

# Accessibility of Schools in Indonesia: Is School Zoning Required?

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**Abstract:** Empirical evidence documented that school accessibility affecting the student's performance. Under this condition, the government made a policy that in the enrolment system must be based on school zoning. This study identifies that distance to school as proxies of accessibility was important for guiding the school's zoning policy. Using the Indonesia Family Life Survey (IFLS) 2000, this study describes the distance to school through descriptive analysis by using the data in the form of time spent to school. The analysis shows that the time to school for each student at each level varied with the maximum traveling time for 90 minutes. The finding emphasizes that school zoning policy is suitable to implement in Indonesia.

## 1 INTRODUCTION

The selection of school is at the decision of the household level. In this case, parents play a very dominant role in deciding where their child's school is. In this regard, the characteristics of the school to be chosen are closely related to household characteristics, such as the socio-economic condition and the area of residence (Glenn, 1997). In addition, school choice is also related to the aspect of equity and social justice (West, 2006). Empirically, there is a tendency that parents tend to choose schools that are expected to improve their children's achievement, even if their children have to go to school in a location far from where he or she lives (Pearce, 2000; Singleton et al., 2011).

In order to improve school accessibility, the popular policy is to conduct school zoning. This policy is expected to minimize the student's travel time to school, so that students can be more fit in learning which is then expected to increase student achievement. Previous studies have found that school zoning policy increases student attendance (Galabawa et al., 2002). This attendance rate will then determine achievement and dropout rate (Jones et al., 2006). Burde and Linden (2012) revealed that the distance to school is very sensitive to students. They noted that with increasing attendance, students' academic performance is also increased. However, the

school's zoning policy, according to some views, eliminates the freedom of choice in education, and this raises debates (Bunar, 2010).

Unlike the previous research that used spatial analysis, this study used micro data sourced from the Indonesia Family Life Survey (IFLS). The study was conducted to analyse the distance to school for elementary, junior-high and senior-high school students. This will be useful to provide another insight into the scepticism surrounding the enactment of school zoning policy in Indonesia.

This research uses IFLS 3 of year 2000 was provided by cooperation between RAND and Center for Population and Policy Studies (CPPS) of Gadjah Mada University. IFLS is a longitudinal survey data that observes socioeconomic and health conditions at the individual, household, and community levels. IFLS data represent 83 percent of Indonesia's population living in 13 of 26 provinces in 1993 covering the islands of Java, Sumatra, Bali, West Nusa Tenggara, Kalimantan, and Sulawesi. To enrich the analysis, the data in this study was also supported by Central Bureau of Statistics data. The data to be used is the distance to school that is measured through time spent to school for each level of education. In addition, other data to be used are school participation for rural and urban areas.

## 2 METHODS

In the preliminary scenario, this study is planned to see how the role of school zoning on student achievement. However, since the data structure of IFLS is not possible to research its correlation, the method used in this research was descriptive method.

In the IFLS data, students' academic achievement is measured by national examination scores. The implementation of the national examination is done at the end of the school year for each level of education. At the primary school level, a national examination is conducted when student has completed education at the end of the sixth grade. For junior and senior high-school level, national examination is conducted when students are at the end of third grade. With regard to the IFLS data structure, this national examination data cannot be used for correlation analysis because other data used in this study is data from the survey results of students who are still active in school.

## 3 RESULTS AND DISCUSSION

The challenge in using IFLS data lies in the process of data cleaning. The problem encountered in data cleaning is the number of duplicate data, thereby reducing the number of observations. Initially, the number of observations for the travelling time to school data was 23078, but after the cleaning, the number of observations was reduced to 2324.

The travelling time to school can be a reference to estimate the distance to school for each student. In the IFLS data, the travelling time data must be adjusted to the data "whether the student has graduated" or "whether the student is still in school" at an educational level. This is related to the information available from respondents whose, in facts, have passed and did not continue, so the data about the travelling time is information of when he/she went to school in the past. One of the disadvantages of the data used is the lack of information on whether the respondent went to school using a vehicle or on foot.

Based on previous studies, distance travelled or travelling time affects the arrival rate of students to school. In macro data, it is represented by school participation data.

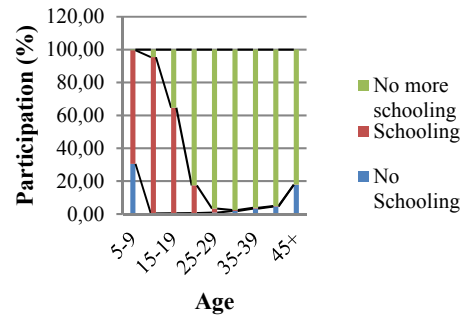


Figure 1: School participation (Urban) year 2000.

