Fragmented Urbanization and the Dynamic of Urban Services: The case of school provision in Metropolitan Surakarta

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Abstract. Urbanization has brought rapid changes globally and locally. Although cities still only cover very little percentage of global or regional land area, the increasing concentration of population within cities has transformed most of the human processes in many aspects including economic, social, spatial and cultural aspects. As cities grow, the urban population is also growing and transforms the spatial formation of the city as well as its activities. In many developing countries, including in Indonesia, the growing urban population and activities are not only bringing internal restructuration of the cities but also the extended spatial formation of the cities to the surroundings that usually belong to different authorities. The extended spatial formation is not only in order to meet the requirement of the economic and productive processes, but also in dealing with the need of social and consumption process. The growth Surakarta shows the process of metropolitanization of medium sized city in Indonesia that extends to the surrounding areas. Using a time series analysis with GIS, this paper analyzed the urbanization process in Surakarta that leads into a fragmented metropolitanization which also characterized by a pressure in the urban services provisions. This process needs to be understood as urbanization process is also a major contributors that shape the resource allocation and consumption. For the cases of Indonesia, which are also characterized by a fragmented urbanization process in the growth of its cities, the understanding of this process will be beneficial for the formulation of sustainable urbanization strategies in the future.

Keyword: Urbanization, spatial formation, GIS

1. Introduction

The urbanization process in small and medium sized cities, especially those in the developing countries, is facing huge challenges and discussion. There is still a lack of understanding of specific patterns of urbanization in small and medium city regions and how spatial inequity relates to urban services might play a role in governing such patterns of urban growth. Also, an adequate agenda for policy makers is necessary to govern small and medium sized city’s growth and to deal with potential of spatial inequity, particularly at the local level.

The paper explores the formation of urban patterns caused by spatial transformation of the regionally based urbanization process, and it seeks to identify differences in basic urban services, in particular educational services. This paper aims to contribute to a better understanding of the
urbanization process and the process’ consequences of spatial inequity of urban services of small intermediate cities in a densely populated region. Surakarta City, Central Java, Indonesia serves as a case study, with research question as follow: to what extent urbanization and metropolitanization in Surakarta Region creates inequity among core-suburbs. This case investigates the provision of educational services to assess the gap of urban services availability among city as the core area and districts as its growing surrounding areas.

We apply a single case study method, featuring Surakarta Region in Central Java Province, Indonesia. This region consists of Surakarta City as the core area and several surrounding kabupaten (districts). Those districts are: Boyolali, Sukoharjo, Sragen, and Klaten. The paper uses time-series statistical data with comparative descriptive analysis among regions. The data used is archival records from the monographs of the subdistricts in the observed region.

The rest of the paper is organized in five main parts. Part 2 provides a brief overview of the growth of small medium cities in developing countries, followed by a contextualization of this growth for extended urban development in small intermediate cities in Java, Indonesia. In Part 3, we briefly explain spatial justice as a concept to understand the challenge of growth and the changing role of intermediate cities in a densely populated region in developing countries. Part 4 and 5 describe the main focus, firstly by explaining the extended urban development process in Surakarta Region and the indication of spatial inequity among urban agglomerations particularly for the case of educational services. The last part of the paper concludes some general implications of the case study for the debate on spatial justice, decentralization, and urban transformation.

2. The Changing Role of Small Intermediate Cities in Developing Countries: The Java island, Indonesia context

Over the last twenty years, patterns of urban change worldwide have been focusing on the regional scale in which urbanization processes takes place. Particularly smaller, intermediate cities and their regions have taken a large share of urban growth, often coupled with relatively low levels of services and funding. The World Urbanization Prospect: 2005 Revision [1] shows that specifically for developing countries, around 50.7 per cent of 2.25 billion urban residents in 2005 lived in small cities.

This number is expected to grow in the coming years. Therefore, small cities in developing countries will play an increasingly important role with regard to the global urbanization process. This role has two different sides: the challenge of small cities in developing countries is not only its total number and speed of urban population growth, but also the lack of local government to deal with the problems of their urbanization process [2].

