

## The Differences in Factors that Influence Poverty in Urban, Suburban, and Rural Areas



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**ABSTRACT:** The study of poverty in Indonesia that specifically takes a review or category of suburban area has not been conducted widely. In fact, when referring to the dimensions that correlate with poverty, various problems related to access to economic resources, social facilities and services, public infrastructure, geographical constraints, and land tenure are actually more common in suburban areas than in the city center. The aims of this study are 1) to determine the spatial zoning in Kendal Regency based on the categories of urban, suburban, and rural areas. 2) identify the variables that affect suburban poverty in Kendal Regency. This study took place in Kendal Regency, which is one of the districts directly adjacent to Semarang City, the capital city of Central Java Province, Indonesia. The unit of analysis in this study is the village, totaling 286 villages. The technique used is K-Means Clustering and linear regression (OLS). The results of the analysis show that the distribution of poverty in Kendal Regency is clustered. In addition, suburban poverty has a different character than poverty in urban and rural areas.

**KEYWORDS:** poverty, urban, suburban, rural

### INTRODUCTION

The rapid economic growth in urban areas will definitely have spillover effects on the surrounding rural areas (Yunus, 2006). The spillover effect makes the rural areas around the city economically integrated with the city center. Economic integration with the city center will encourage land conversion in rural areas to support economic activities in urban areas (Harmadi and Yudhistira, 2008). Land in rural areas which was originally an agricultural area, animal husbandry, plantation, forest, and the like, then changed its function to become a residential and industrial area.

This phenomenon is known as suburbanization emerges, which is characterized by the formation of new settlements and industrial areas on the outskirts of urban areas (Rustiadi and Panuju, 1999). The process of forming new settlements and industrial areas spreads from urban areas to suburban areas with an irregular pattern of distribution, so it is known as urban sprawl (Rustiadi et al, 2011; Soetomo, 2013). Urban sprawl has quite serious impacts, not only threatening the availability of agricultural land, but also side effects related to the conversion of agricultural land (Grant, 2010).

The changes of agricultural land function will be followed by changes in the livelihood structure of suburban communities from the agricultural sector to other sectors outside agriculture. Reduced agricultural land and added economic urgency, encourage the behavior of suburban communities to seek solutions through new businesses outside the agricultural sector (Sihaloho et al, 2007). However, due to limited education and skills, people who were originally dependent on the agricultural sector tended to only be able to switch to the informal sectors which certainly did not promise better welfare. As a result of land conversion, residents have switched professions from farmers to small traders, factory workers, motorcycle taxi drivers, and/or coolies (Kamim et al, 2019; Andari et al, 2018).

On the other hand, Kneebone (2017) found indications that poverty in suburban areas has continued to increase since 2000. These indications reinforce the findings of previous studies where nearly 60 percent of poverty in 100 major cities in the United States live in suburban areas (Kneebone and Williams, 2013). It is possible that the symptoms of increasing suburban poverty also apply in developing countries (Allard, 2016). Symptoms in that direction can be seen in the World Bank's (2013) study of the phenomenon of urban poverty in Vietnam. Likewise, a UNDP study (2013) in Asia Pacific found that often suburbs are the most vulnerable places for the poor where infrastructure and public services are weak or nonexistent.

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Until now in Indonesia there has been no poverty study that specifically takes a review or category of suburban areas. Several existing studies do mention poverty in suburban areas, but are only placed as an explanation of the analysis of the phenomenon of poverty in urban areas in general (Kamaluddin, 2009; Renggapratiwi, 2009; Fikri et al, 2016; Yandri and Juanda, 2018; Adiputra et al, 2021). In fact, when referring to the dimensions that correlate with poverty, various problems related to access to economic resources, social facilities and services, public infrastructure, geographical constraints, and land tenure are actually more common in suburban areas than in city centers.

Meanwhile, the implementation of decentralization and regional autonomy in Indonesia since about two decades ago has produced many new metropolitan cities, apart from Jakarta. This development ultimately increased the number of suburban areas surrounding the new cities. This condition is similar to the phenomenon in China in the last decade where decentralization policies have increased the number of suburban areas (Zhang in Shen and Wu, 2017).