Figure 1 shows that the composition of urban residents who no longer in school are dominant compared with those who are still in school or who are not or are not yet in school. In figure 1, we are also informed that the population between the ages of 10-14 years of school participation is the highest. This illustrates to us that the profile of urban residents from the educational aspect is mostly secondary school graduates. Then we can observe also that in the age range 20-24 years, school participation began to decline. This indicates that many residents do not continue their education after completing their education at the senior high school level.

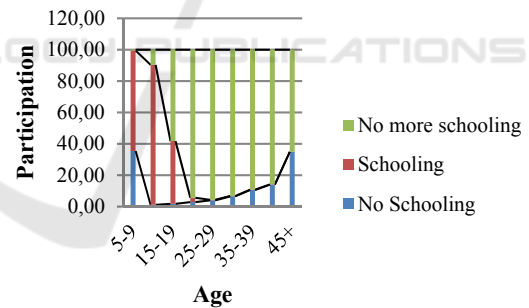


Figure 2: School participation (Rural) year 2000.

Similar to urban areas, figure 2 shows that in rural areas the composition of the non-resident population is also the most dominant. However, unlike urban areas, the compositions of the population in rural areas that are not going to schools are quite significant in numbers.

Referring to the macro data reflected in figure 1 and 2, in general, both in urban and rural areas, school enrolment is already quite high, especially at the junior secondary level. Whereas if referring to micro data, this study reveals the picture of student's travelling time. The statistical summary

for students' travel time to school can be seen in table 1.

Table 1: The summary of statistics.

Level of School	Traveling Time to School				
	Mean	Max	Min	Std. Dev.	Obs.
Elementary	12.52	90	1	9.70	1572
Junior High	16.47	60	1	10.67	217
Senior High	18.89	90	1	13.02	535
Total	14.36	90	1	10.99	2324

Table 1 informs us that the maximum travelling time from home to school on a single journey takes 90 minutes for elementary and high school students, and 60 minutes for junior high school students. For elementary school students, 233 of them travelled for 30 minutes. For junior high school students, it was experienced by 48 students, and for high school students, it covers 138 students.

When viewed from the average travel time, high school students have the longest travelling time, which is about 18 minutes; the elementary school students have the average time of 12.5 minutes, and the junior high school students have 16.5 minutes.

The main topic of the study is to describe the conditions of student travelling time at the primary, junior, and senior high school levels. The selection of these three levels of education is linked to the school zoning policy applied in Indonesia. This zoning policy is based on an argument that there will be a quality distribution of schools in every region, because each student can choose the school closest to where he lives. Before school zoning is enforced, students cannot access the best schools in the region if academically their grades are not eligible for admission to the school. This ultimately causes students to have a considerable distance from home to school. With close distance, students can walk to school. This will help to reduce the transport burden for the household and will improve the students' physical condition. Several studies have shown that walking to school or cycling has many benefits, especially for physical health (Rodriguez-Lopez et al., 2017; D'Haese et al., 2011; Chillon et al., 2015).

As mentioned in the previous research that time consumed to school for elementary grade was not clearly known how the student goes to school. If the

maximum consumed time for a student is 90 minutes, therefore a student should start from home at least on 5.30 to be in the school on 07.00. It related that in Indonesia, commonly school activity start from 07.00.

Based on the data, it is not easy to compare ideal consumed time to go to school. De Chiara and Koppelman (1975) stated that the maximum distance to school for an elementary grade is about 0.5 mil or about 800m by walking. Then we can compare with the previous studies in Belgium that the maximum distance by walking are 1.5km for 11-12 year and 2km for 17-18 year (D'Haese et al., 2011; Van Dyck et al., 2010). Chillon et.al (2015) stated that maximum distance by walking are 1.4 km, 1.6 km, and 3 km for 10 year, 11 year, and 14 year of age, respectively.

This research has an insight that the student needs a school that closest to his residence. It becomes a base for government to make school zoning in Indonesia as a policy. The policy has implication to the student's accessibility to school. Mandic et.al (2017) recommended to policy maker that they should make an enrolment system that supports the parents to choose a school which is near to theirs residence. The policy not impacts to the education system only, but also to another aspect such as health, transportation, and environmental sustainability.

#### 4 CONCLUSIONS

Referring to the description of the data, there is a variation of travel time to school for students at all levels of education. There are students who travel very briefly. On the other hand, there is a longer time travelling. Based on the fact, this study may provide a view that school-zoning policy is indispensable, so that in general students may access the nearest school from their residence.

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