A Study on the Appropriate Size of Stores and Countermeasures in Decline Commercial Area in the Original Downtown*

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Abstract

Purpose: In this study, we try to figure out the appropriate size of commercial districts in the original downtown area through empirical studies targeting the Jinju Central Commercial Area in Gyeongnam and Cheonan Station in Chungnam, which are trying to regenerate a specific space that has been lost through government projects. **Research design, data and methodology:** The current status and characteristics of the shopping district were examined through on-site surveys of the central business district of Jinju, Gyeongnam Province, and Cheonan Station, Chungnam Province, and the size of the empty stores was determined. In addition, the standard median income was used as the survey data along with the survey of the mobile population in the commercial area. **Result:** The analysis result shows that 883 stores should be maintained considering the overall expenditure and gross sales profit within Cheonan Station in South Chungcheong Province. Currently, considering spending and margins in the Commercial Area, Jinju Central Commercial Area is a place where 222 stores can be sold excessively, and a proper commercial supply plan is needed. **Conclusions:** In this study, we conducted a demand prediction study in the commercial sector of the most basic sector to regenerate the commercial sector through major regional commercial districts.

Keywords : Empty Store, Original Downtown, Commercial Area

JEL Classification Code : C52, C67, L8, L85, R38

1. Introduction

1.1. Background and purpose of the study

As the size of the city expanded outwardly, urbanization accelerated further due to the increase in population and urban development. This change leads to the growth of cities, and most cities are trying to grow into competitive cities. Throughout the modernization era, city members gradually began to forget the importance of finding new things rather than using them through past familiarity. New things

recognize as redevelopment, reconstruction, and new town development as growth and familiarity. Despite this situation, the city continued to grow through external expansion has been regarded as an evaluation measure of the city's competitiveness. These standards were found in a way that they believed that even if either side was ill and weak, something new could secure the competitiveness of the whole city, including where it hurt, so they found nothing new. As a result, the original city center, a space within a sick and declining city, was a place where administration, distribution, economy, and education took place in one place

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in the past, but at that time, it was the center of the city and the core of the city.

However, the original city center is one of the leading causes of the recession in the commercial area, and the decline of the surrounding business district is accelerating and spreading due to the law of broken windows.

Recently, the vacancy rate of significant commercial area in Seoul is about 13% to 21%, with 21.6% in Itaewon, 14.6% in Dongdaemun, 18.9% in Dongdaemun, 13.1% in Apgujeong, and 32.1% in Sejong City. In general, advanced countries such as Japan and the U.S. judge natural vacancies as 5% and view more vacancies as the standard at the time of the lease. The regions subject to the study also showed a vacancy rate of 29.3%, raising the issue as a significant issue.

The cause of vacancy occurs in a complex situation, but in the current metropolitan area centered on Seoul, the gentrification phenomenon occupies a significant share.

As a result, the number of empty stores in the original city center is increasing due to the imbalance between supply and demand for shopping malls in the region, underdeveloped store facilities, and a situation that can respond to consumers' consumption needs with active consumer economic power. In this situation, the original downtown of the region is recognized as a backward space and only a space where discomfort coexists.

This vacancy occurs in a complex situation, but gentrification plays a significant role in Seoul. In the region, the number of stores in the original city is increasing due to the imbalance in demand and supply, along with the micro-deprecated store facilities and economically. In this situation, the original city center of the region is recognized only as a space where inconvenience coexists as an outdated space.

On the other hand, it is also a place where the opportunity to secure the quality of life is being lost to residents who have been living in the original city and are conducting economic activities. To improve this situation, the government is working on various policies and projects, but it is making efforts to revitalize the original city center by putting the only budget rather than existing regulations. However, this budgeting is not a way to improve sustainability, effectiveness, and efficiency, so it is desirable to find fundamental problems and consider solutions.

In this study, the Ministry of Land, Infrastructure, and Transport chose a joint or the same target area among government projects to identify the appropriate size of the original downtown business district and suggest the appropriate size of the store even if an empty store occurs.

Therefore, the results of this study have three objectives: First, this research data is used as primary data to ensure the regular maintenance and competitiveness of local businesses. The second purpose is to use it primarily as commercial area analysis data to prevent reckless start-ups or bleeding among the same industries. Finally, it is to

provide primary data for the implementation of local government policies.