In the context of Indonesia, the urbanization process is particularly challenging. As the fourth most populous country in the world, with a relatively low level of urbanization, urbanization process has become a major phenomenon since one third of the last century. In this process, the function of small cities and other small urban concentrations has been increasing as important living spaces for its urban population [3]. In 1980, 56.1% of Indonesian urban population lived in cities with more than 300 thousand population, but the proportion decrease to only 36.0% in 2010. In number, Indonesian urban population living in cities and other urban concentrations less than 300 thousand has increase from 14.4 million in 1980 to 75.7 million in 2010. Java has been characterized by an accumulation of urban population concentration in its small and medium sized cities [3,4] especially those located in the northern coastal low lands [4].

Concerning this phenomenon, Firman [5] has revealed a decreasing urban population growth in the core area of metropolitan regions in Indonesia and in small and medium municipal cities, as well as tendency of increasing urban population growth in the surrounding districts since the 1990s [6]. Later, the tendency has also appeared in the districts surrounding medium and small municipal cities, especially in Java [3]. Clearly, these processes create an extended urban formation, not only the large cities but also in much smaller ones, in which the urban development activities are not only concentrated in the core of the municipalities, but also extend towards adjacent districts. It is a phenomenon of extended metropolitan region building in Asia, emerging in the second half of the twentieth century [7].
The peri-urban development of extended small and medium cities in Java is also to a large extent a transformation process of rural areas in the outskirts of the established cities into more urbanized areas. This kind of transformation is reflected through the presence of urban symbols and urban activities in densely populated areas. However, the presence of market induced urban activities is not always linked to the economic activities of the local inhabitants. In addition, the growing activities and the increasing population in the peri-urban development of small and medium cities in Java is not always followed by appropriate basic urban infrastructure, facilities and services. Therefore, many of them show a pattern of extensive growth, with a spatial disharmony in terms of concentration of urban services in the core areas and less service in the peripheries. The problem is coupled with fragmented institutions, managed by different authorities of districts and municipalities.

3. Spatial Justice as a Concept to Understand the Challenge of Small Cities’ Extended Urban Development

Spatial injustice has become an increasingly important notion for clarifying the magnitude of urban development challenges for smaller cities in developing countries. Before assessing spatial injustice in our case study, we establish our understanding of the concept first.

Marcuse [8] has explored possible forms of spatial injustice and defined two fundamental forms. The first form is based on the so called unfreedom argument: the involuntary captivity of any group to a limited space [9]. In this form, spatial injustice occurs when communities are fixed to a certain place and have restricted freedom to choose the location (providing different levels of public goods) in which they prefer to live. The second form is rooted in the unfair resources argument. It is about the unequal allocation of resources over space. The unfair resources argument does not imply that resources should be distributed in absolute equality in order to gain spatial justice, but they should be distributed justly based on need or any other rational distinction.

This paper employs the second form of spatial justice, the unfair resources argument. The utilization of this argument suits given the fact that most of the population in the extended urban region of small cities is likely to experience reasonable levels of voluntary choice for selecting their residence. Assuming an unfair resource angle is also appropriate because most small cities in developing countries are lacking basic urban infrastructure and services [2]. As a starting point, this paper will assess injustices in space by applying Diets’s idea [10,11] that explains the relation between justice and spatial dimension through his dialectic, ‘spatiality of injustice and injustice of spatiality’. ‘Spatiality of injustice’ refers to the idea that justice has a spatial dimension that it is important to acknowledge justice through a spatial point of view. ‘Injustice of spatiality’ implies that the existing structures of social and economic relations can possibly lead to the production and reproduction of injustices through space. Therefore, he argues that space can be an important starting point for people to search for justice, by acting from, on, in and for space. This argument is also emphasized by Soja [12], who claims that we can identify injustices in space by the most visible sign, that is the unequal distribution over space, in order to further explore, the dynamic process of social, economic, spatial, and political formation in space, to know whether the process works in such a way and might create domination and oppression in space.

The terminology ‘seeking spatial justice’ is to underline that it is essential to assume explicit spatial perspectives to search for fairness and democratic struggle [12]. He points out that it is important to create awareness and mobilize the grassroots for innovative processes of coalition building among local actors and multilevel governance. Soja draws attention not only to the capacity of local actors, but also to capacities in multi level governance. This argument is in line with another argument: it is not possible to achieve justice in urban space without support from other levels [13].

