

Street vendor sustainable policy by learning characteristics of distribution model location in Losari beach line, Makassar

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Abstract. Lack of formal sector as essential problem in Indonesia, nowadays. The problem creates people to seek informal sector as one of solution in reducing possibility of social unrest. Build some business on the street that society know as Street Vendor is popular mode for lower income society due to not derived much fund. This paper attempts to reach problem from street vendor itself as contribution for government to create policy that can be acceptable in society and environment. By using agent-based modelling as the tool and Losari beach line as the case study, this paper attempts to show a real model based on location choices of street vendor.

1. Introduction

Jaya as secretary of Makassar in Tribun Timur Newspaper said Economic growth in tandem with population growth in the city of Makassar. he said during the past five years occurred a growing population of Makassar with an average increase of 1.56% each year of the amount Makassar City dwellers were estimated at 1.6 million. This is because the city became the center of the development of the formal sector, the city is deemed promising by village communities and led to the displacement of people from villages to cities. The condition is known as the theory of the origin of the driving factors and pull factors of the destination in the urbanization.

The rate of growth of street vendors in the city of Makassar so rapidly, until November 2013 estimated the number of street vendors around 14,000 inhabitants according to the head of the Department of Trade Industry and Commerce of Makassar. Lack of formal sector employment makes people look for other ways to survive, the informal sector is one of the solvers of this problem, so we can say the informal sector can reduce the possibility of social unrest as a result of the scarcity of employment opportunities.

Research about street vendors has been conducted by many researchers [1-7]. In Indonesia, street vendor is one of controversial things, since it has become a favorite destination for resident and tourist as a cheap play to buy something but there are still some problems with the illegality of the place. In Makassar City, development rate of street vendors in Makassar City becomes one of the factors causing behavioral problems of street vendors.

There are some researches about street vendor discussing about either the policy implementation or the design of street vendor itself. However, this research presents a different method, modeling the distribution of the street vendor have been implemented by using agent-based modelling as the tool to represent existing condition that actually happened into a form that spreads illustration based computing with certain rules drafted by character actors and their environment. Model shown as closely as possible



to the actual conditions, to determine the pattern and behavior of street vendors when determining the location of a trade in accordance with the characteristic / desires.

Topic of multi agent system has been discussed in [8-11]. Multi-agent system is a system consisting of several agents interact with each other from their environment. In such a system, not all agents are the same, each agent can have a uniqueness and abilities, goals also, which represent the real world counterpart. A multi-agent system is an assembly of different agents, with different roles, as well as the capabilities and objectives for different categories of each agent. Hence, it is hoped that, through this study, the policy of street vendor will be implemented and it will be acceptable in society and environment in Makassar City. In addition, this research is expected to be a benchmark in the development of other areas in Indonesia

2. Method

2.1. Method of collecting data

Data / information required in this study were obtained with a few ways below:

- a. Observation, namely direct observation field conditions.
- b. The study of literature, which explore a variety of important information such as literature and theories related work culture, organizational, human resource management, and the results of previous studies.
- c. Interviews and questionnaires, namely the collection of facts and data by conducting interviews and questionnaires intensive and in-depth, structured and systematic.

The population in this study are vendors who are along the corridor Losari Makassar. Time survey is conducted on a Friday-Sunday with consideration on the day is a busy day at the normal time and breaks, while the time of the survey at 16:00 to 18:30 because at that time is the start time to trade hawkers along the corridors of Losari Beach, Makassar.

2.2. Data analysis method

There are three methods of analysis used in this research is descriptive, frequency distribution, and multi-agent simulation.

- a. Descriptive analysis is used to identify the characteristics of the location of trade and distribution pattern of street vendors along the tourist corridor Losari, Makassar.
- b. Frequency distribution analysis is used in the identification of factors influence vendors in selecting a location for trade along the tourist corridor Losari, Makassar City.
- c. Multi-agent simulation used in Building a distribution model of the location of street vendors along the corridor Losari, Makassar City.

3. Analysis and interpretation

3.1. Existing

Losari beach is a tourism place which is located in Makassar, Sulawesi Selatan. This place is famous as tourism place since 1945. Losari beach as icon of Makassar becomes a magnet for people to run informal business to get finance, one of it is street vendor. Based on survey, there are 14 kinds of street vendor and 132 street vendors which are found in Losari beach corridor. Based on Survey that held by researcher, as well. The street vendor can be categorized by linear thought at Jl. Penghibur street, grouping in Losari corridor, or spreading in corridor Losari, grouping and spreading in Losari line as well.