1.2. Scope and Method of Research

The research target area was the space where the Ministry of Land, Infrastructure, and Ministry of SMEs and Startups was regenerated and the commercial area around Cheonan Station, where the renaissance project was carried out in the mid-term business district, to prepare an alternative to empty stores in the commercial area. We want to take a look and figure out the size of the vacant store.

In addition, along with previous studies for solutions to vacant stores in commercial districts, the current state of the central government's policies will be reviewed, and the appropriate number of stores will be suggested based on the types and characteristics of each type of business in the target area.

In addition, to secure the readability of the research analysis, GIS is used to analyze the current status of shopping malls in the target area.

2. Theoretical considerations

2.1. Prior research

2.1.1 A prior study on the utilization of empty stores

A Study by suggested the need for strategies to utilize operators, physical improvement plans, and programs according to the mall's location as a countermeasure to the empty mall by size and location (Nam, Jo, & Chose, 2019). introduced Gunsan City's emulator program for the regeneration of empty shops and suggested that coordination and education between renters and tenants should be accompanied for sustainable urban regeneration projects (Yoon, 2018). Policy alternatives were also proposed through characteristic analysis of urban centers (Park, 2018). This study analyzes in detail the BID, which is widely adopted as a governance for urban commercial regeneration (empty stores & shopping districts) in cities in advanced countries such as the United States. The main contents were analyzed focusing on the improvement and management of commercial environments and convenience facilities in the region and the main sources of financial resources. (Kim & Ryu, 2018). study derived an economic and physical renewal model for 50 empty houses and empty stores in 14 cities in Japan, considering the importance of the original city center and central city center in urban regeneration. (Song, 2018) According to study, 25 autonomous districts in Seoul were analyzed using panel data such as restaurant, service sector, survival rate, opening and closing rate, population, rent, and closing rate (Yoon, 2019). Maintaining

the fast-changing commercial districts with the existing support is difficult, so it is urgent state that needs for commercial district reorganization. The differentiate aspect is that this new measures for small-block-unit commercial modeling can be introduced to promote these aging/deposit private-owned shops politically. This study is to develop a sustainable theme shopping rehabilitation method which considers the characteristics of local cities based on the case studies of developed countries' commercial areas to revitalize the central urban areas of local cities (Ryu, 2019). This study analyzed the effects of shopping mall revitalization policies such as the current status analysis of land-use pedestrian characteristics, industry distribution characteristics, and a survey on the attitude of shoppers to follow changes in land prices, targeting the streets you want to walk in Gosa-dong, the central city of Jeonju. It is analyzed that an activation plan through connection with the shopping mall is necessary. (Kwon, Yun, & Chai, 2006).

In the past, institutional problems and maintenance related to the law on the protection of lease of stores were mainly conducted, but research has been conducted on using empty stores in urban regeneration for the last two to three years. In order to resolve empty stores, the relationship between renters and tenants was rearranged, or the organization was proposed through rent coordination, and strategies were proposed to utilize the operator, physical improvement measures, and programs of empty stores were proposed. In addition, the public rental prices, which local and public institutions carry out as institutional projects, were presented on a case-by-case basis. A model of urban regeneration projects in the original city center was presented through advanced countries such as Japan. Prior studies analyze the causes of empty stores as urban problems and economic situations, and to address these issues, respondents such as the relationship between tenants and renters to improve physical and public rental operations. Also, we could see that they were suggesting how to use it through programs. This study makes a big difference in providing primary data to reorganize the proper distribution space and competitive commercial space through demand and supply adjustment rather than activation through external shocks to utilize existing research or projects such as re-establishment and programming.

3. Empirical Study

3.1. Current status and characteristics of the research site

3.1.1. Cheonan Inverted Commercial Area

The target areas of the study are Jungang-dong and Munseong-dong (Myeongdong Sangga~Cheonan Station

Exhibition Hall) in Dongnam-gu, Cheonan-si, Chungcheongnam-do, and the entire area are commercial. The total area is 124,446m^2 and is a typical commercial area consisting of one traditional market and two shopping districts. The target area is the urban regeneration project of the Ministry of Land, Infrastructure, and Transport and the commercial Renaissance project of the mid-term department, and it serves as a gateway for many university students in the area. Due to the relocation of public institutions such as Cheonan City Hall, the education office, and the transportation network due to the opening of KTX, the population of the original city center and the decline of the business community are rapidly progressing.

