Minimarket-Based Goods Needs Analysis in 14 Districts in Makassar City

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ARTICLE INFO	ABSTRACT
	The growth of minimarkets in the city of Makassar shows a very large number. The magnitude of the growth of outlets is in line with the increase in the mobilization of goods transport (fleet) that will distribute goods. Minimarket goods storage warehouses (Alfamart, Alfamidi, and Indomart) are located in the Makassar Industrial area (KIMA). This research is descriptive-quantitative. The purpose of this study was to analyze the amount of goods needed based on minimarkets in 14 sub-districts in Makassar City. The results showed that there was a simultaneous effect between variables X and Y with the regression equation $Y=3.712+0.193x$ ($R2=0.914$) for packing containers and there was also a simultaneous effect between variables X and Y with the equation $Y=16.909+0.156x$ ($R2 = 0.868$) for packing koli. From this model, it can be predicted the amount of goods needed for daily needs in 14 sub-districts in Makassar City. Prediction results show that Biringkanaya, Panakkukang, and Tamalate sub-districts require more distribution of goods than other sub-districts. The results of this study are expected to be a reference for the government in terms of licensing the establishment of outlets in order to minimize the level of population mobilization in meeting their needs. Keywords: Model; Need Goods Analysis; Minimarket

Introduction

Transportation comes from the word transportation in English which means transportation, which is using a tool to do a job or it can also mean a process of moving people or goods from one place to another by using a heavy vehicle, sea and air, both public and private. Personally by using a machine or not. According to the Makassar City Transportation Agency (2018), the number of goods vehicles officially circulating in the city of Makassar is currently 2677 units with a number of boxcars around 1564. The annual increase reaches 5%. This amount is quite large with the addition of the number of special minimarket goods transportation. According to the Head of the Logistics Division (2018) from each minimarket stated that the number of freight transportation for Alfamart was 52 units, Alfamidi was 30 units and Indomart was 48 units. This number certainly greatly affects the transportation system in the form of an increase in traffic volume, the impact of which is in the form of congestion because distribution times are mostly in peak hours, namely 06.00-20.00 WITA.

The time of departure for the distribution of goods begins in the morning for distribution within the city, but sometimes the distribution is also carried out at night. The average speed of drivers within the city uses the average speed (35-40 km/h). However, there are also some who use above-average speeds (>60 km/hour) when passing through toll roads and distribution in the morning. Due to the location/position of the warehouse in an industrial area (KIMA) which is very close to the toll road, so the

toll route is the most dominantly used by the operator. This route is very efficient in reaching all outlets in the city of Makassar (wulansari, 2020). Based on the existing phenomena and problems, it can be seen that there are interesting things to study further about how the implementation of the retail freight transportation system, in this case, the minimarkets in Indonesia in general and South Sulawesi Province in particular. By taking a case study in South Sulawesi Province, precisely in the city of Makassar, in order to support optimal regional economic development, the authors took the initiative to conduct research on the analysis of the needs of minimarket goods in 14 sub-districts in Makassar City.

Transportation plays a very important role because it is the lifeblood of the political, cultural, social, and economic sectors. In the economic sector, the transportation of goods using roads is still very dominant, both in developed and developing countries. According to Mulyono (2016), in Indonesia, several islands are still dominant in the use of goods transportation by road. According to the Council of Supply Chain Management Professional (CSCMP) in Gunawan (2015), logistics management is a supply chain management that plans, implements, and controls the level of efficiency and effectiveness of the flow and storage of goods, services, and related information from upstream to downstream and on the other hand, starting from the point of origin of the goods to the point where the goods are used or consumed to meet customer demands.