This phenomenon also occurs in Kendal Regency. Due to its location directly adjacent to Semarang City which is one of secondary cities in Indonesia, the rate of suburbanization in Kendal Regency is moving quite high. So, this is interesting to study, including when it is associated with the problem of poverty. Based on that, the first objective of this research is to obtain regional zoning in Kendal Regency based on urban, suburban, and rural categories. The second objective is to analyze the spatial distribution of suburban poverty in Kendal District. Lastly, this study aims to analyze various variables that affect suburban poverty in Kendal Regency.

### METHOD

This study uses a village or sub-district analysis unit in Kendal Regency, totaling 286 villages. The source of the data used in this study came from the Village Potential Data (Data Podes) of Kendal Regency 2018. In addition, another data source came from the 2019 Department of Population, Civil Registry Service (Disdukcapil) of Kendal Regency and Central Agency of Statistics (BPS), and BKKBN (National Population and Family Planning Board).

There are several data analysis techniques used in this study, adapted to the research objectives that have been set. For the first objective, namely obtaining spatial zoning in Kendal Regency based on urban, suburban and rural area categories, the data analysis technique used is K-Means clustering. The K-Means Clustering technique is used because this technique can determine the number of clusters at the start. Meanwhile, for the second research objective, which is to identify the variables that influence suburban poverty in Kendal Regency, it is carried out by Linear Regression analysis (OLS).

The stages in this study follow the order of the research objectives above. In the first stage, regional zoning was carried out based on urban, suburban and rural categories. The variables used can be seen in Table 1. These variables were analyzed using the K-Means Clustering technique with the SPSS 25 application. The results of the analysis were then visualized in the form of a map with the ArcGIS application.

**Table 1. Variables and Indicators of K-Means Clustering Analysis**

No,	Variable	Indicator
1,	Distance to district capital	Distance from the village head office to the center of Kendal Regency in km
2.	Population density	Ratio of population per km <sup>2</sup> per village
3.	Non-Agricultural Land Ratio	Ratio of non-agricultural land area to village area in hectares
4.	Distance to Market	Distance from the village head office to the nearest market
5.	Distance to ATM	Distance from the village head office to the nearest ATM
6.	Distance to Entertainment Facilities	Distance from the village head office to the nearest entertainment facilities (hotels, billiards, discotheques, massage parlors, salons)
7.	Distance to Junior High School	Distance from the village head office to the nearest Junior High School
8.	Distance Senior High School	Distance from the village head office to the nearest Senior High School
9.	Distance to Health Center	Distance from the village head office to the nearest health center in km
10.	Distance to Hospital	Distance from the village head office to the nearest hospital in km

**Source:** Synthesis Results

After analyzing regional zoning using the K-Means Clustering technique, the next step is to analyze various variables that are thought to have an influence on suburban poverty which can be seen in Table 2. These variables were processed using the Linear Regression (OLS) technique using SPSS 25.

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**Table 2. Linear Regression Analysis (OLS) Variables and Indicators**

Symbol	Variable	Indicator
Y	Poverty	The ratio of the number of pre-prosperous families to the number of households per village
X <sub>1</sub>	Distance to district capital	Distance from the village office to the center of Kendal Regency in km
X <sub>2</sub>	Population density	Ratio of population per km <sup>2</sup> per village
X <sub>3</sub>	Non-agricultural Land Ratio	Ratio of non-agricultural land area to village/area in hectares
X <sub>4</sub>	Senior high schools	Number of high school units per village
X <sub>5</sub>	Senior high school graduates	Number of senior high school graduates per village
X <sub>6</sub>	Distance to market	Distance from the village head office to the nearest market in km
X <sub>7</sub>	Small and Medium Enterprises	Number of micro small and Medium Enterprises units per village
X <sub>8</sub>	PKH (Hope Family Program)	Realization of the Family Hope Program (PKH) budget per village in rupiah
X <sub>9</sub>	BPNT (Non-Cash Food Aid)	Realization of the number of recipients of Non-Cash Food Aid (BPNT) per village

Source: Synthesis Results

## RESULTS AND DISCUSSION

### Kendal Regency Spatial Zoning

The spatial zoning used by Central Agency of Statistics (BPS) is only divided into 2 categories: urban and rural. The number of villages in the urban category is 194 villages, or more than 2 times more than the villages in the rural category, which are 92 villages (Figure 1(a)). From the clustering results of 286 villages in Kendal Regency with K-Means Clustering, it was found that there were 46 villages in the urban category, 148 villages in the suburban category, and 92 villages in the rural category (Figure 1(b)). The number of villages in the rural category is 2 times more than the number of villages in the difference category. This is different from.