Source: own elaboration
Figure 1: Current Status of Commercial Areas in the Areas Subjected to Research (Cheonan Inverted Commercial Area)

3.1.2. Jinju Central Commercial Area

The second area to be studied is Daehan-dong/Jungan-dong, Jinju-si, South Gyeongsang Province (part of Pyeongan-dong/Sujeong-dong), and the entire area of use is commercial.

It is a typical traditional business district consisting of two traditional markets and three shopping districts.

The target area is also where the Ministry of Land, Infrastructure, and Transport promotes the urban renewal New Deal project, while historical assets (such as Chokseokru and Jinjuseong) and local assets (Namgang) are adjacent to each other.

Jinju City's original city center was the region's representative and the most prominent commercial district in western Gyeongsangnam-do. It is adjacent to administrative and educational institutions but is declining due to the movement of consumers to innovative cities and housing development projects.

Source: own elaboration

Figure 2: Current Status of Commercial Areas in the Areas Subjected to Research(Jinju Central Commercial Area)

3.1.3. Characteristics by Commercial Area

Looking at the characteristics of the two regions, Jinju had the highest rate of restaurant business at 24.6%, while Cheonan had the highest rate of neighborhood living services at 50.3%. Looking at the number of products in each commercial district, the number of products in Jinju Central Business District was 41.7, and the number of products in Cheonan Station was 10.14 times higher, proving that it is a representative commercial district in Jinju. In addition, the most significant number of products in each industry was 95.6 in the Jinju business district and 31.2 in the case of Cheonan.

The characteristics of the rental and lease of the store show the monthly rent ratio was the highest at 53.6% in Jinju Central Business District, followed by 40.7% at self-interest. In the case of Manmyeon Cheonan Station, the monthly rent ratio of the Department of Guarantee was the highest at 51.3%, followed by 37.2% at the self-interest, just like the central business district of Jinju.

According to the analysis of the gender of the owners in the two business districts, it was found that there were relatively many women in the Jinju business district and men in the Cheonan business district. After examining the area of each store in each business district, the average area of Cheonan's inverted business district was 254.6m^2, and the largest store was found to be 565.0m^2 in other retail businesses. The average area of the Jinju Central Business District was 88.7m^2, and the most significant store type was identified as 114.3m^2.

3.2. An empirical survey of the target site of the study

In conducting this study, the survey of the target area was conducted twice, and the first was conducted from 31 October to 9 November 19 to 15 December 19. Before the second survey, a structured questionnaire was produced along with identifying the stores under investigation. The survey population was conducted with 1:1 visit to stores located in Cheonan Station and Jinju Jungsang District.

Cheonan Station Business District had about 720 stores in the drawing, but the survey population was confirmed to be 677. Of these, only 625 stores responded, while 442 stores were open and 183 were empty.

The number of stores in Jinju Central Business District was about 1,762 in the drawing, but the survey population was confirmed to be 1,261. Of these, only 1,167 stores responded, while 918 stores were open and 249 were empty.

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Table 1: Target area population and vacant stores

Sortation		Survey population	Number of Effective Responses	Empty store	Sales store
Population	Cheonan	677	625	183	442
	Jinju	1,261	1,167	249	918

3.2.1. Cheonan Inverted Commercial Area

In the commercial area of Cheonan Station, neighborhood living service facilities accounted for the most at 50.3%, and as a result of a survey by business type, accommodations accounted for the most at 13.7%, followed by hairdressing salons with 8.5% and certified real estate agents with 7.7%.

The restaurant business was next with 27.7%, and by business type, Korean food was 54.9%, coffee/beverage was 12.1%, and Chinese food was 11.0%.

Thirdly, other retail businesses accounted for 9.9%. By business type, supermarkets accounted for 20.7%, mobile phones 17.2%, and medical devices 13.8%.

As a result of examining the stores in the target area, there was an average of 10.14 products. The restaurant industry had the most with 31.2, followed by agricultural products with 28.5, aquatic products with 15.8, livestock products with 15.0, neighborhood living services with 10.7, and household goods with 10.3. dogs appeared. As a result of surveying the area of stores in the commercial district, the overall average was 254.2m^2. By industry, the area of neighborhood service stores was 362.7m^2, agricultural products 46.2m^2, clothes/shoes 34.7m^2, aquatic products 29.7m^2, household goods 25.2m^2, and processed food 24.3m^2. By looking at the type of store demand, 51.3% of monthly rent for the guarantee department, 37.2% for self-employed, 10.8% for monthly rent, and 0.7% for Jeonse were investigated.