Drink and *bakso* (traditional food) are those who seller their product grouping in Losari corridor. Others, such as *keripik ubi* (traditional snack), *gorengan* (traditional snack), burger, *gulali* (traditional snack), peanuts, sausage, accessories, watch, clothes, mixed are selling their product by spreading in

Losari line. On the other hand, *pisang epe* (traditional food) and toys are linear through at Jl. Penghibur Street and spreading and grouping in Losari corridor, perceptively.

3.2. Factors

Researchers find that there are eight factors from street vendor as the reason to choose their location. The factors are retribution, access, security, grouping, crowded, rivalry, no choice location, and kinship as shown in table 1. Frequency distribution analysis is the analysis that runs for finding the reason of street vendor to choose the location.

Table 1 shows crowded factor (76.5%) as very influential factor that street vendor said to choose the location. Kinship, access, security, grouping factors (more than 39%) are influential factor. And others such as no choice location, rivalry, and retribution are not as much as influences factors to street vendor in choosing their position.

Table 1. Eight factors to choose location.

		Frequency	Percent	Valid Percent	Cumulative Percent
Crowded					
valid	0	31	23.5	23.5	85.6
	1	101	76.5	76.5	100.0
	total	132	100.0	100.0	
Retribution					
valid	0	120	90.9	90.9	90.9
	1	12	9.1	9.1	100.0
	total	132	100.0	100.0	
No choice location					
valid	0	110	83.3	83.3	83.3
	1	22	16.7	16.7	100.0
	total	132	100.0	100.0	
Security					
valid	0	76	57.6	57.6	57.6
	1	56	42.4	42.4	100.0
	total	132	100.0	100.0	
Rivalry					
valid	0	113	85.6	85.6	85.6
	1	19	14.4	14.4	100.0
	total	132	100.0	100.0	
Access					
valid	0	71	53.8	53.8	90.9
	1	61	46.2	46.2	100.0
	total	132	100.0	100.0	
Kinship					
valid	0	80	60.6	60.6	60.6
	1	52	39.4	39.4	100.0
	total	132	100.0	100.0	
Grouping					
valid	0	78	59.1	59.1	59.1
	1	54	40.9	40.9	100.0
	total	132	100.0	100.0	

3.3. Simulations

Figure 1 shows the simulation of 1-10 multi-agents and table 2 shows the simulation result.

