>• Questioner with likert's scale from 1-5 (srtrongly disagree to strongly agree)</li> <li>• Interview with purposive sampling</li> </ul>

Source: Analysis, 2024

The questionnaire's respondents were determined by random sampling, while the interview was carried out by purposive sampling. The requirement for respondents to fill out the questionnaire is that they must be the head of the family or a bread maker in the family. The interviewees were divided into residents and local governments. Residents are determined by age (>17 years), the representation based on livelihood diversification, and the livelihood scale unit. The determination to interview classified for the representation of the Ciledug District Government and Rural Head in the Ciledug area, especially in the impacted area near the toll gates. Quantitative data will be interpreted using descriptive statistical graphics, while qualitative data will be analyzed using content analysis to confirm the number shown in the statistical graphic.



Source: Analysis, 2024

**Figure 2.**

**Sources Determination for Interview**

## RESULTS AND DISCUSSION

### A. Urbanization Typology and Characteristic

Satellite image processing shows the emergence of increased activity in urban fringe areas, about ±2 km from the Toll Gate, dominated by business and residential activities to serve the increasing intensity of industrial activities. The service points of the area in Central Ciledug have now

shifted to the northern part, covering the Jatiseeng, Ciledug Kulon, and Bojongnegara areas. This indicates the existence of the industrial sector and toll roads as a generator of activities in the form of business and services. So, the northern area of Ciledug District is now growing as a service center of peri-urban areas.

**Table 2. Land Use Change in Ciledug District in 2009 and 2024**

No.	Land Use Classification	Area (Ha)				Land use change (%)
		2009		2024		
		Ha	%	Ha	%	
1	Build up area	232,20	16,20	289,91	20,24	(+) 4,04
2	Industrial zone	6,67	0,47	6,67	0,47	0,00
3	Agriculture	1.193,81	83,33	1.136,21	79,30	(-) 4,04
	Total	1.432,68	100	1.432,79	100	0,00

Source: Google Earth Image Processing by ArcGis 13.1

Between 2009 and 2024, Ciledug District experienced significant changes in land use, as illustrated in Table 2. The most notable shift was the expansion of built-up areas, which grew from 1,620 hectares in 2009 to 2,024 hectares in 2024, representing an increase of 404 hectares. This expansion reflects the development of new residential and commercial areas due to urbanization driven by the toll road. In contrast, industrial zones remained constant at 667 hectares during this period, indicating no significant change in the size of land dedicated to industry. However, the activities still contributed to economic shifts.

Meanwhile, agricultural land declined, decreasing from 11,938 hectares in 2009 to 11,362 hectares in 2024, marking a loss of 404 hectares. This reduction in farmland corresponds to the increase in built-up areas, as agricultural land was converted for urban development. Overall, the table highlights the ongoing urbanization process in Ciledug, with more land being used for housing and business activities at the expense of agricultural space.