We focus here on the distribution of educational services among urban agglomerations formed in the core and periphery of a small intermediate city region in Surakarta Region, Central Java Province, Indonesia. Subsequently, we return to the approach suggested by [13] then match these empirical findings with efforts by local government actors on solving inequity problems in their region.
4. Fragmented Urbanization in the Peripheries of Surakarta City

Surakarta is a medium city size that is located in an inland of Central Java. The city was listed as the tenth largest city by population from 50 cities in Indonesia in 1980, even though the rank has been decreased into 27 from 94 cities in 2010. The decrease was influenced by the limited administrative area of the city which led to extended urban developments to the surrounded districts and forming a metropolitan area, formed by Surakarta City as the core area and the five districts of Sukoharjo, Karanganyar, Boyolali, Klaten and Sragen as the peripheries of the metropolitan area. According to their location, the first three districts could be said as the three adjacent districts since they are directly bordering to the core area, while the last two districts could be said as the two outer peripheries districts since they are not directly bordering to the core area. The metropolitan area is still considered as the seventh largest urban concentration in Indonesia in 2010 according to their urban population. In 2010, the population of the metropolitan was about five million populations with three million of them were considered as urban populations while the rest were still considered as non-urban populations (see Table 1).

There are 99 sub-districts in the metropolitan region, consisting five sub-districts in the core area, twelve sub-districts in Sukoharjo, 17 sub-districts in Karanganyar, 19 subdistricts in Boyolali, 26 sub-districts in Klaten, and 20 sub-districts in Sragen. Among the sub-districts in the peripheries, there are nine sub-districts: Kertasura, Baki, Gatak, Groglol and Mojolaban of Sukoharjo; Jaten, Gondangrejo and Colomadu of Karanganyar, and Ngemplak of Boyolali, that can be said as the adjacent sub-districts since they are directly bordering to Surakarta City, while the other sub-districts could be said as the outer sub-districts since they are not directly bordering to Surakarta.

It is considered that the expansion of urban activities was started in the late 1970s, after Indonesia started to employ stages of development with the pelita (pembangunan lima tahun or five yearly development) and repelita (rencana pembangunan lima tahun or five yearly development planning) in the early 1970s. In 1971, Surakarta City was still holding 74.5%, share of urban population of the metropolitan region. It can be considered that the growth of urban activities was still limited only in the area of the city and the capital of the districts. However, the urban population share of the city has been decreasing. In 1980, the share of the city was started less dominant, with a proportion of 43.6% of the urban population in the metropolitan area, and keep decreasing to 30.2% in 1990, 18.1% in 2000, and 16.2 in 2010. In terms of urban population, Surakarta City has a relatively slow growth from 1971 to 1990 then stagnant growth from 1990 to 2010, with an urban population from 414,285 in 1971 to 469,532 in 1980, 504,176 in 1990, 490,214 in 2000 and 500,642 in 2010. In contrast, urban population in the surrounding districts increased rapidly from only 142,000 in 1971 to about one million urban population in 1990, then 2.4 million in 2010.

However, the expansion of urban population and activities does not occur evenly in all directions. Most of the urban expansions were to the south, mainly in the area of the Districts of Sukoharjo and Klaten. The first district is located next to Surakarta City in the southern part. It is the district that has the longest border with the city among the three adjacent districts: Sukoharjo, Karanganyar and Boyolali. Sukoharjo bordering to Surakarta along five kecamatan (sub-districts), while Karanganyar in the eastern and north part bordering along three sub-districts, and Boyolali in the western part bordering along one sub-district. Meanwhile, Klaten District is not an adjacent district since it does not have any kecamatan bordering to Surakarta and only bordering to Sukoharjo and Boyolali. This district is located in southwest of Surakarta, along a national road corridor that connecting Surakarta to Yogyakarta. The location has led the urbanization process of the district has been more rapid than other surrounding districts of Surakarta. Later, starting in 1980s, the adjacent District of Sukoharjo has also been the place of the expansion of urban development process of Surakarta City.
### Table 1. Total and Urban Population Growth in Metropolitan Surakarta, 1990 - 2010