Table 2: Percentage of stores by industry

		A	B	C	D	E	F	G	H	I	Total
Number of stores (%)	Cheonan	3 (0.6)	2 (0.4)	1 (0.2)	12 (2.4)	58 (11.7)	11 (2.2)	133 (26.9)	51 (10.3)	223 (45.1)	494(100)
	Jinju	44 (4.0)	23 (2.0)	18 (1.0)	56 (5.0)	185 (18.0)	75 (7.0)	227 (22.0)	128 (12.0)	251 (24.0)	1,012(100)

Note: A: Agricultural produce, B: Livestock products, C: Aquatic products, D: Processed food, E: Clothing and Shoes, F: Household items, G: Restaurant business, H: Other retail businesses, I: Neighborhood life service

Source: own elaboration

Figure 3: Status of empty stores by local commercial area (Cheonan Inverted Commercial Area)

3.2.2. Jinju Central Commercial Area

As for the type of business in the central commercial area of Jinju, restaurant business facilities accounted for the most at 24.6%, and as a result of a survey by business type, the Korean food industry accounted for the most at 37.9%, followed by entertainment establishments with 13.3% and coffee/beverage with 12.8%. Next, the neighborhood life service industry was 22.5%, beauty salons at 26.5%, hospitals at 21.0%, and academies at 6.2%. Third, medical and shoes were 19.4%, clothing was 88.0%, shoes were 8.4%, and underwear was 3.6%.

According to a survey of stores in the target area, 41.7 products existed on average, with an average of 95.6, followed by 57.23 clothes/shoes, 38.1 agricultural products, and 35.5 processed foods.

According to a survey of the area of stores in commercial area, the overall average was 254.2m². By industry, the area of neighborhood living service stores was 362.7 square meters, 46.2 square meters of agricultural products, 34.7 square meters of clothing/shoes, 29.7 square meters of seafood, 25.2 square meters of household goods 24.3 square meters of processed food. Looking at the type of demand in stores, the monthly rent of the Department of Guarantee was

51.3%, the owner was 37.2%, the monthly rent was 10.8%, and the lease was 0.7%.

According to a survey of the area of stores in the business district, the overall average was 88.7m² By industry, household goods stores had 114.3m², followed by other retail businesses with 102.8m² and neighborhood living services with 99.3m². According to the type of demand of stores, the monthly rent was 56.3%, the owner's 40.7%, the lease is 4.4%, and the monthly rent is 1.3%.

Source: own elaboration

Figure 4: Status of empty stores by local commercial area (Jinju Central Commercial Area)

4. Store Demand Forecasting Model

In order to identify the appropriate stores in the target area, the maximum area available to the customer group (consumer) is based on the population aged 15 or older (resident registered demographics), which includes a radius of 2km (The location analysis of the commercial information system provides information on the floating population within a radius of 25m based on the selected point. This analysis reflects the number of people at the branch with the largest floating population after determining the floating population of each branch of the target business district.) The government also analyzed the location of the

business district information system based on the most significant number of people in the floating population of branches in the business district. The 'Business Information System' location analysis provides information on the floating population within a radius of 25m based on the selected point. This analysis reflects the number of people at the branch with the largest floating population after determining the floating population of each branch of the target business district.

Following the calculation of the size of consumers, the estimation of the size of expenditure was used to identify and utilize the average amount of expenditure per month through surveys of consumers (customers) looking for commercial districts. However, the difference in the frequency of visits was applied to the average monthly expenditure. We also estimated the total size of expendable businesses and the total size of the floating population. Appropriate store selection was calculated by applying an appropriate yield (approx. 30%) to the expected sales volume. In addition, the number of stores was calculated by applying the minimum gross profit for each store.

The minimum gross margin of sales was adjusted within ±10–30% on a 2019 basis, considering population size and economic feasibility("Standard median income" means the median of national household income announced by the Minister of Health and Welfare after deliberation and resolution by the Central Living Security Committee, which is composed of relevant ministries such as the Ministry of Land, Infrastructure, and Transport, the Ministry of Education, and the Ministry of Strategy and Finance and private members.