a. The emergence of housing area in Bojongnegara

b. The Growth of trading activity in Northern area of Ciledug Kulon

c. Access to industrial site in Northern Ciledug

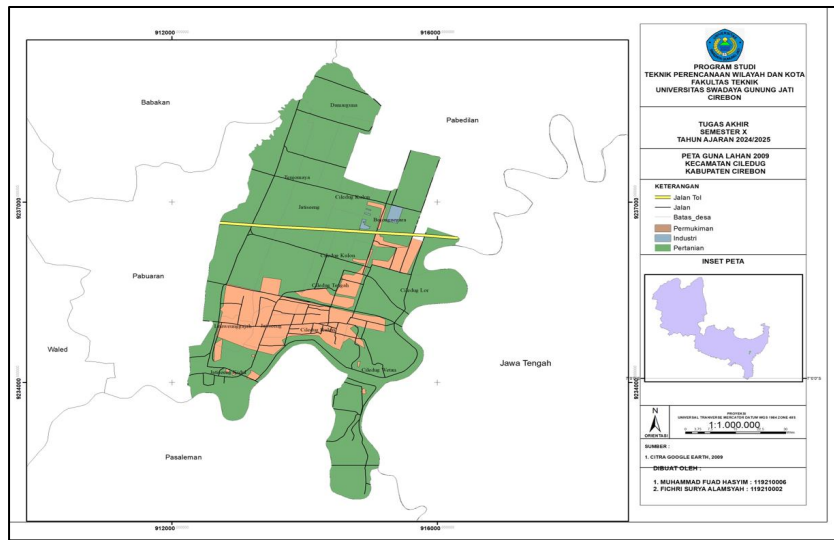
Source: Observation, 2024

**Figure 3.**

**The Emergence of New Growth Centre in Urban Fringe of Ciledug District as a Response to Industrial Activity**

Image processing analysis showed that 4.04% of agricultural areas turned into built-up areas, which were indicated as new settlement areas in the southern part (Jatiseeng Kidul) and the growth of business and service activities in the northern part (Jatiseeng, Ciledug Kulon). Although the industrial sector has not shown a significant increase in land use, nevertheless, the increase in

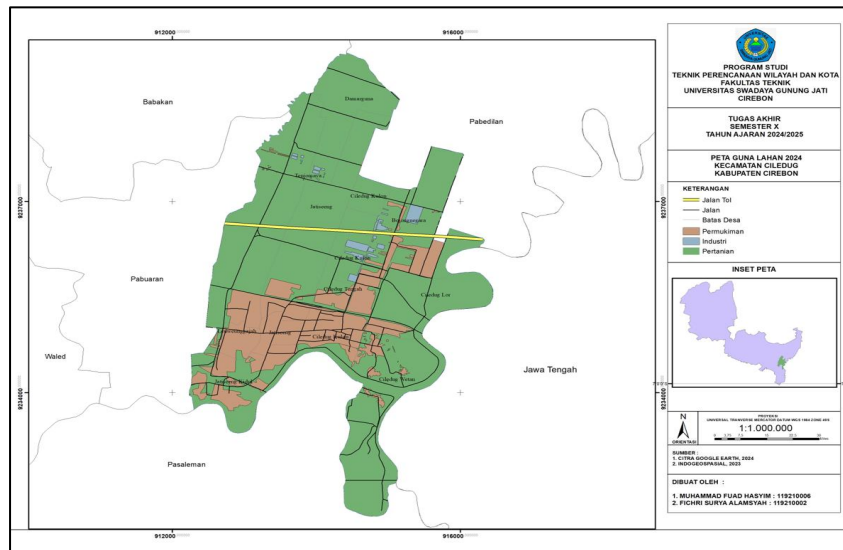
commuter activities and the increase in labor force absorption in the industrial sector have led to an insistence on the emergence of the expansion of residential areas in the South and business services in the North. The growth of residential areas is pushed to the south in response to increased land prices around industrial areas. On the contrary, the business sector is growing in the north, accompanied by increased land prices and the privileges of the location specialty. Land use shifts can be seen in **Figure 6** and **Figure 7**.



Source: Image Processing Analysis, 2024

**Figure 6.**

**Land Use Map of Ciledug District in 2009**



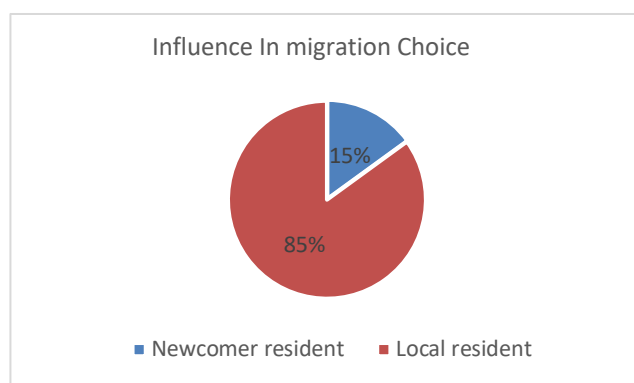
Source: Image Processing Analysis, 2024

**Figure 7.**

**Land Use Map of Ciledug District in 2024**

The survey found indications of migration caused by the emergence of industrial sectors. The migration process occurred due to the emergence of a workforce to meet the demand of the industrial