Another problem with regard to the transportation of goods in Indonesia is the high cost of transportation. According to Ramli (2014), the travel time of vehicles on the urban road network is at intervals of 10-20 seconds per 100 m, thus giving an effect in the form of congestion costs and in the form of losses in increasing travel time. Furthermore, transportation problems in the city are traffic congestion caused by high levels of urbanization, economic growth (in this case the proliferation of modern shops such as minimarkets), vehicle ownership, and the mixing of the roles of arterial, collector, and local roads so that the road network cannot function efficiently. South Sulawesi Province is one of the main corridors of economic acceleration in Indonesia, in the last 5 years, the growth of minimarkets has shown very large numbers. This can be seen clearly with the emergence of minimarket outlets with a radius of at least 300-500 meters and have now entered the complex/housing (Megawati, 2006). Store growth is recorded at around 25% annually and sales growth around 30% annually (PT Indomarco Prismatama, 2017). Not unlike its competitors, PT Alfaria Trijaya is also taking expansion steps by targeting store and sales growth of around 20-30% annually (Jakarta Kompas, 2011).

Resource allocation refers to the distribution of factors of production available at various uses. In a market economy system, resource allocation is the result of independent decisions made by producers and consumers through market vehicles/mechanisms. The allocation of resources will be different in rural areas than in urban areas. This is due to the activities of producers and consumers which differ in intensity and type compared to those in the city (Simbolon, 2003). Disperindag Makassar city (2017), Industrial growth in Makassar city is quite significant, recorded an increase in the growth of medium and large industries up to 8% each year since 2015, while small industries are 0.4%. Medium and large industrial growth in 2013 and 2014 had decreased compared to 2011-2012 which increased to 13%.

The role of the city of Makassar as a city of trade and industry in its activities produces a fairly complex distribution of goods, namely: (1) Distribution of goods within the city of Makassar for the consumption of the population of Makassar, (2) Distribution of goods originating from outside the city of Makassar is distributed to the city of Makassar and other cities, (3) Distribution of goods from within the city of Makassar out of the city of Makassar. With this role, the industry is expected to be able to meet the demands of the community whose population is increasing every year (Wulansari, 2019).

Methods

This research is descriptive-quantitative, in this case it will describe and analyze the amount of need for minimarket-based goods by making a model of the need for goods in 14 sub-districts in Makassar City. The modeling will be analyzed using linear regression method and perform T test, F test and significance as a control. The research location is in the city of Makassar which is the capital of South Sulawesi Province which is located between 11924'17'38" east longitude and 508'6'19" south latitude. The location of the minimarket warehouse is in the KIMA (Makassar Industrial Area) area on Jalan Perintis Kemerdekaan km 15. The distribution points for each minimarket outlet (Alfamart, Indomart and Alfamidi) are outlets located in 14 sub-districts. The location of minimarket outlets is presented in Figure 1.

Figure 1. Location of minimarket outlets
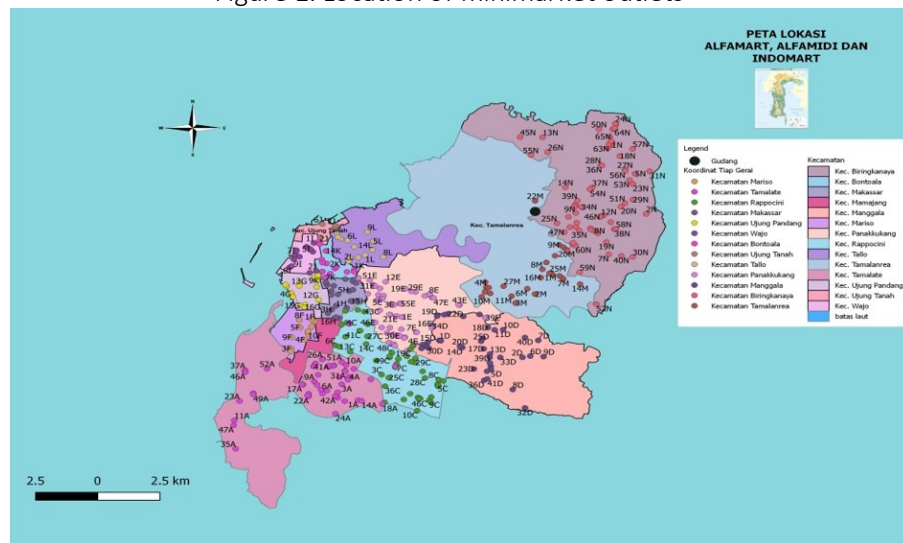
Source: Researcher Process, 2021