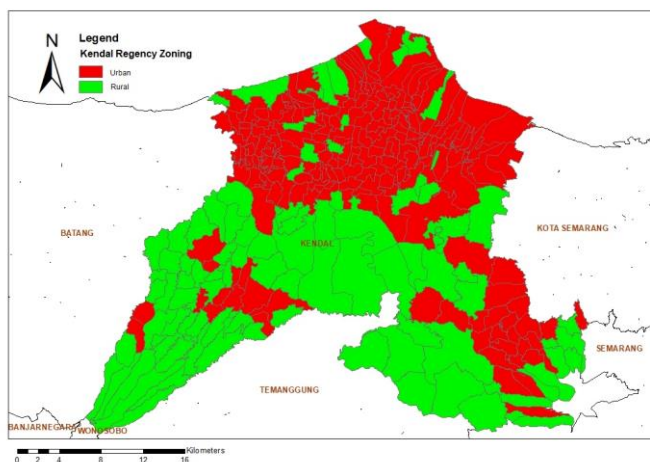


Figure 1 (a)

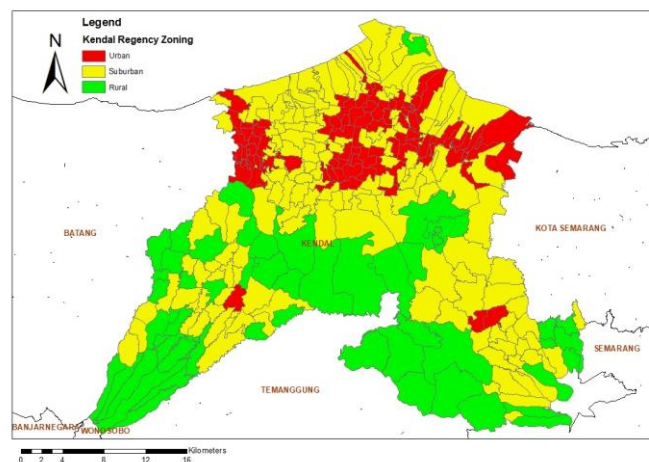


Figure 1 (b)

(a) Zoning of the Kendal Regency Area Based on Urban and Rural Categories, (b) Zoning of the Kendal Regency Area Based on Urban, Suburban, and Rural Categories

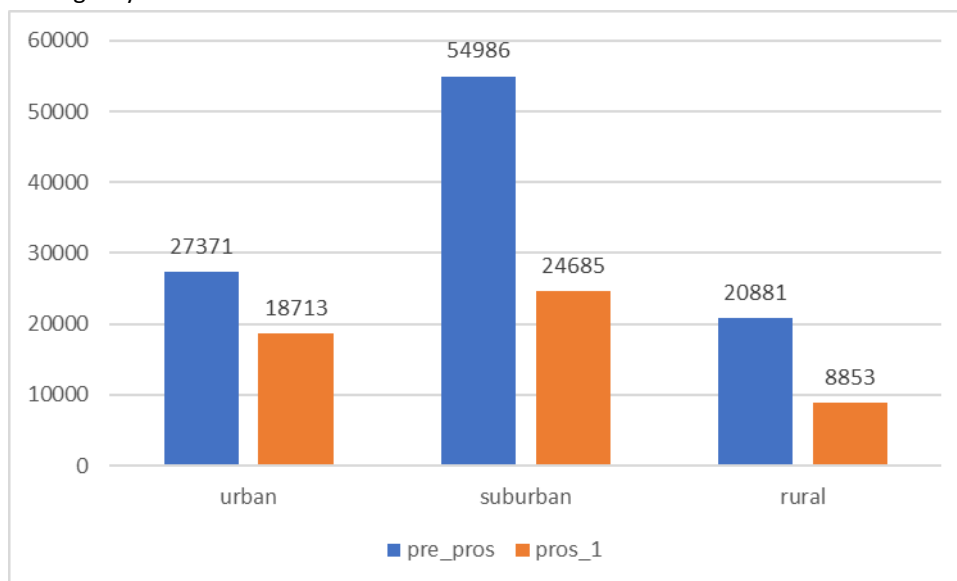
Source: results of analysis and BPS, 2020