sector and the attractiveness of the location of North Ciledug as a new niche for business and service activities. 15% of respondents stated that they migrated from outside the city to Ciledug to get new job opportunities as industrial workers, entrepreneurs, and workers in the business sector. Most migrants came from cities in West Java (the area around the development of the Rebana Metropolitan area) and Central Java (Brebek and Tegal). The growth of business activities in Northern Ciledug not only serves the needs for new residential areas but also meets the needs of the incoming population through commuter activities. Thus, the existence of toll roads can be concluded to impact the change in agricultural land use into a developed area that encourages the emergence of new growth centers due to increasing industrial activities. Over time, the growth of North Ciledug can also create a trickle-down effect on the South Babakan District and form a new urban area.



Source: Analysis, 2024

**Figure 4.**

#### **Influence of the Emergence of Toll Gates on Migration Choice**



Source: Observation, 2024

**Figure 9.**

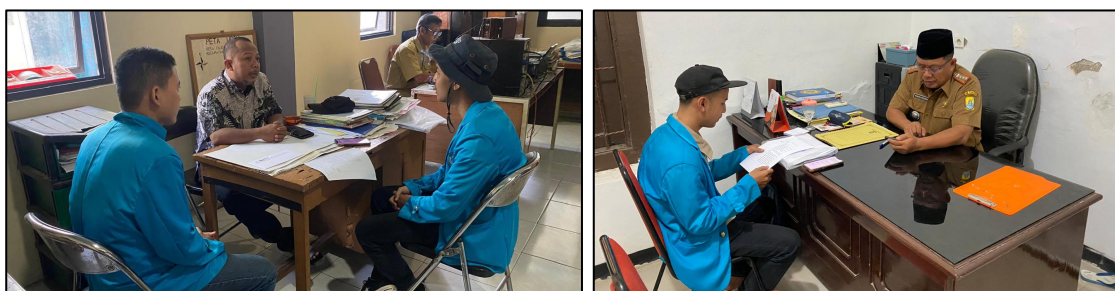
#### **Jatiseeng Kidul Growth as New Settlement Area in South Ciledug**

Industrial activities appeared before the existence of toll roads, but the existence of toll roads creates an increase in the scale of industrial activities, which has an impact on increasing labor size, leading to an increase in commuter and migration activities. It was identified that the growth of the industrial sector caused a multiplier effect that awakened the housing, business, and service sectors and created new growth poles in the urban fringe in the northern area of Ciledug. As the land rate in

the northern area increased as an effect of location specialty, demand for housing pushed into the southern area of Ciledug with the lower land price. The speed of population growth in the central part of the south must be anticipated to prevent sprawl. At the same time, the decline of agricultural land is feared to accelerate in the central part to the north due to the inclining of industrial activities. The loss of agricultural land that is not balanced with the absorption of industrial labor for local communities is feared to increase the chances of economic and social inequality, which will be discussed in the following subsection.

### B. Impacts of The Toll Roads on Basic Infrastructure Provision

A survey by distributing questionnaires and interviews was conducted to find out whether urbanization impacts meeting the community's basic needs in infrastructure services. The result is that most of the infrastructure fulfillment has no meaningful connection with the existence of toll roads. Respondents argued that development programs related to infrastructure improvement are not caused by the existence of toll roads or industrial activities but are already part of the regional development plan roadmap. In general, there needs to be infrastructure specifically built to respond to the transformation in the area after the construction of the toll road. The local community government and village heads in Ciledug District also confirmed this argument.



a. Interview with Village Head and Village's Government Representative

b. Interview with The Head of Ciledug Administrative District

Source: Field Survey, 2024

**Figure 5.**  
**Interview with Local Government**

As seen in Table 3, more than half of the respondents chose that the existence of toll gates has not impacted the improvement of essential infrastructure provision. On the other hand, 85% of the respondents agree that it has an impact on improvement in internal accessibility, and 89% of them agree that it has an impact on intraregional mobility. The improvement in interregional activity is a sign that the existence of toll roads did not cause any severe impact on area fragmentation, which is usually followed by decreased accessibility within the area. As stated in the critical statement below, the existence of toll roads primarily causes an impact both in increasing accessibility and mobility and stimulating congestion, and It should be anticipated to control the signs of sprawl in the area.

