

Population Mobility (Movement) Mapping and Policy in Banten Province

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Abstract

The aspect of population mobility in Banten Province is one of the demographic parameters that can describe the success of development, which is why writing related to mapping population mobility is important considering the very dynamic changes in demographic parameters in Banten Province. Population mobility used in this research is included in the category of permanent population mobility or can also be interpreted as migration (population movement). The research method used is quantitative with spatial descriptive analysis techniques. The elaboration stages include data collection, data processing, determining variables and overlaying digital maps. The unit of analysis in this research is the district/city where there are 4 districts and 4 cities. Mapping population mobility in Banten Province is to create a description of the data that has been obtained and display it in simple statistical form so that the public can more easily get an idea of the situation of population mobility in Banten Province. The mobility indicators studied are Incoming Migration, Outgoing Migration, Net Migration, Risen Migration, and the Percentage of Migrant Population. There are significant differences regarding the incidence of population mobility in Banten Province between North and South Banten. Greater Tangerang (Tangerang City, South Tangerang City and Tangerang Regency) is an area with a dominant composition of migrant residents. Regional status is also recorded to influence the incidence of population mobility, where the status of city areas is areas with high incidences of Incoming Migration compared to areas with district status. The policy that must be prepared regarding population mobility is facilitating the preparation of regional facilities and infrastructure related to the flow of movement and population movement, the pattern of which is increasing every year.

Keywords: Mapping, Policy, Population Mobility, Banten Province

INTRODUCTION

High population growth should be balanced by an even distribution of population. The population in Banten Province is recorded as not being evenly distributed, so we find that there are areas that are densely populated and there are areas where the opposite is true. The area with the highest population density is in Tangerang City, namely per km² there are 14,486 people, while the area with the lowest density is Lebak Regency, namely only 380 people per km² (Banten in Figures, 2023).

Thinking about population development and the various aspects that influence each other gives a phenomenon that population problems must be broken down into simpler aspects. Aspects of population quantity, population quality aspects and population mobility in Banten Province are demographic parameters that can describe the success of development in Banten Province. Therefore, studies related to population development mapping are important to carry out considering the very dynamic changes in demographic parameters as a result of the Banten Province region which is geographically an investment gateway in Indonesia, the entrance to the island of Java from Sumatra, a buffer area for the capital city of Jakarta and easy and smooth transportation accessibility. . Apart from the very dynamic population conditions in Banten Province, another interesting thing is that there are quite significant differences in the eight city districts in Banten Province in terms of quantity, quality and mobility based on geographical conditions, as well as socio-cultural aspects. Furthermore, the results of population development

mapping will be used as a source of data, documents or references in development planning in Banten Province.

The mobility (population movement) used in this research is included in the category of permanent population mobility or can also be interpreted as migration (population movement). Migration or permanent movement is a component of population growth besides fertility and mortality. However, compared with fertility and mortality data, migration data is still very scarce. Migration is a very rare demographic event, not everyone experiences it. Apart from that, if it is differentiated from fertility and mortality which only occur once in a lifetime, migration can occur many times in a person's life so that migration data from surveys is generally not good because it is related to small sample size. Meanwhile, migration data sourced from administrative records is still far from perfect.

The following is data related to migration by district/city in Banten Province using data from the 2015 Inter-Census Survey (SUPAS).

Table 1. Incoming Migration, Outgoing Migration, Net Migration and Risen Migration in Banten Province 2022

Kabupaten/Kota	Migrasi Masuk (Jiwa)	Migrasi Keluar (Jiwa)	Migrasi Nett (Jiwa)	Migrasi Risen (Jiwa)
Pandeglang	49.158	199.749	150.591	33.536
Lebak	64.415	121.299	56.844	-13.312
Tangerang	753.370	158.831	594.539	40.124
Serang	138.735	177.463	38.728	13.381
Tangerang	881.096	134.489	746.607	84.212
Cilegon	87.609	24.731	62.878	2.168
Serang	129.454	45.363	84.091	11.696
Tangerang Selatan	699.227	29.340	669.887	39.116

