Analysis of circular population migration pattern from Sigi Regency to Palu City

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Abstract

Urbanization is closely related to regional development. The population migration in Palu City is mostly caused by the people's needs to fulfill their needs. This study aims to identify the migration pattern of the residents of Sigi Regency to Palu City. This study used a descriptive quantitative method and gathered data from secondary data on the Labor Force (AK) from the Center Bureau of Statistics of Palu City in 2015 and 2019. Meanwhile, the data analysis was carried out using gravity analysis to see the interactions and linkages between Palu City and Sigi Regency. Our data analysis results indicate that the migration pattern of the non-permanent population in Palu City was daily, weekly and monthly pattern and dominated by circular migration. Based on the gravity analysis, as a center of development, Palu City has an intensive and close interaction with Sigi Regency. Factors that influence this pattern of migration are accessibility, distance, facilities, and infrastructure. Meanwhile, population and the amount of regional income are the reasons for the interaction between regions. This research can be used as a reference in the learning related to urban village Geography.

Keywords: population mobility; regional development; Palu City

1. Introduction

Urbanization has a close correlation with regional development. Population migration is mainly caused by the location of abundant resources. Similarly, the need to fulfilling daily needs is the primary reason for population migration to Palu, Central Sulawesi, Indonesia. An area with excellent accessibility carries great potential to be developed into a built-up area that bolsters urbanization (Widiawaty, Dede, & Ismail, 2018). A city development offers great physical construction that promotes human civilization, along with various adverse effects (Alhogbi, 2017).

Population migration refers to the mobility of people to areas with a particular purpose and time limit. There are numerous push and pull factors of population migration. Commonly, a limited social economy situation hindering the fulfillment of daily needs motivates people to migrate to other areas that provide more significant resources (Agusta, 2013). Thus, people frequently move to an area with a more significant number of resources to ensure the fulfillment of their needs. Additionally, urban compactness represents the density and diversity (spatial pattern) of a city, the central cause of population movement that may result in heavy traffic in the urban area (Dzulfikar & Syafriharti, 2018).

One of the substantial features of urbanization is the wider advancement of the urban area. During this expansion, a transformation also occurs in the hinterland area, obscuring the border between the rural and urban areas (Mardiansjah & Rahayu, 2020). On one side, the

migrant workers can be the resources required in the city development process, but they also enhance the environmental load as they increase the population density. The significant increase in population density can result in issues regarding the provision of housing and basic sanitation service (Sidabutar, 2020). Therefore, the decision-making process for migrating to another place can be challenging since it requires comparably huge resources and a social network (Rachmawati & Latifa, 2020).

In addition, the data from the Central Bureau of Statistics of Central Sulawesi in 2019 showed unequal population distribution in Central Sulawesi, mostly associated with the development process. Most of the development processes are concentrated in the City of Palu, the capital of Central Sulawesi Province, resulting in a disparity of development in its hinterland areas. Consequently, the population mostly migrates to Palu. As a center of development, Palu bears the pull factors for people from the rural areas. Additionally, a city is a system of the human network characterized by its population density and materialistic manner (Desiyana, 2017). As the center of economic activities and development, Palu has been an appealing alternative for job seekers from Sigi Regency, Central Sulawesi, Indonesia. Many people from Sigi Regency are working in Palu. However, its heavy urban facilities have reduced the environmental quality in Palu. This problem corresponds with the recent global warming issues indicated by the increasing temperature caused by uncontrollable development activities (Achsan, Rizkhi, & Awalia, 2019).

A great number of Sigi Regency's population are reported to have non-permanent (circular) migration to Palu since Palu offers annually increasing regional minimum wage, along with various other facilities, such as health, educational, transportation, and entertainment facilities. As observed from the usage of the land, Palu's economic activity mainly consists of industrial activities, along with businesses in trading, service, hotel, food, and beverage. These sectors made a 55.96% significant contribution to the gross regional domestic product of Palu in 2012 (Muamar, 2014). The recent accelerated development of Palu is also bolstered by the establishment of planned and unplanned settlements in the city (Mardin, 2011).

Most of the people migrating to Sigi Regency are in the productive ages (15-64 years old) and advancing their education. The migrant (permanent and non-permanent) in the urban areas brings both positive and negative effects, depending on the perspective from which we observe it (Romdiati & Noveria, 2006). This migration phenomenon can be investigated through the assessment of an individual's mobility behavior (Sarmita & Treman, 2019). The increasing urban population and the increasing needs in the fields of politics, economy, culture, and technology have accelerated the activities of urban people (Puspitosari, 2014). The circular migration phenomena happening every day in the City of Palu and Sigi Regency have formed a population migration pattern. Thus, this study aims to identify the circular population migration from Sigi Regency to Palu. The results of this study can be a reference for the government and relevant stakeholders in formulating the policies applicable to circular mobility in Palu.