**Table 3. Influence of the Existence of Toll Roads on Basic Infrastructure Provision**

No.	Criteria	Sample Size	Score (%)				
			1	2	3	4	5
1.	Improvement in interregional accesibility	100	2	2	11	69	16

No.	Criteria	Sample Size	Score (%)				
			1	2	3	4	5
2.	Improvement in intraregional accesibility	100	0	2	9	81	8
3.	Improvement in clean water provision	100	3	10	53	29	5
4.	Improvement in electricity provision	100	0	13	53	28	6
5.	Improvement in telecommunication provision	100	1	8	58	23	10
6.	Improvement in solid waste treatment management	100	3	9	58	22	8
7.	Improvement in education provision	100	1	2	60	24	13
8.	Improvement in healthcare provision	100	0	4	56	29	11

\*Notes:

1: Strongly disagree

3: Neutral

5: Strongly disagree

2: Disagree

4: Agree

Source: Analysis of Field Data Survey, 2024

It reveals that toll roads had mixed impacts on infrastructure development. Most respondents (85%) agreed that toll roads improved interregional accessibility, and 89% believed they enhanced intraregional mobility, highlighting the positive effect of toll roads on transportation. However, the influence of essential services could have been more pronounced. For instance, only 34% of respondents reported improved clean water provision, and 34% noted better electricity services. Similarly, 33% observed improvements in telecommunications, while 30% saw enhancements in solid waste management. Education and healthcare also showed limited improvements, with 37% and 40% of respondents, respectively, indicating progress. While toll roads significantly boosted mobility and connectivity, their direct influence on essential infrastructure services such as water, electricity, and healthcare was less impactful, suggesting that these developments may not have been a priority linked directly to the toll road project.

### C. Impacts of The Toll Roads on District Economics Structure

When urbanization did not improve fulfilling infrastructure provision for basic needs, it strongly impacted the area's economic structure. As seen in Table 4, more than 80% of the respondents agree and strongly agree that the existence of toll gates impacts the decision to open a new business, change in income, and labor force absorption. That decision is caused by the land conversion from agriculture for toll road development and new build-up areas. 52% of respondents have no land ownership due to land conversion, and 62% have an increase in average income. It shows the capability of people in the area to cope with urbanization with livelihood diversification and substitute the land for a new economic activity.

**Table 4. Influence of the Existence of Toll Roads on Economic Structure**

No.	Criteria	Sample Size	Score (%)				
			1	2	3	4	5
1.	Access to open new business	100	0	4	10	69	17
2.	Change in Income	100	1	2	15	70	12
3.	Labor force absorption	100	1	1	17	69	12
4.	Agriculture land ownership	100	3	5	16	68	8

\*Notes:

1: Strongly disagree

3: Neutral

5: Strongly disagree

2: Disagree

4: Agree

Source: Analysis of Field Data Survey, 2024

Most respondents (86%) agreed that the toll roads positively influenced business creation, with 69% strongly affirming that it led to new business opportunities. This suggests that the improved accessibility brought by the toll roads helped foster entrepreneurial activities and economic diversification in the region. Additionally, 82% of respondents reported an increase in household income, reflecting how the toll roads contributed to economic growth and enhanced livelihoods for residents.

Regarding labor force absorption, 81% of respondents agreed that the toll roads played a role in generating employment, likely due to the growth of industrial and service sectors that followed urbanization. However, the effect on agricultural land ownership was more varied. While 68% reported losing agricultural land, this also coincided with shifts to other economic activities, indicating that land formerly used for farming was repurposed for industrial and residential development. Overall, the toll roads spurred significant changes in Ciledug's economic landscape by encouraging new businesses, improving income levels, and creating jobs, albeit at the cost of agricultural land loss.