Source: Banten Migration Statistics, 2015 Inter-Census Population Survey Results, BPS Indonesia

In this research, the Inbound Migration used refers to Lifetime Inbound Migration. A person is said to be a migrant during life if the province or district/kodya where he was born is different from the province or district/kodya where he currently lives (at the time of the census). Migration figures describe the number of people whose place of birth is different from where they live now. The higher the migration rate during life, the greater the number of people whose current place of residence is different from their place of birth, and vice versa. Tangerang City is the area most visited by migrants in Banten Province, namely 881,096 people according to the latest data, while the area visited by the least migrants is Pandeglang Regency, namely 49,158 people.

Table 2. Percentage of Migrant Population in Banten Province 2022

Kabupaten/Kota	Migran	Non Migran	Persentase Migran
Pandeglang	59.534	1.134.645	4,99
Lebak	79.861	1.189.180	6,29
Tangerang	772.648	2.589.092	22,98
Serang	176.058	1.297.413	11,95
Tangerang	900.762	1.142.451	44,09
Cilegon	91.439	158.773	36,54
Serang	153.326	488.879	23,87
Tangerang Selatan	708.098	830.872	46,01

Source: Banten Migration Statistics, 2015 Inter-Census Population Survey Results, BPS Indonesia

RESEARCH METHOD

The research method used in this research is a quantitative research method with spatial descriptive analysis techniques. The elaboration stages include data collection, data processing, determining variables and overlaying digital maps. The boundaries of the research area or unit of analysis in this research are districts. There are 4 (four) districts and 4 cities in Banten Province.

Classifying Incoming Migration into the number of classes obtained from the Sturges Formula with district/city analysis units in Banten Province. This classification uses statistical formulas, namely:

$$\text{Class Interval} = \frac{\text{Maximum Value} - \text{Minimum Value}}{\text{Number of Classes}}$$

Then a Classification Mapping Pattern was created for Incoming Migration, Outgoing Migration, Net Migration and Percentage of Migrants. The migration data presented in this research comes from the results of the 2015 Inter-Census Population Survey (SUPAS 2015). The approach used to define population in SUPAS 2015 is the "de jure" concept, namely recording someone who usually resides/has a permanent residence.

The aim of mapping Incoming Migration in Banten Province in 2017 per district/city is to create a description of the data that has been obtained and display it in simple statistical form so that the public can more easily get an idea of the situation of Incoming Migration in Banten Province. First, you need to know the number of classes that must be created and determine how long the interval for each class is. This helps in distributing the values in the data. The formula for determining the number of classes is as follows (Susanti, 2010).

$$K = 1 + 3,3 \log N \dots \dots \dots (1)$$

The number of classes obtained based on formula (1) with total data (N) for 8 districts/cities is as follows:

$$\begin{aligned} K &= 1 + 3,3 \log N \\ &= 1 + 3,3 \log 8 \\ &= 1 + 3,3 (0,903) \\ &= 1 + 2,98 = 3,98 \approx 4 \text{ class} \end{aligned}$$

The number of classes from this distribution data is 3.98 and is rounded to 4 classes. After the number of classes is obtained, it is necessary to calculate the interval for each class. Class intervals are calculated using the following formula (Susanti, 2010):

$$C = \frac{\text{data terbesar} - \text{data terkecil}}{K} \dots \dots \dots (2)$$

Class intervals in this study were calculated by taking Incoming Migration data per district/city in Banten Province in 2015. The smallest data value for population composition based on Incoming Migration was in Pandeglang Regency, namely 49,158 and the largest data value for Incoming Migration was in Tangerang City, namely 881,096. The class interval for the Incoming Migration class based on formula 2 is as follows:

$$\begin{aligned} &= \frac{881.096 - 49.158}{4} \\ &= 207.985 \end{aligned}$$

RESULT AND DISCUSSION

Frequency distribution table for Incoming Migration obtained based on calculation results with the number of classes (K) being 4 classes and the Incoming Migration class interval being 207,985 in each class shown in the table below:

Table 3. Distribution of Incoming Migration Classes

Kelas	Migrasi Masuk	Kabupaten Kota
I	49.158 – 257.143	Kabupaten Pandeglang, Kabupaten Lebak, Kabupaten Serang, Kota Cilegon, Kota Serang
II	257.144 - 465.129	-
III	465.130 - 673.115	-
IV	≥ 673.116	Kabupaten Tangerang, Kota Tangerang, Kota Tangerang Selatan

Source: Data Processing, 2023

From the classification table above, you can clearly see the gap between the flow of Incoming Migration in the Greater Tangerang area and other regions. All areas in Greater Tangerang (Tangerang Regency, Tangerang City and South Tangerang City) are included in the Class IV category or the highest class of Incoming Migration flows, while other areas apart from Greater Tangerang are included in Class I or the lowest class of Incoming Migration flows in Banten Province.

Pandeglang Regency is the area that experiences the most outbound migration in Banten Province, namely 199,749 people according to the latest data, while the area that has the least number of outmigration incidents is Cilegon City, namely 24,731 people. The frequency distribution table for Out Migration obtained based on calculation results with the number of classes (K) being 4 classes and the Out Migration class interval being 43,754.50 in each class is shown in the table below:

Table 4. Out-Migration Class Distribution

Kelas	Migrasi Keluar	Kabupaten Kota
I	24.731 - 68.486	Kota Cilegon, Kota Serang, Kota Tangerang Selatan
II	68.487 - 112.242	-
III	112.243 - 155.998	Kabupaten Lebak, Kota Tangerang
IV	≥ 155.999	Kabupaten Pandeglang, Kabupaten Lebak, Kabupaten Tangerang

Source: Data Processing, 2023

From the classification table above, it can be seen that areas with city status have relatively low out-migration conditions compared to areas with district status, meaning that residents in areas with district status have a different pattern of leaving their area than residents in urban areas.

The difference between Incoming Migration and Outgoing Migration is known as Net Migration. Pandeglang Regency is an area dominated by Outgoing Migration compared to Incoming Migration so there is a difference of -150,591 people, while the area that received the most additional migrants due to the dominance of Incoming Migration is Tangerang City, namely 746,607 people.

Similar to the conditions of Incoming Migration, the conditions of Net Migration in Banten Province experience disparities in the northern part with other parts of the region. Net Migration, which is the difference between Incoming Migration compared to Outgoing Migration, is dominated by the Highest Class in the Greater Tangerang area (Tangerang Regency, Tangerang City and South Tangerang City). This means that the northern region of Banten Province is dominated by incoming migration compared to outgoing migration. The opposite happens in other parts, especially in the southern part of Banten, which even has a negative value for Net Migration, meaning that there are more Outward Migration incidents than Incoming Migration, occurring in Lebak Regency, Pandeglang Regency and Serang Regency. Frequency distribution table for Net Migration obtained based on calculation results with the number of classes (K) being 4 classes and the Net Migration class interval of 224,299 in each class is shown in the table below:

Table 5. Net Migration Class Distribution

Kelas	Migrasi Nett	Kabupaten Kota
I	-150.591 – 73.708	Kabupaten Pandeglang, Kabupaten Lebak, Kabupaten Serang, Kota Cilegon
II	73.709 – 298.008	Kota Serang
III	298.009 – 522.308	-
IV	≥ 522.309	Kabupaten Tangerang, Kota Tangerang, Kota Tangerang Selatan

Source: Data Processing, 2023

The city of Tangerang was identified as the region with the most recent migrants, namely 84,212 people, while the region in the southern part of Banten Province, Pandeglang and Lebak Regency, had the opposite condition, Pandeglang Regency had a shortage of around 33,536 people in the past five years, Lebak Regency had a reduction of 13,312 people. The same thing also happened in Serang Regency, which within five years experienced shortages or its population moved to other areas with 13,381 residents. The frequency distribution table for Risen Migration obtained based on calculation results with the number of classes (K) being 4 classes and the Risen Migration class interval being 12,669 in each class is shown in the table below:

Table 6. Risen Migration Class Distribution

Kelas	Migrasi Risen	Kabupaten Kota
I	-33.536 – (-20.867)	Kabupaten Pandeglang
II	-20.868 – (-8.199)	Kabupaten Lebak, Kabupaten Serang
III	-8.200 – 4.469	Kota Cilegon
IV	≥ 4.470	Kabupaten Tangerang, Kota Tangerang, Kota Tangerang Selatan, Kota Serang

Source: Data Processing, 2023

Similar to the conditions of Incoming Migration and Net Migration, Risen Migration is still dominated by areas in the North, namely Greater Tangerang (Tangerang Regency, Tangerang City and South Tangerang City) which are included in the Class IV classification or the highest Risen Migration class in Banten Province. However, there is an interesting phenomenon here, namely the rapid rise of Serang City to become the region that has the highest Inbound Migration conditions besides Greater Tangerang. This illustrates that in the last five years Serang City has experienced a surge in Incoming Migration compared to other regions besides the Greater Tangerang area. This is certainly a challenge and opportunity, especially for the Serang City Government.

Table 7. Class Distribution Percentage of Migrant Population

Kelas	Persentase Penduduk Migran	Kabupaten Kota
I	4,99 – 15,25	Kabupaten Pandeglang, Kabupaten Lebak, Kabupaten Serang
II	15,26 – 25,52	Kota Serang, Kabupaten Tangerang
III	25,53 – 35,79	-
IV	≥ 35,80	Kota Tangerang Selatan, Kota Tangerang, Kota Cilegon

Source: Data Processing, 2023

From the table above, it is identified that the area in Greater Tangerang (Tangerang Regency, Tangerang City and South Tangerang City) is the area with the largest number of migrants as part of its population, even for Tangerang City and South Tangerang City, almost half of the population are migrants or immigrants. This is in contrast to the situation in southern Banten, which is the region with the lowest migrant population composition. As for Cilegon City, it is the only region not in the North that is in the Class IV calcification category or the highest class with a percentage of migrants compared to its non-migrant population, and Serang City also has a pattern that is starting to follow the region in Greater Tangerang.

CONCLUSION

Mapping population development in Banten Province is used as a basis for regional development planning in all fields and helps the government to make the right decisions to carry out development in accordance with the characteristics of the existing population. Data and information resulting from population development analysis will be useful for planning the provision of basic needs, health facilities, education, housing and employment opportunities.

The analysis of mapping population development in Banten Province aims to present the results of the analysis with an overview of basic information from the spatial aspect. Population development in this research is seen from the Population Mobility aspect, limited to Incoming Migration, Outgoing Migration, Net Migration, Risen Migration and the Percentage of Migrants to the Total Population.

The gap between the flow of Incoming Migration in the Greater Tangerang area and other regions. All regions in Greater Tangerang (Tangerang Regency, Tangerang City and South Tangerang City) have the highest Incoming Migration flows, while other regions besides Greater Tangerang have the lowest Incoming Migration flows in Banten Province.

Residents in areas with district status have a different pattern of leaving their area than residents in urban areas.

The rise of Serang City to become the region that has the highest Inbound Migration conditions besides Greater Tangerang, this illustrates that in the last five years Serang City has experienced a surge in Incoming Migration compared to other regions besides the Greater Tangerang area. This is certainly a challenge and opportunity, especially for the Serang City Government.

Some suggestions or recommendations that can be made for population developments occurring in Banten Province are as follows:

- Coordinating with OPD/Institutions/Universities/NGOs regarding population parameters, current population situation and population developments in Banten Province.
- Carrying out Advocacy related to Coordination and partnerships with regional agencies and agencies as well as partners related to population issues (Grand Design for Population Development, Population Profile, Data House as well as Coordination and partnerships with regional agencies and agencies and related partners).
- Coordinating regarding the urgency of population data as outlined in the Population Development Mapping document for each City Regency.

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Biodata

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