Based on Disperindag data (2018), the number of minimarkets (Alfamart, Alfamidi, Indomart) in Makassar city is 487 outlets and will certainly increase every year. The number of samples to be studied is 78 outlets in 14 sub-districts by taking a sample of 2 outlets per day on the same day at three types of minimarkets. The basis for selecting the number of samples is based on the opinion of Roscoe in Sekaran (2006), which states that a sample size of more than 30 and less than 500 is appropriate for most studies, so the number of samples for this study is considered representative of the existing population. The data taken is the travel data of the fleet of goods at minimarkets which are spread evenly in 14 districts, namely Biringkanaya District, Tamalanrea District, Tallo District, Panakkukang District, Manggala District, Rappocini District, Tamalate District, Mariso District, Mamajang District, Makassar District, Ujung District. Pandang, Wajo District, Bontoala District and Ujung Tanah District. This research went through several stages in data collection, starting from a preliminary survey to obtain secondary data for the relevant agencies, to the stage of collecting primary data and processing it to presenting the research results.

The primary data collection process will be carried out twice a week for each type of minimarket until the survey is complete. The minimarket-based visitor generation/attraction modeling will be analyzed using the regression method. The basic objective of this stage is to produce a relationship model that relates land use parameters to the amount of movement to or from a zone. In this case, connecting the type of packing of goods to the building area so that later a prediction of the number of goods transportation will be obtained that will serve each minimarket every day. The X variable used as the independent variable is based on the building area (X1), land area (X2), terrace area (X3), and the number

of visitors (X4). The variable Y which is the dependent variable is the type of packing (Containers and Koli). From the results of data analysis with the help of SPSS, a model for forecasting goods needs will appear so that people can meet their daily needs without having to move or mobilize further. After the model is obtained, then the T-test and F test are then carried out in order to see how much influence the independent variable has partially on the dependent variable and see the independent variable simultaneously / together, has a significant effect on the dependent variable or not.

The individual significance test, better known as the T-test, is a partial data analysis process. The T-test will later show how much influence the independent variable has partially on the dependent variable. The purpose of the T-test is to see how far the partial effect of the independent variable on the dependent variable is. The T-test is more often used for fewer data, which is less than 30 data. The F test was used in the experiment, group sampling, and sub-group sampling. Well, this F test is done to see the independent variables simultaneously/together, have a significant effect on the dependent variable or not. The F test is used to test the significance of the regression model used. F test conditions are:

1. If the value of sig < 0.05 or F arithmetic > F table then there is an effect of variable X simultaneously on variable Y
2. If the value of sig > 0.05 or F count < F table, then there is no effect of variable X simultaneously on variable Y

The formula F table = F (k ; n-k) If F count > F table then Ho is rejected and Ha means that all independent variables are significant explanatory variables to the dependent variable. On the other hand, if F count < F table then Ho is accepted and Ha means that all independent variables are not significant explanatory variables for the dependent variable. So the F test is used to calculate/measure the magnitude of the difference in variance between two or several test groups. While the T-test is more used to measure or calculate the difference of two or more means between groups.

Results and Discussion

By using SPSS software, the values of T table and F table for the regression equation Y=3.712+0.193x ($R2=0.914$) are presented in Table 1.

Table 1. Results of linear regression analysis for packing containers

Variabel	Regresi Linear		t Tabel	F Hitung	F Tabel	R	R²	R Tabel	Signifikan
	Koef. Regresi	t Hitung							
Konstanta	3.712		2.0199	534.386	2.438	.956a	.914	0.2876	0.046
X1	0.193	23.117							0.000

By using SPSS software, the values of T table and F table for the regression equation Y=16.909+0.156x ($R2=0.868$) are presented in Table 2

Table 2. Results of linear regression analysis for packing coli

Variabel	Regresi Linear		t Tabel	F Hitung	F Tabel	R	R²	R Tabel	Signifikan
	Koef. Regresi	t Hitung							
Konstanta	16.909	4.909	2.0157	100.81	2.416	.818	.868	0.2759	0.000
X1	0.156	10.040							0.000