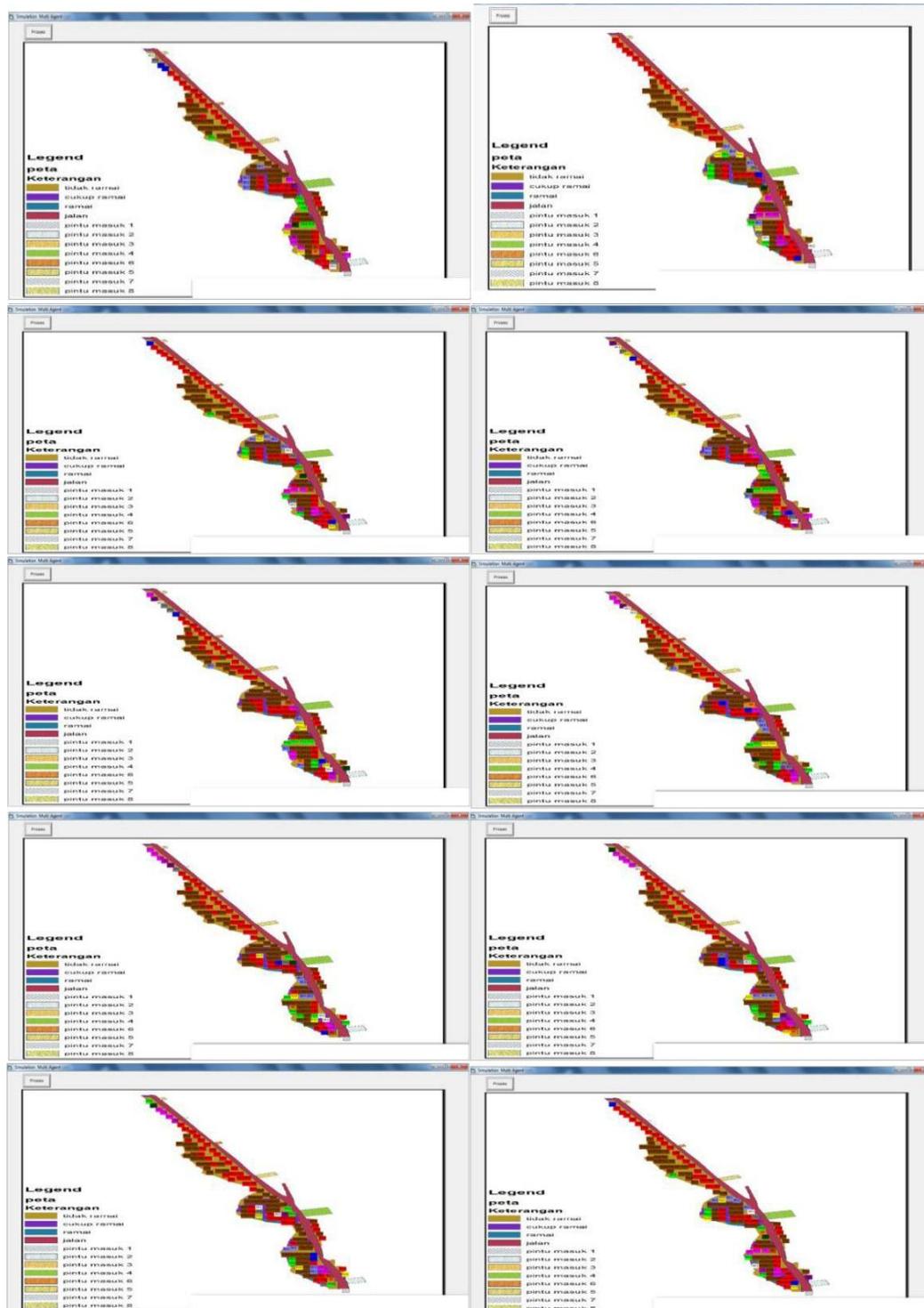


Figure 1. Multi-agent 1-10 simulation.

Table 2. Simulation result.

No	Type of seller	Simulation results	Result (compare to existing)
1	<i>Pisang epe</i> (traditional food)	<i>Pisang epe</i> sellers choose the location regarding on grouping with the similar kind, through at Penghibur street	Result from simulation and existing are similar due the pattern can interest and easy to be found by visitor.
2	Drink	Separation pattern of drink sellers choose the location, based on grouping with the similar kind and in Losari corridor	Similarity from the result of simulation and the existing because drinking sellers think that this pattern can make people easy to know their location.
3	Toys	The unique patterns come from toys sellers. Because some of them are grouping and others are separation in Losari corridor and through Penghibur beach	This is due to the different nature of each street vendors. There is a rivalry but also a sign of grouping. But all of them want to approach the customer so in the simulation sometimes they are in Penghibur street.
4	<i>Keripik Ubi</i> (traditional snack)	The patterns of <i>keribik ubi</i> seller are separation, mostly and group a few	The reason of this pattern, actually, is because the characteristic of seller. Special for this kind of seller they have characteristic as rival, mostly. Therefore, the patterns are separation one another
5	<i>Bakso</i> (traditional food)	To be short from the simulation, <i>Bakso</i> seller prefer to be group, although there are 3 simulation show spread.	That is caused by characteristic <i>bakso</i> seller. They do not stay in one place and choose place close consumer or held in separation one another
6	<i>Gorengan</i>	from the instance, <i>Gorengan</i> sellers disperse to inside or outside Losari corridor.	The result from simulation are similar with existing. It is caused by characteristics of <i>gorengan</i> sellers which do not settle and selling the product based on the consumer position.
7	Burger	Results of simulation, the burger sellers spread at Losari corridor.	The result from simulation are similar with existing. It is caused by characteristics of <i>gorengan</i> sellers which do not settle and selling the product based on the consumer position
8	<i>Gulali</i> (traditional snack)	Results of simulation, the <i>gulali</i> sellers spread at Losari corridor	The simulation is same as existing. It is caused by characteristics of <i>gulali</i> sellers which do not settle and selling the product based on the consumer position
9	Peanuts	The unique simulation result from peanuts sellers. From 10 simulations which be based on this simulation. It finds that 6 simulations shows the sellers are grouping and 4 others spread at Losari corridor	The results from simulation is most same as existing because the characteristic of this kind is selling product based on the consumer.
10	<i>Sosis</i>	Results of simulation, the <i>sosis</i> sellers spread at Losari corridor	That is caused by characteristic <i>sosis</i> seller. They do not stay in one place and choose place close consumer or held in crowded place

4. Discussion

From the result of simulation. We can discuss that some reason that street vendor said as reason in choosing their location are little bit miss. One factor that very influence in choosing place for some street vendor is rivalry. Rivalry is a factor as usually find in traders and it also finds in characteristics of street vendor in Losari beach corridor.

Researchers also hope that this finding can help Makassar government to make a plan for street vendor to increase their finance and also attract tourist. So, it can be symbiotic mutualism from

government and society. Due to street vendor as good solution to decrease jobless, as well. For others governments, this finding also is able to be solution for make plan that have character or location like street vendor or Losari beach as tourism place.

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