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Accessibility of low-income family flats in North Jakarta city

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Abstract. The majority of relocated, low-income families in North Jakarta city who residing the flats, complained at decreasing their accessibility to the workplaces and to the social facilities. The aim of this research was to identify the changing of their accessibility before and after relocated, viewed from three dimensions: distance, travel time, and travel cost to the workplaces, educational facilities, and shopping areas. The research design was questionnaire survey containing the degree of accessibility before and after resided the flats. Five flats were chosen as cases. Their inhabitants were chosen as respondents which used simple random sampling. The result showed that their flats accessibility to the workplaces in all three dimensions was lower than when they resided in the slum area. Also, in distance and travel time accessibility to shopping areas was lower. Only accessibility to educational facilities measured in those three dimensions was higher after they moved. Supply for affordable public transport from their flats to reach their workplaces is needed to raise their accessibility. Also, they need subsidizeto rent of their flats so the burden to their income lesser.Using the ground space of their flats for retail activities was to make more accessible for their shopping activities.
**Keywords:** accessibility, low-income families, slum area

1. Introduction

There are three phenomena related to poverty for getting worse, i.e. the high level of transportation cost, the high cost of rental housing, and the expensive price of basic need goods. One problem faced by the low-income families and related to transportation cost is the accessibility of their housing. Accessibility for low-income families has the potential to reduce poverty and therefore contribute to sustainability [1]. Low-income families are people with limited purchasing power who need support from the government to get the affordable and livable house. Based on Public Housing Ministerial Regulation [2], low-income families are people who have income between 3.5-5.5 million rupiahs per month.

The new low-income families flats location in North Jakarta city was faced the accessibility problem to their workplaces and social facilities. Development of low-income family flats here was to accommodate the inhabitants of slums areas who resided on the riverbanks and whom the target of relocation. But the majority of them who moved to the flats claimed that their locations were not accessible. Their travel cost raised their living cost. To reach educational facilities also burden their children who still continued their study in the old schools when they resided slums areas. Meanwhile moving to the new school which nearer from their flats was not easy, especially for them who took the national final test.

"Accessibility expresses the ability of an environment to guarantee everyone an independent life regardless of their age, gender, cultural background and physical, sensory or cognitive abilities" [3].
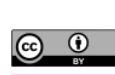
In this research, a phenomenon of accessibility was focused on housing (i.e. the flats), low-income families, three major activities which usually do by the member of family (work, shop, education). Flats development goal for low-income families is how to facilitate them for meeting their social and economic needs. The most important factor for low-income families is accessibility to facilities location where they do their activities. To represent all the activity of family member, this research chose three kinds of activities and travel destinations namely the workplaces which represent activity and travel of fathers or husband, shopping facilities which represent the mother or housewife activity, and educational facilities which represent their children activity.

The degree of accessibility of low-income family flats to reach the workplaces, educational facilities, and shopping areas was viewed in three dimensions: distance, travel time, and travel cost. It was compared before they moved and after they resided the flats. Flats location affects the pattern of spending of family income, especially travel cost to working areas and educational facilities which are daily activities. The research aim was to compare their degree of accessibility of their residential area, before and after they moved to the flats.

2. Research Method
Design research was a survey questionnaire with open questions. Questions directed to record two conditions namely a degree of accessibility before and after low-income families moved to the flats. From their response, the analysis was focused to compare their degree of accessibility in three dimensions (distance, travel time, travel cost) to the workplaces, educational facilities, and shopping areas before and after moving to the flats. Five public flats in North Jakarta city were chosen as samples. They were Marunda, Kapuk Muara, Sukapura, Muara Baru, and Penjaringan. Respondents were chosen using simple random sampling method. A questionnaire survey was conducted from 18th November 2016 until 18th December 2016.

3. Results and Discussion
Low-income families that were studied had the characteristics as follows: 3-4 persons in family size, a level of education of majority is from elementary to high school. Their occupations are construction laborers, have own business, or private employees. The degree of accessibility of their flats was measured by physical distance, time distance, and travel cost to the workplaces, educational facilities, and shopping areas.

Changing the degree of accessibility of the low-income families before and after they moved to the flats can be described below.

3.1. Trend of degree of accessibility to the workplaces before and after moving to the flats
In general, in all five cases, a trend of the accessibility to the work places from their flats in all three dimensions was decreasing or getting lower than before they moved, see Table 1. It was the big problem for low-income families caused by flats location chosen. The more distance or time travel, the more cost of public transport, the lesser their quality of life.

Break down into each case, it could be found that Marunda and Kapuk Muara were decreasing in all dimension of accessibility. In these locations, there were no kinds of employment available suitable for their background and unavailability of affordable public transport for them. Those were the ultimate caused for decreasing in accessibility. They faced more distance to the workplaces so were their travel time and travel cost which could affect their quality of life.