| Areas                  | 1990    | 2010    | Annual Prop. | Urban Population | Annual Increase |
|------------------------|---------|---------|--------------|------------------|-----------------|
| **Total Population**   |         |         |              |                  |                 |
| 1 City of Surakarta    | 504,176 | 500,642 | -0.04%       | 177              |
| **Core Area**          | 504,176 | 500,642 | -0.04%       | 177              |
| 2 District of Sukoharjo| 672,831 | 824,238 | 1.13%        | 5,570            |
| 3 District of Karanganyar| 697,948 | 813,196 | 0.83%        | 5,762            |
| 4 District of Boyolali | 844,194 | 930,531 | 0.51%        | 7,408            |
| 5 District of Klaten   | 1,086,135 | 1,130,047 | 0.20%  | 16,682           |
| 6 District of Sragen   | 825,517 | 858,266 | 0.20%        | 1,970            |
| **Peripheries**        | 4,126,625 | 4,556,278 | 0.20%  | 21,483           |
| **Metropolitan Surakarta** | 4,630,801 | 5,056,920 | 0.46%  | 21,306           |

| **Urban Population**   | 1990    | 2010    | Annual Prop. | Metropolitan Surakarta | Annual Increase |
|------------------------|---------|---------|--------------|------------------------|-----------------|
| 1 Kota Surakarta       | 504,176 | 500,642 | -0.04%       | 177                    |
| **Core Area**          | 504,176 | 500,642 | -0.04%       | 177                    |
| 2 District of Sukoharjo| 324,214 | 632,367 | 4.75%        | 15,153                |
| 3 District of Karanganyar| 148,860 | 414,969 | 8.94%        | 13,305                |
| 4 District of Boyolali | 128,494 | 306,090 | 8.94%        | 8,880                 |
| 5 District of Klaten   | 384,896 | 759,450 | 8.94%        | 18,728                |
| 6 District of Sragen   | 70,621  | 277,310 | 14.63%       | 10,334                |
| **Peripheries**        | 1,057,085 | 2,390,186 | 6.31%  | 66,655               |
| **Metropolitan Surakarta** | 1,561,261 | 2,890,828 | 4.26%  | 66,478               |

Source: Compiled and analysed based on Population Census Data, 1990 and 2010.

During the period 1990 to 2010, urban population of the metropolitan area increased nearly double from 1.6 million to 2.9 million. Meanwhile the total population grown more slowly from 4.6 million to 5.1 million (see Table 1). Urban population in the core area of the metropolitan has slightly decreased, while in the number in the peripheries has increased more than double from one million to 2.4 million. However, the increase of the total population in the peripheries was just about 10% from 4.1 million to 4.6 million. This growth indicates that there was a number of non-urban population in the previous period that has been reclassified as urban population.

In the peripheries, the population growth was higher in the three adjacent districts than in the two outer peripheries districts. They also have a higher annual population increase. Sukoharjo, that has the longest border to Surakarta, experienced the biggest population increase with more than 150 thousand of population increase during the twenty year period. Karanganyar, the second longest bordering district, had the second biggest population increase with about a hundred thousand additional populations in the period. Klaten and Sragen had a smaller number of additional populations than Boyolali. However, the patterns in the urban population growth as well as the increase are very different. Sragen, one of the outer peripheries districts had the highest urban population growth, even though its urban population increase was not as high as Sukoharjo and Karanganyar. Klaten, another outer peripheries district, experienced the biggest urban population increase. Meanwhile, urban population growth in the adjacent districts was not as high as that of in the outer, even though they had also big urban population increases. Sukoharjo experienced three hundred thousand additional urban populations in the period, even though it only had 151.4 thousand population increases. These figures indicate that reclassification; a classification change of some areas from non-urban classification at one time to urban classification in
The next, has brought some influences in the urbanization process in the region. As shown in Table 1, Karanganyar and Boyolali had also experienced big urban population increases, which also indicate the presence of the reclassification process in the urbanization process in their region. In fact, the presences of the reclassification process indicate the development of the region, in which they become the place for the urban expansion.