Villages in the urban and suburban categories tend to cluster to the north, while rural areas tend to cluster to the south. In addition, most villages/s with the urban category are surrounded by villages/s with the suburban category. This condition is related to the location of the capital of Kendal Regency which is in the northern part and the existence of the Java north coast cross-road (Pantura) highway. As is well known, the Pantura route is one of the arteries of economic distribution in Java Island so that the areas passed by this route tend to develop into growth centers.

The poverty data used in this study is based on household data classified by the welfare stages released by BKKBN (National Population and Family Planning Board). The data classifies household stages based on their level of welfare, starting from Pre-prosperous Family, Prosperous Family type I, Prosperous Family type II, Prosperous Family type III, and Prosperous

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Family type III Plus. Pre-prosperous Family can be categorized as poor households, while Prosperous Family type I can be categorized as vulnerable poor households. Based on the zoning of the area, the composition of Pre-prosperous and Prosperous Type I Family in Kendal Regency is as follows:



**Figure 2. Number of Pre-prosperous and Prosperous Family Type I in Kendal Regency 2018 based on Urban, Suburban, and Rural Area**

**Source:** results of analysis and BPS

Overall, the number of Pre-prosperous and Prosperous Family type I in Kendal Regency is mostly located in suburban areas. This is in line with the trend in cities bordering major cities in various countries, which shows that poverty is prevalent in suburban areas. The data also indicates that the ratio of the number of Prosperous Family type I to Pre-prosperous Family is highest in urban areas. This suggests that the opportunity for Prosperous Family type I to "downgrade" to Pre-prosperous Family is highest in urban areas. In other words, the vulnerability to poverty is greater in urban areas.

### Variables Affecting Suburban Poverty in Kendal Regency

In order to help understand the variables that affect suburban poverty in Kendal Regency, it is important to analyze and compare the characteristics of poverty in Kendal Regency, both as a whole, and in urban and rural areas. The Linear Regression equation model used is the same.

$$\text{Ln}Y = \beta_0 + \text{Ln}\beta_1X_1 + \text{Ln}\beta_2X_2 + \text{Ln}\beta_3X_3 + \text{Ln}\beta_4X_4 + \text{Ln}\beta_5X_5 + \text{Ln}\beta_6X_6 + \text{Ln}\beta_7X_7 + \text{Ln}\beta_8X_8 + \text{Ln}\beta_9X_9 + \mu$$

Note: Ln = natural logarithm, Y = Poverty,  $\beta_0$  = constant,  $\beta_1 \dots \beta_9$  = coefficient of each variable,  $X_1$  = Distance to district capital,  $X_2$  = Population density,  $X_3$  = Non-agricultural land ratio,  $X_4$  = Number of high schools,  $X_5$  = Number of Population with High School Education,  $X_6$  = Distance to Market,  $X_7$  = Number of UMKM,  $X_8$  = Realization of PKH,  $X_9$  = Number of BPNT aid.

After analyzing using the equation model, the results are as presented in Table 4. The table shows that each variable that affects poverty in Kendal Regency has a different coefficient and significance in each area category.