Penjaringan and Muara Baru had two dimensions of accessibility which its trend was increasing. In both cases, there was available employment suitable with the kinds of their jobs. Surrounding of Penjaringan there was the center of Jakarta city containing offices which employment availability. Shorter travel time and lower travel cost to working areas here were caused by the availability of public transport. Location of Muara Baru is near seaport with available jobs fit with some of their kinds of jobs. The trend of accessibility in distance and travel time was increasing, but in travel-cost was decreasing. Sukapura is also near industry and offices areas which could be their workplaces. Only accessibility in travel time was an increase in its trend here.

Table 1. Changing their accessibility to the work places before and after moving to the flats.

Name of flats	Accessibility dimensions to working areas		
	Distance	Travel time	Travel cost
Marunda	decrease	decrease	decrease
Sukapura	decrease	increase	decrease
Muara Baru	increase	increase	decrease
Penjaringan	decrease	increase	increase
Kapuk Muara	decrease	decrease	decrease
All 5	decrease	decrease	decrease

Table 1 showed clearly that trend of accessibility in distance and travel cost was decreasing more in a number of cases. Only accessibility in travel time was more in a number of cases which was increasing. For low-income families, travel cost is the most important dimension in accessibility has to be considered when choosing the location for their flats. Lack of affordable public transport made the travel cost to the workplaces was rising and push their quality of life or their welfare lower. For low-income families to pay rent for their flats had already burdened them. Hence, local government besides providing subsidize for public transport also need to give subsidize the cost of the rental flats. It was just to sustain their level of welfare.

3.2. Trend of degree of accessibility to educational facilities before and after moving to the flats
The trend of a degree of accessibility to educational facilities in all dimension and all cases was increasing, see Table 2. This result was contrary to the trend of accessibility to the work places. Increasing accessibility was caused by the availability of educational facilities surrounding their flats and availability of free school buses for the students.
    Marunda and Kapuk Muara showed increasing accessibility in all dimensions. Decreasing of accessibility to educational facilities in certain dimensions found in Sukapura and Muara Baru as well as Penjaringan. In these three flats showed the accessibility in distance was decreasing. The distance accessibility to educational facilities here was not fit with the Indonesian National Standard.

Table 2. Changing their accessibility to educational facilities before and after moving to the flats.

Name of flats	Accessibility dimensions to educational facilities		
	Distance	Travel time	Travel cost
Marunda	increase	increase	increase
Sukapura	decrease	increase	decrease
Muara Baru	decrease	increase	decrease
Penjaringan	decrease	increase	increase
Kapuk Muara	increase	increase	increase
All 5	increase	increase	increase

Although in some flats their distance accessibility to educational facilities decreased, the availability of school buses services made the accessibility in travel time in all cases were increasing. Decreasing in distance accessibility was the locational failure in developing new flats for low-income families which depend on the availability of land owned by local government. To overcome this problem they chose using a motorcycle that could be destructed to the quality of the environment. In other cases found that the increasing accessibility in travel cost caused by the availability of free school buses. It could be found in Marunda, Penjaringan, and Kapuk Muara. It showed that subsidize for public transportation was very helpful for low-income families to raise the accessibility of their flats location.

3.3. Trend of degree of accessibility to shopping area before and after moving to the flats
The trend of accessibility in distance and travel time to shopping facilities in all cases together was decreasing, only in travel cost was increasing, see Table 3. Marunda was the only one decreasing in all dimensions. It caused by incompleteness of goods offered by the nearest shopping place, so they chose to shop further facilities. It made the accessibility of all dimensions getting lower. Sukapura was also decreasing, but in two dimensions: distance and travel time. In these two flats mentioned, a trend of accessibility in distance was decreasing. It was caused by the distance were longer, so was the travel time.

Table 3. Changing their accessibility to shopping facilities before and after moving to the flats .

Name of flats	Accessibility dimensions to shopping facilities		
	Distance	Travel time	Travel cost
Marunda	decrease	decrease	decrease
Sukapura	decrease	decrease	increase
Muara Baru	increase	increase	increase
Penjaringan	increase	fixed	increase
Kapuk Muara	decrease	increase	increase
All 5	decrease	decrease	increase

On the contrary, Muara Baru was the only one showed increasing in the trend of accessibility to shopping facilities in all dimensions. In Muara Baru, its shopping facilities could fulfill their needs. A trend of accessibility to shopping facilities in Penjaringan and Kapuk Muara was increasing too, with the same reason as in Muara Baru. There was no changing in travel time between before and after they moved to the flats in Penjaringan. In Kapuk Muara, the accessibility in travel time and travel cost were increasing caused by using motorcycle which made faster and cheaper to reach its destination.

In general, the trend of accessibility in distance and travel time to shopping facilities was decreasing. From this result could be concluded that local government had to be considered providing shopping facilities needed near and/or supplying the subsidized public transportation to support them. Using the ground space in the tower of flats to accommodate retail activities was the best solution to increase the accessibility in all dimensions. Almost all cases showed increasing accessibility in travel cost except Marunda. In Marunda inhabitant found more distance and travel time to reach shopping facilities.