In fact, not all the places experienced the increasing of urban population. All of the sub-districts adjacent to Surakarta have been urbanized, even though they have different time lines to become the urbanized sub-district. The sub-districts of Kertasura, Baki, Grogol and Mojolaban of Sukoharjo Districto become the urbanized sub-district since 1990, while for sub-district of Gatak, it was in 1990. In the district of Karanganyar, the sub-district of Colomadu become the urbanized sub-district since 1980, while the sub-districts of Jaten were since 1990, and the sub-district of Gondangrejo was since 2000. Meanwhile, the adjacent sub-district in Boyolali District, i.e., Ngemplak become the urbanized sub-districts since 2000.

For the outer sub-districts, the sub-districts in Klaten dominated the urbanized sub-districts since 1980 (Klaten Utara, Klaten Tengah, Klaten Selatan, as well as Kalikotes and Delanggu). In addition, there are other twelve sub-districts in Klaten that become urbanized. Most of them were urbanized since 2000. They made more than half of Klaten’s sub-districts urbanized region. In Sragen, there are four sub-districts: Sragen, Ng rampant, Karangmalang and Gemolong, which became urban areas since 2000 except Sragen that started to be urbanized since 1980.

In Sukoharjo, in addition to the five adjacent sub-districts, there are two more sub-districts that have been urbanized, i.e., Sukoharjo and Bendosari since 2000. In Karanganyar, Karang Anyar sub-district (1980), Kebakkramat and Tasikmadu sub-districts (2000), become urbanized areas, while in Boyolali, sub-districts of Boyolali, Sawit and Klego became urbanized since 1980; Banyudono and Teras became urbanized since 2000.

Table 2 shows that the number of schools in all areas of the metropolitan region is decreasing, except those of senior high schools in Boyolali and of junior high schools in Sragen. The number of elementary schools decreased from 3,546 units in 1990 to 3,243 units in 2010, then to 3,206 units in 2015. Junior high schools decreased from 629 units in 1990 to 498 units in 2010, even though then it had a small increase to 507 units in 2015, while the number of senior high schools decreased from 383 units in 1990 to 214 units in 2010, and decreased again to 206 units in 2015. Surakarta City, which has a relatively stagnant population, experienced a significant decrease, but Klaten District, which had the highest increase in urban population, is the one that had the most significant level of decreasing in educational facilities.

As common in Indonesia, the provision of schools and other urban facilities like health facilities is not provided solely by the local government. In addition to the government provision’ public schools,
there are also private schools provided by non-government organisations’ social foundations from both local and national foundations. Closure of public schools is very rarely happens. Even in the situation when the school’s building should be demolished, for example, when the land is needed for other development, the school will be removed to another location. However, the situation is different for private schools. The existence of private schools will depend on how the schools could keep attracting students. Since 2005, elementary schools and junior high schools in Indonesia receive a grant allocation to support the schools’ operational expenses. Before that time, the operation of the private schools highly depended on tuition paid by the students so they could not survive without a sufficient number of students. Therefore, the closure of private schools could become phenomenon if the schools could not attract students, so they could not have financial support for their operation.

In fact, Indonesia has a national standard for the provision of facilities, including schools. According to SNI 03-1733-2004, the National Standard on the guidelines for residential neighborhood planning in Indonesia, each elementary school that is standardized with six rooms for six classes for six years of schooling, is directed for small neighborhood units with about 1600 supporting populations. Meanwhile, junior high school as well as senior high school, each of them is standardized with six rooms for six classes for three years of schooling each, are directed to larger neighborhood units with about 4800 supporting populations.

5. Decreasing Levels of Service in Educational Facilities

In this analysis, we calculate the level of service of educational facilities in every sub-district in Metropolitan Surakarta in several times observed, i.e., 1990, 2000, 2010 and 2015. The calculation of the level of service uses the comparison between the number of population and the number of educational facilities that are proportional to the number of supporting population directed by national standards. Since there are three types of educational facilities that are taken into account: elementary, middle/junior and high school, the level service of educational facilities of each sub-district is obtained from the average value of the three facilities. The comparison of the level of service of educational facilities between sub-district reflect the equality of educational facilities among sub-districts in the metropolitan region, while the dynamic of the level of service from time to time reflects the influence of urbanization and development process in the level of service of the educational facilities.