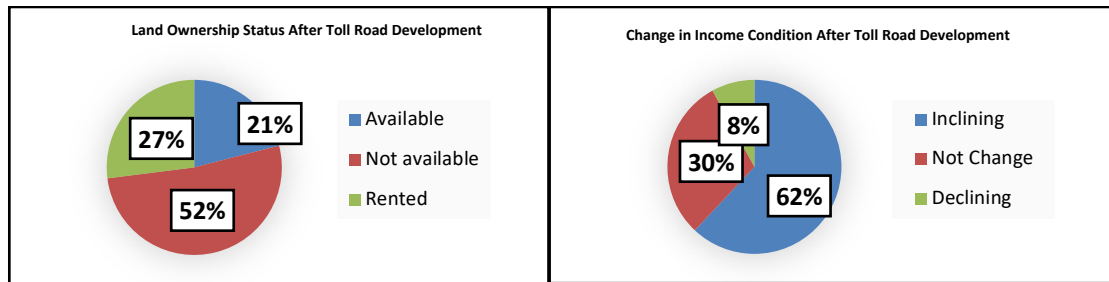
Source: Field Survey, 2024

**Figure 7.**

### **Interview With Respondents from Different Livelihoods Classification**

As stated and confirmed by the respondents in an interview, they state that most of their relatives or family members in a younger working-age class also worked for the industry in the area due to their academic and skills background. Meanwhile, former farmers are changing their livelihoods and opening up new businesses related to business and services for the workforce in the industrial sector. It shows that entrepreneurship and human development index (HDI) influence coping capability. Most former farmers seek an opportunity to invest in new economic activity as a livelihood strategy.

Even if agricultural land ownership declined after the toll road development, the average income of people in the study area remained. This indicates that livelihood strategies, as coping mechanisms for the acceleration of urbanization, tend to be more resilient. It has also been confirmed that the existence of toll roads affects the internal economic structure. The location advantages and the enthusiasm to contribute to business activity will foster urbanization, especially in northern Ciledug as a hinterland for the industrial area.



Source: Analysis, 2024

Figure 8.

### Impact of Toll Roads Development on Land Ownership and Income Change

## CONCLUSION

This study identifies the typology of urbanization and the effects of toll road development on Ciledug District, particularly highlighting the transformation driven by proximity to toll gates and the rise of industrial areas. The northern part of Ciledug, including Bojongnagara as an industrial hub and Jatiseeng as a business center, has become a new growth pole. As land prices in northern Ciledug rise and a new middle-income labor force emerges, new settlement areas are expanding in southern Ciledug, specifically in Jatiseeng Kidul. The region experiences significant interregional and intraregional commuting, leading to peak-hour congestion. The demand for housing and settlement spaces has driven land conversion, signaling a trend towards higher population density. The emergence of new areas for business and residential activities and the associated traffic congestion reflects gentrification, necessitating careful urban planning to prevent uncontrolled urban sprawl.

Furthermore, toll roads have significantly influenced the internal economic structure, shifting from agriculture to non-agricultural activities as residents adapt to urbanization by diversifying their livelihoods. Many have invested in business and service sectors to meet the growing needs of commuting workers and incoming migrants from outside the region. Despite this rapid economic transformation and urban growth, the study notes that improvements in basic infrastructure have not kept pace with urbanization. This lack of infrastructural development indicates that regional policies still need to account for accelerated gentrification and urbanization's impacts fully. This leaves the area vulnerable to challenges such as urban sprawl and inadequate infrastructure support for its growing population and economy. The findings suggest the need for proactive policy interventions to manage urban expansion and ensure regional sustainable development.