When all household income in Korea is surveyed and ranked in one row, it refers to the income of the household that falls exactly in the middle (the income of the 50th person assuming there are 100 people in the nation). In this case, less than 50% of the median income is poor. 50-150% are classified as middle-class, and more than 150% are classified as upper-class)

The minimum gross margin adjustment was also set at CU3.5 million. The median income as of 2019 was set at 461.4 million won, an increase of about 9.4 million won (2.09 percent) from 451.9 million won compared to 2018 based on a four-member organization.

Table 3: Base median income (`15~`19)   (Units: Won)

Number of household members		One person	Two person	Three people	Four people	Five people
Base median income	2015	1,562,337	2,600,196	3,441,364	4,222,533	5,003,702
	2016	1,624,831	2,766,603	3,579,109	4,391,434	5,203,849
	2017	1,652,931	2,814,449	3,640,915	4,467,380	5,293,845
	2018	1,672,105	2,847,097	3,683,150	4,519,202	5,355,254
	2019	1,707,008	2,906,528	3,760,032	4,613,536	5,467,040

$$\alpha = \frac{(\beta \times 30\%)}{C} \qquad (1)$$

$$\beta = \eta\left(\frac{\sum(\alpha_1 + \cdots + \alpha_n)}{M}\right) \quad (2)$$

α= Proper number of stores in the business district
β= Total expected expenditure
C= Minimum Margin Amount
η=Number of potential customers
$\left(\frac{\sum(\alpha_1 + \cdots + \alpha_n)}{M}\right)$= Average monthly expenses

5. Predicting the appropriate size of shopping malls in the commercial area

5.1. Cheonan Inverted Commercial Area

The Cheonan business district currently has 494 stores in operation, and the size of consumers is estimated to be available to at least 66,630 people up to 147,056 people. The minimum size of use is determined by calculating the average daily user per month, and the maximum value is based on the statistics of the administrative district's resident registered population (population aged 15 or older) with a radius of 2km.

The expected total expenditure was at least 1,030,434 million won to 2,274,222 million won. The expected gross margin was also analyzed at least 309,130 million won, and up to 682,267 million won. It was analyzed that 883 stores should be maintained, considering the commercial sector's overall expenditure and gross profit.

With 494 stores currently in operation and 183 empty stores, approximately 206 additional stores can be opened.

For the competitiveness and revitalization of the commercial sector, conditions that can be added by industry are considered sufficient due to the high possibility of continuous expansion.

According to the categories that can be added by industry, agricultural products, two livestock products, one fisheries product, nine processed foods, 46 clothing and shoes, nine household goods, 105 restaurants, 40 other retail, and 176 neighborhood life services could be added.

In Cheonan Station Commercial District, a conclusion was reached that it could be maintained as a proper commercial district when 206 additional stores were opened. However, a new distribution strategy through the station must be planned because the current form of the business sector and consumers cannot respond to consumer demand.

In the case of Cheonan Station, despite the reasonable floating population around Cheonan Station, the biggest problem is that they cannot be utilized.

Fortunately, youth housing has recently been built with

the Dongnam-gu Office, expanding the floating population and the residential population, which is expected to have a lot of influence in the passenger force sector within a year or two.

Table 4: Appropriate size of shopping malls by commercial district

Sortation		Cheonan Inverted Commercial Area			Jinju Central Commercial Area		
		now	Based on floating population		now	Based on floating population	
		number of stores	number of stores	Gap	number of stores	number of stores	Gap
the entire		494	883	389	1,012	790	-222
by industry	agricultural produce	3	5	2	44	34	-10
	Livestock products	2	4	2	28	22	-6
	aquatic products	1	2	1	18	14	-4
	Processed food	12	21	9	56	44	-12
	Clothing and Shoes	58	104	46	185	144	-41
	household items	11	20	9	75	59	-16
	restaurant business	133	238	105	227	177	-50
	Other retail businesses	51	91	40	128	100	-28
	Neighborhood life service	223	399	176	251	196	-55

5.2. Jinju Central Commercial Area

According to a survey, the Jinju central commercial area has a monthly floating population of about 63,810 people, and an average of about 2,127 people use the business district per day.