The maps in Figure 1 show the changes in the level of service of educational service in 1990 and 2015. The first map shows that there are some differences between the level of service of educational facilities between the core area and the surrounding districts, as well as among the sub-districts in the peripheries. The sub-districts in Surakarta, as the core area, had highest level of service than most of sub-districts in the peripheries. However, there were several sub-districts in the peripheries that had similar levels of level of service to those of the sub-districts in Surakarta. It is interesting to recognize that the sub-districts that play as the capital of the surrounding districts, like the sub-districts of Boyolali, Karanganyar, Sragen, Klaten Utara, Klaten Tengah and Klaten Selatan, were included as the sub-districts that had a similar level of service to those in Surakarta. In addition to these sub-districts, there were only several sub-districts that had a similar level of service. Klaten District, the most urbanized surrounding district, was the district that had the biggest number of sub-districts that had a similar level of service. Ten out of 26 sub-districts in Klaten had a similar level of service to those in Surakarta. However, Sukoharjo, the second most urbanized surrounding district, had only two out of twelve sub-districts that had a similar level of service, while the Districts of Karanganyar and Boyolali had five and four sub-districts from all of their sub-districts, 17 and 19 sub-districts respectively, which has a similar level of service to those in the core areas. The rest sub-districts had in some degrees lower level of service in educational service than the sub-districts in the core area as well as the few other sub-districts in the peripheries. These conditions indicate the existence of unfair resource allocation as is argued by [8] and [12] who claim an injustice situation that is created by an unequal distribution of facilities over space.
Figure 1. Changes in Educational Facilities’ Level of Service in Metropolitan Surakarta, 1990 – 2015  
Source: Analysed based on the City’s and the Districts’ Monographs, 1990 and 2015.

The later map of the situation in 2015 shows that the level of service of most sub-districts in the metropolitan area has decreased. The sub-districts that experienced a decreasing in their level of service were not only the sub-districts located in the core, but also in the peripheries. Among the sub-districts in the metropolitan areas, there are only two districts: Simo of Boyolali, and Delanggu of Klaten, that still have the highest level of service (> 80%), like the condition in 1990. These conditions indicate that the urban expansion occurs at a speed faster than the capacity and capability of the areas in providing their required facilities. It is support Cohen’s (2006) argument about the challenges of small cities in developing countries in dealing their urbanization process that is highly characterized by their lack of capacities in their local government in mobilizing the region’s resources in dealing with their urbanization process.

In fact, it is not at the three levels of schooling that has the lack situation. The analysis shows that among the three levels of schooling, there was a level that has a highest level of service in all of the regions in 1990. As urban facility that is directed for small neighbourhood, the provision of elementary education is distributed in every place. As one of the results of the Elementary School Development Program in Pelita II in 1973/1974 to 1977/1978 that has built: 16,000 new elementary school buildings with 6 classrooms each; 15,000 new preparatory elementary school buildings with 3 classrooms each; construction of 15 thousand new classrooms as an improvement facilities in the existing elementary schools, and rehabilitation of 41,000 public and private elementary schools and 15,000 state and private Islamic elementary schools, throughout the country (Presidential Office, 1978), the provision of elementary school in all region has reach more than 100% of level of service. Unfortunately, such a program has never been replicated for other level of education, i.e., junior and senior high schools; therefore the provision of such level of education has never fulfilled the level of service needed. The highest level of service of junior high schools in Surakarta was 87% in 1990 that has decrease then into the level of 65% in 2015, while the highest level of the surrounding districts were in a range between 50 to 70 % that have deceased into a range of 30 to 65 % in 2015. Meanwhile, the highest level of service of senior high schools in Surakarta was 81% in 1990 that the decreased into 30% in 2015, while the highest levels of service in the surrounding districts were in a range of 20 to 40 % in 1990 that then decreased into a range of 10 to 30 % in 2015.
In Figure 2, shown that the urbanization process in the Metropolitan Surakarta, which tend to be concentrated in the adjacent sub-districts, has decreased the level of service of the elementary schools in the six out of nine adjacent sub-districts and some few other sub-districts. The sub-districts Kertasura and Grogrol of Sukoharjo are involved in the adjacent sub-districts that have experienced the decrease, even though the other adjacent sub-districts in this district: Gatak, Baki and Mojolaban; which have also stressed by the pressure of urbanization process, have not experienced such decrease. In Karanganyar, all of its adjacent sub-districts: Jaten, Gondangrejo, and Colomadu; and three other sub-districts (Karanganyar, Tasikmadu and Kebakkramat), which also have stressed by the urbanization process, have experienced some decrease in their level of service of their elementary schools. Similar situation has been experienced by Ngemplak of Boyolali, which is also categorized as adjacent sub-district.