3.4. Discussion
There are several factors to be noticed in making choice for low-income housing location i.e. accessibility to the workplaces as well as commercial and educational facilities [4]. As a criterion, the walking distance to working areas is 20-30 minutes or 1.5-2.75 km [5]. Also, the radius and the walking distance criteria for educational and shopping facilities that can be used are as follow: elementary and secondary schools are 1 km or 15 minutes; high school is 3 km or 30 minutes; shopping areas is 2 km or 20 minutes [6]. The best radius for housing to the market, bank, hospital, working areas, school, etc.is 1.5 km, it is called walker's paradise [7]. These criteria had to be considered when local government providing flats for low-income families if they want to sustain or even raise their quality of life and keep in the pace of sustainable urban development.

Comparing the changing of accessibility among destinations, it could be ordered from the lowest to the highest: the workplaces, shopping facilities, and educational facilities. For low-income families, accessibility to the work places is the most important to sustain their level of welfare. In the case of development of the new flats for them in the North Jakarta City, this factor likely was abandoned. The trend of accessibility to the work places in all dimensions was decreasing. This was not an appropriate location for the low-income families flats that built by the local government. In building the new flats

for low-income families, local government depended on the availability of land owned. So, to increase the accessibility to the work places is needed providing subsidized public transportation. In the long run, needs land banking mechanism which can support the availability of suitable location for low-income.

The trend of accessibility to shopping facilities was also decreasing, but there was travel cost dimension rising. In general, low-income families chose the complete shopping facilities even it further. Why this happened can be the next research to answer.

Accessibility to educational facilities was increasing in three dimensions. It sounds good. Local government provided dispersed free school buses for students from low-income families.

Table 4. Comparing changing accessibility among all destination in all dimensions.

No	Destinations	Accessibility dimensions		
		Distance	Travel time	Travel cost
1	Working areas	decrease	decrease	decrease
2	Shopping facilities	decrease	decrease	Increase
3	Educational facilities	increase	increase	Increase
	All destinations	decrease	decrease	increase

If compared to dimensions, a trend of accessibility in distance and travel time had the same pattern, they were decreasing, see Table 4. The more distance between the flats and destination, the more decreasing accessibility in travel time and travel cost. Only to educational facilities, the distance more accessible because of the availability of educational facilities themselves. So were accessibility in travel time and travel cost was increasing because of availability of free school buses.

To increase the accessibility in all dimensions for all destinations for low-income families flats, the local government needs providing the subsidize for public transportation and subsidize the cost of renting the flats. Transport cost will get lower with subsidize, the rent cost will too. These two subsidize will lessen the burden of their living cost. Not only the subsidize for public transportation but also the spatial distribution of bus networks that reachable must be provided. As mentioned earlier, lesser transport cost and rent cost were the contributors to sustaining their welfare.

4. Conclusion

After moving to the flats, low income families in North Jakarta city had decreasing accessibility to the work places in all three dimensions (distance, travel time, travel cost), decreasing accessibility to shopping areas in two dimensions (distance, travel time), and increasing accessibility to educational facilities in all three dimensions (distance, travel time, travel cost). The good supply of affordable public transportation through subsidize and/or providing free public transport like school buses had helped increasing accessibility of low-income families. Fast and affordable public transport has to be supplied to overcome decreasing accessibility especially accessibility to the workplaces. For a longer period, to prevent decreasing accessibility, the local government had to be considered land banking mechanism to set the location for flats development which suitable with the characteristics of low-income families. But, immediate effort to raise the accessibility in shopping activity is using the ground space in the tower of their flats for retail.

References

[1]   Chapin FS. Urban Land Use Planning. Urbana: Univ. of Illinois Press.1972.
[2]   Edelman A, and Pudenzi A C M. Accessibility of Housing: A Handbook of Inclusive Affordable Housing Solutions for Persons with Disabilities and Older Persons. 978-92-1-132635-26. 2014.
[3]   Florence accessibility lab. Accessibility to cultural heritage & human development. England: Universita Degli Studi Firenze. p.3. 2013.
[4]   National Standard of Indonesia number 03-1733. Procedures for Urban Housing Planning.

Jakarta: National Standardization Institution. 2004.

[5]   Public Housing Ministerial Regulation Number 27 the year 2012. October 8, 2012. Housing Procurement through Credit/Financing for Prosperous Home Ownership with the Support of Housing Financing Liquidity Facility. Jakarta

[6]   Schmitz A. 3rd Residential Development Handbook. Washington DC: The Urban Land Institute. January, 2004.

[7]   Yin J. Urban Planning for Dummies. Chapter 6 p. 115-116. Canada: John Wiley & Sons Ltd. 2012

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