The model obtained will be used to predict the demand for goods based on the number of containers and the number of coli in each sub-district (Bringkanaya District, Tamalanrea District, Tallo District, Panakkukang District, Manggala District, Rappocini District, Tamalate District, Mariso District, Mamajang District, Makassar District, District Ujung Pandang, Wajo District, Bontoala District, and Ujung Tanah District). Based on linear regression analysis, it can be seen that there is a simultaneous relationship between building area and the number of packings distributed in each outlet. This can be used as a forecasting model in meeting the needs of minimarket-based goods, especially in the city of Makassar. An overview of the amount of packing can be seen in Table 3

Table 3. The total number of containers and the number of minimarket koli in each District

Kecamatan	Luas Bangunan (m³)	Total Kontainer	Total Koli
Mariso	100	182	171
Mamajang	180	297	280
Tamalate	250	857	811
Rappocini	200	804	750
Makassar	150	329	311
U. Pandang	150	278	260
Wajo	100	213	200
Bontoala	150	246	230
U. Tanah	80	115	109
Tallo	180	229	215
Panakkukang	200	902	842
Manggala	200	673	631
Biringkanaya	250	1068	1000
Tamalanrea	250	444	417

Source: processed by researchers

1. Tamalate sub-district is a sub-district that is directly adjacent to Gowa Regency and is one of the sub-districts with the largest population in Makassar City because there are 2 campuses, namely the University. Makassar State and Makassar Muhammadiyah University as well as there are also tourist sites Tanjung Bayang Beach and Akkarena. This is directly proportional to the number of minimarkets in this sub-district, which are 27 stores with type classifications including 13 Alfamart, 2 Alfamidi, and 12 Indomaret. Based on a survey conducted directly in the field, the location of minimarkets is generally located on arterial roads and directly adjacent to crowded places as such campuses and residential areas.

2. Mamajang sub-district is a sub-district which is located in the north of Tamalate sub-district and is flanked by Rappocini and Mariso sub-districts because the size of the sub-district is not too large so the population is quite small. This is compared to the number of minimarkets in this sub-district, which are 9 stores with type classifications including 6 Alfamart, 2 Alfamidi, and 1 Indomaret. Based on a survey conducted directly in the field of location placement minimarkets are generally located on arterial roads and are directly adjacent to residential areas.

3. Rappocini sub-district is a sub-district which is also directly adjacent to Gowa Regency. This sub-district began to become crowded after the access road to Jalan Aroepala became the main road to Gowa Regency, which now has 2 UIN campuses and the Faculty of Engineering Unhas. In this sub-district there are also several quite large Settlement Complexes, including Minas Upa and also the UNM Education Campus which is located on Jalan Tamalate. This is directly proportional to the number of minimarkets in this sub-district, which are 21 stores with type classifications including 10 Alfamart, 2

Alfamidi, and 9 Indomaret.

4. Manggala District is the last sub-district which is directly adjacent to Gowa Regency. This sub-district is one of the sub-districts that has a fairly large population due to the number of housing and the area that supports it is also the axis road to Gowa Regency if from the direction of Tamalanrea. This is directly proportional to the number of minimarkets in this sub-district, which are as many as 20 stores with type classifications including 13 Alfamart, 4 Alfamidi, and 3 Indomaret. The location of minimarkets is generally located on arterial roads and directly adjacent to residential areas.

5. Panakkukang District is a sub-district which is one of the centers of activity in Makassar City including offices, campuses and shopping centers in this case Panakkukang Mall. With the support of a large enough area so that the number of Minimarkets in this District is the highest compared to the others. Number of Minimarkets. there are as many as 30 stores with classification types including 14 Alfamart, 5 Alfamidi, and 11 Indomaret. The placement of minimarket locations is generally around shopping centers and arterial roads

6. Mariso sub-district is a sub-district in the north. Makassar sub-district and bordering Mamajang and Ujung Pandang sub-districts. The population is still normal with the area so that the number of minimarkets in this sub-district is still lacking, namely as many as 6 stores with type classifications including 3 Alfamart, 1 Alfamidi, and 2 Indomaret. The placement of minimarket locations is generally around shopping centers and arterial roads.