In these phenomena we can observe that the urbanization process has changed the conditions influenced by resources allocation process, where the pressure of the increasing urban population growth needs to be responded by a more dynamic resource allocation process. Failure in providing appropriate response to the increasing needs caused by the urbanization process will bring additional contexts to the spatial justice concept into a time-based inequality/injustice (justice) situation (spatio-temporal justice/injustice), where people in the following generation should face different (worse) level of service.

6. Conclusion

The case of Surakarta indicates an example of unfair resource argument due to fragmented urbanization, where the rapid urbanization is taking place at different administrative region. In a period within 25 years of observation, the case demonstrates two important points related to the spatial justice argument of unfair resources argument. Firstly, that highly urbanized urban areas become places where urban services are located, in this context, educational services are concentrated in some places that have higher centrality in the region, and lacking situation in other places that have less centrality. It is particularly shown by the combination of the three levels of educational service provision: elementary, junior high and senior high school that show such tendency. The fragmented urbanization into several different administrative regions tends to lead into different responses among regions that create different levels of service. Second, the case claims that areas with similar tendencies of rapid urbanization show different changes in the level of educational services. It is particularly shown by the elementary school provision, which actually shown by the other school provision, including the combination of educational services of the three levels. These differences point out that local government has a different capacity to deal with the challenge of rapid urbanization. The two points explain that unfair resource argument will be clearly seen in terms of spatial temporal aspects. This spatial temporal aspect of the unfair resources argument explain that spatial justice concept can be developed into the context of sustainable
urbanization that focus on intra-generational justice (justice among regions) and inter-generational justice (temporal or justice between time).

7. Reference

[1] Department of Economic and Nations S A P D U 2006 World urbanization prospects: the 2005 revision

[2] Cohen B 2006 Urbanization in developing countries: Current trends, future projections, and key challenges for sustainability Technol. Soc. 28 63–80

[3] Mardiansjah F H 2013 Urbanisation durable des territoires et politiques de développement urbain en Indonésie: étude de trois kabupaten en voie d’urbanisation rapide dans l’île de Java (Université Paris-Est)

[4] Firman T 2016 Demographic patterns of Indonesia’s urbanization, 2000--2010: continuity and change at the macro level Contemporary demographic transformations in China, India and Indonesia (Springer) pp 255–69

[5] Firman T 2003 The spatial pattern of population growth in Java, 1990--2000: Continuity and change in extended metropolitan region formation Int. Dev. Plan. Rev. 25 53–66

[6] Firman T, Kombaitan B and Pradono P 2007 The dynamics of Indonesia’s urbanisation, 1980--2006 Urban Policy Res. 25 433–54

[7] McGee T G and others 1971 The urbanization process in the third world. (London: G. Bell and Sons, Ltd)

[8] Marcuse P 2009 Spatial justice: Derivative but Causal of Social Justice Justice et injustices spatiales (Presses universitaires de Paris Ouest) pp 76–92

[9] Hay A M 1995 Concepts of Equity, Fairness and Justice in Geographical Studies Trans. Inst. Br. Geogr. 20 500

[10] Dikeç M 2001 Justice and the Spatial Imagination Environ. Plan. A 33 1785–805

[11] Dikec M 2010 Justice and the spatial imagination Search. Just City

[12] Soja E W 2009 The City and Spatial Justice Justice et injustices spatiales (Presses universitaires de Paris Ouest) pp 56–72

[13] Kemper J 2010 Fainstein, Susan S. (2010): The Just City Raumforsch. Raumordn. 69 133–4