Currently, 1,012 stores are in operation, and the size of consumers is estimated to be available to a minimum of 63,801 to a maximum of 150,097 people.

The expected total expenditure was estimated to be between KRW 790,189 million and KRW 185,872 million. The expected gross margin was also analyzed at least KRW 237,057 million and up to KRW 557,616 million.

Considering the overall expenditure and margin within the business district, Jinju Central Business District needs a proper commercial supply plan as it can be maintained as a healthy commercial district even if 222 stores are sold excessively.

Accordingly, ten agricultural stores, six livestock products, four fisheries products, 12 processed foods, 41 clothing and shoes, 16 household goods, 50 restaurants, 28 other retail, and 55 neighborhood life services should be cut.

In Jinju Central Business District, 249 stores are currently vacant due to an excessive supply of stores. In this situation, it is analyzed that about 222 stores should be reduced. If 27 or so stores are located, it is believed that adequacy can secure the business district's operation.

As supply and demand are disproportionate, the method of supply through new sales should be regulated and planned to be improved for a different purpose depending on the degree of the age of the empty store.

In the case of Jinju central commercial area, even though it was a representative business district in Jinju, the number of empty shopping districts is increasing, which is faster to decline than vitality.

Jinju central commercial area is a commercial area that can be adequately maintained only when the number of stores decreases, and it should first consider how to maintain good business rather than continuous expansion. It should also actively establish a policy of buying empty stores or shopping districts. In this way, it is necessary to come up with measures to properly maintain the supply and demand of shopping malls and make policy efforts to increase the role of the public.

It is considered an excellent way to think about maintaining the traditional business district as it is difficult for consumers to flow in as many stores are currently empty, like the broken window law.

The appropriate shopping district in Jinju will be able to create a framework for maintaining the business district by solving the current empty stores, and it will maintain good results if the sales strategy and urban regeneration strategy are established together.

6. Conclusion

If we look at the characteristics of the original city center, the number of empty shops is increasing due to the decrease in the number of attractive elements and the decrease in the floating population.

This increase in empty stores is proving to be a factor that reduces the competitiveness of the original city center and the region. In order to solve this problem, the government is proposing solutions through a lot of budgets and policies. However, instead of solving fundamental problems in the original downtown business district, it puts declarative policies and costs into good results and forgets them.

Thus, in this study, the demand prediction study of the commercial sector of the entire sector for regenerating the commercial area through central regional commercial area was conducted.

The appropriate size of the shopping mall in the study site is caused by the breakage of the most basic framework of supply and demand, which can be improved and revitalized

when various policies are applied to the commercial sector.

In the case of Cheonan and Jinju commercial districts, which are the subjects of this study, although they used to be important places to measure and distinguish the local economy and the alley economy, they declined due to changes in the region and the needs of consumers.

However, with the number of empty stores increasing over time and the pace of decline rather than vitality, the main objective is to correctly identify the size of empty stores and come up with appropriate utilization measures for them. According to the research results, 339 stores in the Cheonan commercial area need to be expanded to secure competitiveness. In addition, 149 shops in the neighborhood living service facilities and one in the fisheries market will be appropriately maintained.

On the other hand, in the case of Jinju Business District, 222 stores need to be reduced, and the size of the original downtown business district cannot be maintained. In order to ensure that this reduction and increase are adequately maintained, local governments or governments should be actively involved in the supply of shopping malls, and where it should be reduced, the ways and methods that the public can take the initiative in purchasing them must be put in place.

Since there have been no cases of such research conducted by local government and local governments, it can be used as a preliminary study as the government and local governments are conducting significant policies. It could also be a significant source in implementing sensitive real estate policies such as supply and demand.

6.1. Limitations of the study and future studies

The limitations of this study and future research tasks are presented as follows: In order to predict the appropriate demand for stores, the appropriate consumers are limited to floating populations, so further research should be carried out by including sectors that add actual residents.

It should also be included in further research as it is considered that the reliability of predicting empty stores in local business districts will be significantly improved considering the size of stores as the number of stores is limited to a simple number of stores.

Finally, the projection of demand is carried out with only local commercial districts, not including central commercial districts in the metropolitan area, so further research should be carried out to improve the quality of the policy. Improving or adding to the limitations of these studies in performing future studies is considered to be a discriminatory and reliable study in predicting the demand for appropriate stores in the commercial area.

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