7. Ujung Pandang District is a sub-district located in the west of Makassar City and is a culinary tourism area, and in this District there is also a Losari Beach Pavilion which makes the area quite crowded. This of course affects the number of minimarkets in this sub-district, which is as many as 10 stores with type classifications including 6 Alfamart, and 4 Indomaret. The placement of minimarket locations is generally around arterial roads and crowd centers.

8. Makassar District is a sub-district in the middle of Makassar city and one of the centers of office and shopping activities. The population is still normal with the area so that the number of minimarkets in this sub-district is 13 stores with classification types including 5 Alfamart, 2 Alfamidi, and 6 Indomaret. The location of minimarkets is generally located around arterial roads and residential areas.

9. Wajo District is a sub-district which is located in the west of Bontoala District and one of the shopping activity centers in Makassar city where there is an MTC Mall, Makassar Central Market also has Soekarno Hatta Port so the population is quite dense. The number of minimarkets in this sub-district is 10 stores with a classification of types including 8 Alfamart and 2 Indomaret. The placement of minimarket locations is generally around arterial roads and Soekarno Hatta Port.

10. Ujung Tanah District is a sub-district located in the northern part of Makassar City and one of the centers of trade, especially the fisheries sector where there is a Paotere Port for small ships and fishermen. With the size of the area that is not too large, it is comparable to the number of minimarkets in this sub-district, which are 5 stores with a classification of types including 2 Alfamart, 1 Alfamidi and 2 Indomaret. The placement of minimarket locations is generally around arterial roads and spread evenly in residential areas.

11. Bontoala District is a sub-district located in the northern part of Makassar City and borders several sub-districts in Makassar City so that the location is quite strategic where the population is still proportional to the area, there are also several educational centers. with the classification of types including 6 Alfamart, and 3 Indomaret. The placement of minimarket locations is generally around arterial roads and spread evenly in residential areas.

12. Tallo sub-district is a sub-district in the east. Ujung Tanah Sub-district, although the area is quite large, the development in this sub-district is still not optimal, but in this case the existing minimarkets are

divided fairly evenly in several villages. The number of existing minimarkets is 13 stores with classification types including 6 Alfamart, 1 Alfamidi and 6 Indomaret. The placement of minimarket locations is generally around arterial roads and spread evenly in residential areas.

13. Tamalanrea District is an educational area where there are approximately 15 (fifteen) State and private Higher Education Institutions, one of which is Hasanuddin University (UNHAS). which is located in the Tamalanrea Indah village, Tamalanrea District is also an area of warehousing, factories and industries totaling approximately 960 (nine hundred and sixty) located in the Bira and Parangloe Village. Supported by a large area, the development in this sub-district is quite rapid, this is directly proportional to the existing minimarkets, especially in the Bumi Tamalnrea Permai residential area. The number of minimarkets is 18 stores with classification types including 6 Alfamart, 2 Alfamidi and 10 Indomaret. The location of minimarkets is generally located around arterial roads and residential areas.

14. Biringkanaya District is a sub-district which is directly adjacent to Maros Regency. In Biringkanaya Sub-district itself is an industrial center in Makassar City, especially in Kapasa Village where there is a Makassar Industrial Estate, so it is not surprising that the population in this sub-district is quite large, it is also directly proportional to the number of existing Minimarkets. The number of minimarkets in this sub-district is 24 stores with type classifications including 11 Alfamart, 7 Alfamidi and 6 Indomaret. The location of minimarkets is generally located around arterial roads and residential areas.

Conclusion

The results of the analysis show that there is a simultaneous relationship between the building area and the number of containers and the number of coli to be distributed. The wider an outlet, the greater the amount of packaging distributed to the outlet. This can be used as a model in predicting the fulfillment of goods needs at each outlet so that people's needs for daily needs can be met without having to carry out further mobility or movement in order to minimize costs and time in fulfilling their needs. Thus the relevance and urgency of this research in relation to the practical world.

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