## REFERENCES

- Aditya, R. B., & Husna, Z. (2022). Identification of Sprawl Development Typologies around Toll Road Gates in Java, Indonesia. *TATALOKA*, 24(1), 1–14.
- Andani, I. G. A., Puello, L. L. P., & Geurs, K. (2021). Modeling effects of changes in travel time and costs of toll road usage on choices for residential location, route and travel mode across population segments in the Jakarta-Bandung region, Indonesia. *Transportation Research Part A: Policy and Practice*, 145, 81–102.
- Bennike, R. B., Rasmussen, M. B., & Nielsen, K. B. (2020). Agrarian crossroads: rural aspirations and capitalist transformation. In *Canadian Journal of Development Studies/Revue canadienne d'études du développement* (Vol. 41, Issue 1, pp. 40–56). Taylor & Francis.

- Chen, J., Yue, C., Ren, L., & Yan, J. (2020). Determinants of urban identity in urbanizing China: findings from a survey experiment. *Chinese Sociological Review*, 52(3), 295–318. <https://doi.org/10.1080/21620555.2020.1740585>
- Dash, I., & Gupta, J. (2023). Exploring student psychological contract in the hybrid mode of business education: a mixed-method study. *International Journal of Educational Management*, 37(4), 768–786. <https://doi.org/10.1108/IJEM-07-2022-0241>
- Glaeser, E. L. (2020). *Infrastructure and urban form*. National Bureau of Economic Research.
- Guan, X., Wei, H., Lu, S., Dai, Q., & Su, H. (2018). Assessment on the urbanization strategy in China: Achievements, challenges and reflections. *Habitat International*, 71, 97–109.
- Hariyanto, A. D., Graha, D. T. R., & Afrianto, F. (2024). Regional Economic Agglomeration and Trans-Sumatra Toll Road Development: A Network and Spatial Review. *Journal of Infrastructure Policy and Management (JIPM)*, 7(1), 75–95.
- Lu, J., Li, B., Li, H., & Al-Barakani, A. (2021). Expansion of city scale, traffic modes, traffic congestion, and air pollution. *Cities*, 108, 102974.
- NUGROHO, B. A., FUDLA, D. V., & ANJANI, M. N. (2020). LAPORAN PRAKTEK KERJA PROFESI II DI PT. JASAMARGA CABANG PALIMANAN-KANCI.
- Schmidt, S., Nuhu, S., Thomas, R., & Li, W. (2024). Place attachment, regional identity and perceptions of urbanization in Moshi, Tanzania. *Habitat International*, 150, 103132.
- Siregar, Y. P., & Utomo, W. (2021). *Accelerating Regional Development of the Outer Islands: The Implementation of Special Economic Zones in Indonesia, 2011–18*.
- Vela-Jiménez, R., & Sianes, A. (2021). Do current measures of social exclusion depict the multidimensional challenges of marginalized urban areas? Insights, gaps and future research. *International Journal of Environmental Research and Public Health*, 18(15), 7993.
- Wibowo, T. A., Setiawan, A., Rais, S., & Idzihart, N. A. (2023). STRATEGI PENGEMBANGAN PARIWISATA DESA LEUWUNGGAJAH KECAMATAN CILEDUG KABUPATEN CIREBON. *JURNAL MATA PARIWISATA*, 2(1), 23–28.
- Widjaja, A. M. H. (2022). RURAL LIVELIHOOD TRANSFORMATION AS AN EFFECT OF JATIGEDE DAM DEVELOPMENT IN SUMEDANG WEST JAVA. *Journal of Green Science and Technology*, 6(2).
- Wulandari, R. D., Laksono, A. D., & Rohmah, N. (2021). Urban-rural disparities of antenatal care in South East Asia: a case study in the Philippines and Indonesia. *BMC Public Health*, 21(1), 1221. <https://doi.org/10.1186/s12889-021-11318-2>
- Yao, Y., & Jiang, L. (2021). Urbanization forces driving rural urban income disparity: Evidence from metropolitan areas in China. *Journal of Cleaner Production*, 312. <https://doi.org/10.1016/j.jclepro.2021.127748>



© 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>).