**Table 3. Results of Linear Regression Analysis (OLS) Poverty Estimator Variables in Kendal Regency**

Var	Indicator	Coefficients			
		All Area	Urban	Suburban	Rural
	Constant	-3,059	0,877	-1,170	-3,975
X <sub>1</sub>	Distance to the Capital District	0,086*	-0,078	0,213***	-0,049
X <sub>2</sub>	Population density	0,137**	-0,175	0,124**	0,169
X <sub>3</sub>	Non-Agricultural Land	-0,058	-1,264	-0,546**	0,619
X <sub>4</sub>	Senior High Schools	-0,099**	-0,086	-0,096	-0,003
X <sub>5</sub>	Senior High School graduates	-0,378***	-0,516	-0,519***	-0,266**
X <sub>6</sub>	Distance to market	0,034	-0,099	0,030	0,164*

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X <sub>7</sub>	Small and Medium Enterprises	-0,038	-0,044	-0,058*	-0,017
X <sub>8</sub>	PKH (Hope Family Program)	-0,000	0,000	0,000	-0,000
X <sub>9</sub>	BPNT (Non-Cash Food Aid)	0,575***	0,649	0,368***	0,624**

Note:

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.1 level

**Source:** results of poverty analysis in Kendal Regency, 2018

Based on data analysis for Kendal Regency as a whole (without zoning into urban, suburban, and rural areas) the variables that have a significant influence are the distance to the Regency capital (10 percent significance level), population density (5 percent significance level), the number of senior high school units (5 percent significance level), the number of senior high school graduates (1 percent significance level), and the number of BNPT beneficiaries (1 percent significance level).

The variables that are interesting to observe are the variable number of realized PKH funds and the number of BNPT recipients. Budget realization for PKH was apparently not significant enough and its effect on poverty reduction was also very small. Meanwhile for the BPNT variable, even though it is significant, the value is positive. In other words, the more BPNT beneficiaries, the greater the poverty percentage. This indicates that the BPNT program is not entirely on target and therefore unable to reduce poverty.

When sorted or categorized according to the zoning of the area, it can be seen that villages which are in the category of urban areas do not have variables that significantly affect poverty. This is different from villages/which are in the category of suburban and rural areas. In suburban areas, the variables that have a significant influence are the variable distance to the capital (1 percent significant), population density (5 percent significant, the ratio of non-agricultural land (5 percent significant), the number of senior high school graduates (1 percent), the number of Small and Medium Enterprises (10 percent significant level), and the number of BNPT beneficiaries (1 percent significant level).

Meanwhile in rural areas, the variables that significantly affect poverty are the number of senior high school graduates (5 percent significance level), distance to the market (1 percent significance level) and the number of BNPT beneficiaries (5 percent significance level).

### CONCLUSION AND SUGGESTION

Based on the explanation above, it can be concluded several things as follows: *first*, using the K-Means Clustering technique, out of 286 villages/in Kendal Regency when divided into 3 regional zones (urban, suburban, and rural areas) results in 46 villages/in the urban area category, 148 villages/ in the suburban area category, and 92 village/ included in the category of rural area. *Second*, from the results of Linear Regression analysis (OLS) it is known that suburban poverty is significantly influenced by the variable distance to the capital, population density, non-agricultural land ratio, number of Senior High Schools units, number of senior high school graduates, number of Small and Medium Enterprises, and number of BNPT beneficiaries.

The suggestions that can be given after considering the results of this study: poverty alleviation programs that can be implemented in suburban areas in Kendal Regency include: increasing the establishment of senior high schools or equivalent, strengthening the 12-year compulsory education movement so that more people can achieve a minimum education of senior high school or equivalent, empowering and strengthening Small and Medium Enterprises (SMEs), and rearranging the data of BNPT recipients to be more targeted.

### REFERENCES

- 1) Adiputra MS, Rustiadi E, Pravitasari AE. 2021. *Strategi Penanganan Pemukiman Kumuh di Kabupaten Tangerang Berdasarkan Keragaman Spasial Faktor yang Mempengaruhinya* [Thesis], Bogor: IPB University
- 2) Allard SW, Paisner SC. 2016. *The Rise of Suburban Poverty*, Oxford Handbooks Online ([www.oxfordhandbooks.com](http://www.oxfordhandbooks.com)), doi: 10.1093/oxfordhb/9780199935307.013.96
- 3) Andari I, Suriadi A, Harahap RH. 2018. Analisis Perubahan Orientasi Mata Pencarian dan Nilai Sosial Masyarakat Pasca Alih Fungsi Lahan Persawahan Menjadi Lahan Industri, *Anthropos: Jurnal Antropologi Sosial dan Budaya*, 4(1):1-8
- 4) Fikri AAHS, Sholeh M, Baroroh K. 2016. Fenomena Kemiskinan Perkotaan (Urban Poverty) di Yogyakarta: Suatu Kajian Struktur dan Respon Kebijakan, [diakses 27 Maret 2021] <http://eprints.uny.ac.id/id/eprint/30973>
- 5) Grant U. 2010. *Spatial Inequality and Urban Poverty Traps*, ODI Working Paper 326, London (UK): Overseas Development Institute