2. Method

This descriptive qualitative study garnered data from the secondary data of the Center Bureau of Statistics of Palu in 2015 and 2019. The obtained data were analyzed using gravity analysis and the comparative descriptive method. The gravity analysis was used to observe the

interaction and correlation between Palu, as the center of development, and Sigi regency, as the supporting area that forms population migration between them. Through gravity analysis, the correlation between these areas was estimated using Formula 1 (Ramlah, Suparman, & Adda, 2017).

$$I_{1,2} = \frac{(W1 \times P1) + (W2 \times P2)}{J1,2} \tag{1}$$

Description:

$I_{1,2}$: Gravity value between areas 1 and 2

W1   : Gross regional domestic product of area 1

W2   : Gross regional domestic product of area 2

P1   : Number of populations of area 1

P2   : Number of populations of area 2

J1, 2 : Distance between areas 1 and 2

3. Results and Discussion

3.1. Physical Situation of Palu City

Palu City has an area of 395.06 km², divided into eight districts and 45 villages with a definitive status that has been classified as self-sufficient. These villages and districts are stretched from the south (South Palu Village) to the north (Taweali Village). The district with the broadest area is Mantikulore District, with an area of 206.8 km², while the smallest district is East Palu District, with an area of 7.7 km². Astronomically, Palu City is located in 0°,36"-0°,56" South Latitude and 119°,45"–121°,1" East Longitude (Figure 1). Meanwhile, from its topography, Palu City is located at an average height of 0 – 700 meters above the sea (Sarapang, Rogi, & Hanny, 2019).

As the capital of Central Sulawesi Province, Palu City's development is continuously increasing. This development is also bolstered by Palu's location in the valley and bay areas. The valley presents the potential for agricultural business, as well as for the governmental area, which affects the other activities. From the total 395.04 km² area of Palu, our observation results showed that 60.05% of the area was used as a residential area equipped with various facilities and infrastructure.
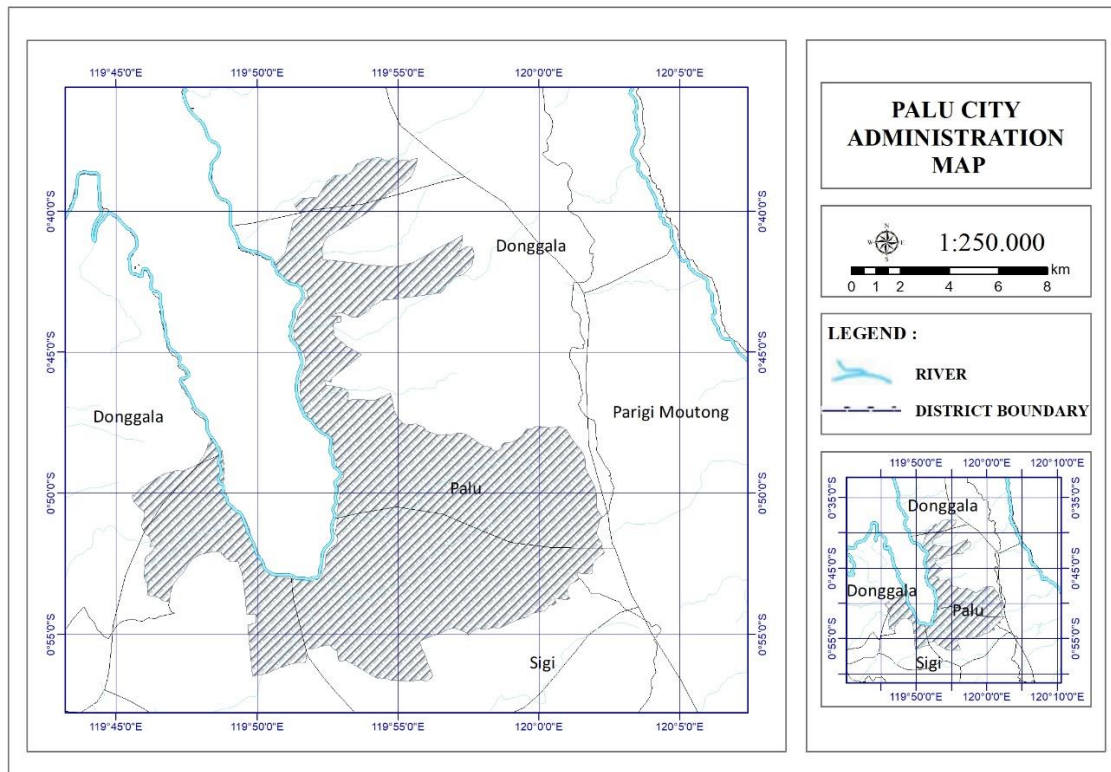
Figure 1. Administrative Map of Palu City