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- 6) Harmadi SHB, M, Yudistira. 2008. Analisis Arah Pergerakan Aktifitas Ekonomi Jakarta terhadap Daerah Sekitarnya dengan Menggunakan Pendekatan Urban Sparwl, *Jurnal Ekonomi dan Pembangunan Indonesia*, IX(1):71-92
- 7) Kamaluddin R. 2009. *Kemiskinan Perkotaan di Indonesia: Perkembangan, Karakteristik, dan Penanggulangan*, [diakses 23 Oktober 2021] [https://www.bappenas.go.id/files/3513/5022/6052/04rustian\\_20091014131155\\_2259\\_0.pdf](https://www.bappenas.go.id/files/3513/5022/6052/04rustian_20091014131155_2259_0.pdf)
- 8) Kamim ABM, Khandiq MR, Amal I. 2019/ Paradoks Pembangunan Daerah, Implikasi Kemiskinan Pasca Alih Fungsi Lahan Pertanian Akibat Urban Sprawl di Kabupaten Sleman, *Jurnal Tradisi*, 2(1):12-25
- 9) Kneebone E. 2017. The Changing Geography of US Poverty, Di dalam *Testimony before the House Ways and Means Committee, Subcommittee on Human Resources, February 15, 2017*, <https://www.brookings.edu/testimonies/the-changing-geography-of-us-poverty/>
- 10) Kneebone E, Williams J. 2013. *New Census Data Underscore Metro Poverty's Persistence in 2012*, [accessed on March 25, 2021] <https://www.brookings.edu/research/new-census-data-underscore-metro-povertys-persistence-in-2012/>
- 11) Renggapratiwi A. 2009. *Kemiskinan dalam Perkembangan Kota Semarang: Karakteristik dan Respon Kebijakan* [Thesis], Semarang: Diponegoro University
- 12) Rustiadi E, Panuju DR. 1999. *Suburbanisasi Kota Jakarta*, article presented on Seminar Nasional Tahunan VII Persada Tahun 1999, Bogor December 6, 1999
- 13) Rustiadi E, Saefulhakim S, Panuju DR. 2011. *Perencanaan dan Pengembangan Wilayah*, Jakarta (ID): Yayasan Pustaka Obor Indonesia
- 14) Shen J, Wu F, 2017, The Suburbs as A Capital Accumulation: The Development of New Towns in Shanghai China, *Antipode*, 49(3):761-780
- 15) Sihaloho M, Dharmawan AH, Rusli S. 2007. Konversi Lahan Pertanian dan Perubahan Struktur Agraria: Studi Kasus di Mulyaharja, Kecamatan Bogor Selatan, Kota Bogor, *Sodality: Jurnal Transdisiplin Sosiologi, Komunikasi, dan Ekologi Manusia*, 253-270
- 16) Soetomo S. 2013. *Urbanisasi dan Morfologi, Proses Perkembangan Peradaban dan Wadah Ruang, Menuju Ruang yang Manusiawi*, Edisi 2, Yogyakarta (ID): Graha Ilmu
- 17) UNDP. 2013. *Sustainable Urbanization and Poverty Reduction: A Strategy Paper for Asia and The Pacific*, Bangkok (TH): UNDP APRC,
- 18) Yandri P, Juanda B. 2018. Memahami Karakter Kemiskinan Perkotaan dengan Pendekatan Observasional, *Jurnal Ekonomi dan Studi Pembangunan* 19(1):75-84
- 19) Yunus HS. 2006. *Megapolitan: Konsep, Problematika, dan Prospek*, Yogyakarta (ID): Pustaka Pelajar



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