3.2. Palu City as A Development Center

Aside from being the center of industrial and economic activities, Palu has also become the center of services for the urban and its hinterland people. Besides, Palu is positioned as a center of development since it has the required facilities for economic development in the industrial, trade, and service businesses. As a center of development, Palu has high activities as the population aims to fulfill their daily needs. These activities of people form a population migration pattern between areas around Palu (Woltjer, 2014). The development in Palu is aimed to enhance the well-being of its people as a form of support from the government institution and the society (Nazaruddin, 2015). Consequently, the phenomena has transformed numerous aspects, such as in the usage of land and in the social economy aspects, consisting of the number of populations, facilities, infrastructure, income, and accessibility (Theresiana & Dewi, 2013). The increasing population and built-up area are indicators of a city's development. The significantly improved built-up areas in Palu have illustrated its rapid development (Saputra, Rahmawati, & Listiqowati, 2019).

In addition, with the changing usage of land in Palu, the number of its facilities and infrastructure are also improved to ensure the maximum service provision for the people (Mardin, 2011). The substantial economic growth of Palu is indicated by an 8.10% increase in the gross regional domestic product in 2015 from 2010, equal to 13,174,202 rupiahs. With a series of supporting policies from the government, the economic growth of Palu is linear with its development. A more dense and complex transportation network in a city illustrated its high accessibility and ability to interact with its surrounding areas (Murtadho, Wulandari, Wahid, & Rustiadi, 2018).

3.3. Correlation between Palu City and Sigi Regency Based on the Gravity Analysis

Palu City is identic with its excellent facilities and infrastructures, reflecting its rapid economic development compared to other areas. This substantial growth opens excellent working opportunities for the people in its surrounding areas, such as the people from Sigi Regency. This expeditious development is also illustrated through the formation of hinterland areas (Mardiansjah & Rahayu, 2019). The hinterland area is composed due to the relatively low price of land and close distance to the urban area (Martini, 2011). The calculation of the correlation between Palu City and Sigi Regency using the gravity model is presented below.

Correlation between Palu City and Sigi Regency

$$I_{1,2} = \frac{(W1 \times P1) + (W2 \times P2)}{J1,2}$$

$$= \frac{(13,174,202 \times 385.6) + (5,177,537 \times 234.5)}{30,000}$$

$$= 40,554,121$$

The results of gravity analysis showed that between 2015 to 2019, Palu City and Sigi Regency experience development. Sigi Regency's development occurs as it has relatively close proximity of 30 km to Palu.

3.4. Circular Migration in Palu City

Urbanization bears influences on the more massive development in Palu. The urban sprawl that is followed by dense settlement indicates the increasing number of the migrant in the hinterland areas of Palu (Wagistina & Antariksa, 2019). As the center of economic activities, Palu has captivated the people from Sigi Regency to seek jobs in the city. With this rapid development and improvement, Palu will continue to advance even with no proper planning (Lutfi, 2012).

Population migration in Palu has a firm connection with urban-biased development. Besides, the migration pattern in Palu is dominated by non-permanent migration, characterized by less skillful migrants who mostly work in the non-formal sector. The area with the highest tendency of migration is located close to Palu. Meanwhile, the population migration from Sigi Regency to Palu is mostly motivated by the availability of resources used to fulfill their daily needs. This pattern is formulated due to individual motivation (push factor) and the appeal from Palu City (pull factor). The number of workforces migrating back and forth to Palu increased significantly in 2019 compared to 2015.

In 2019, the number of commuting workers from Palu to Sigi Regency was 1961 people. The high number of circular migrations in Palu is caused by the availability of excellent information and transportation infrastructure, as well as health, education, and entertainment facilities. Besides, people prefer to be commuting workers to Palu due to the better wages and job opportunities in Palu as it has substantially grown its economy and investment, such as in the field of trade.

3.5.   Non-Permanent Population Migration Pattern in Palu

The recent population migration in Palu has progressed speedily. This pattern reflects the historical policies, economic characteristics, and changes in land usage (Divigalpitiya & Handayani, 2015). This commuting mobility appears as the people in Sigi attempt to fulfill their needs in Palu. The migration pattern of these non-permanent populations in Palu City is daily, weekly, and monthly, dominated by circular migration. On average, the people in Sigi Regency have been non-permanently migrated for one to five years in Palu. These people spend around thirty minutes going to Palu. However, the recent COVID 19 pandemic has transformed population migration, but the population migration during this pandemic situation has not been recorded in the population statistical data. Most people only migrate in a limited geographical reach, such as in their residential area or from their houses to markets, supermarkets, drugstores, or working places.

4. Conclusion

The population migration from Sigi Regency to Palu is caused by the people's attempt to fulfill their needs. The results of our gravity analysis showed that Palu is a center of development that has an intensive interaction with the Sigi Regency. The factors of accessibility, distance, adequate facilities, and infrastructure, as well as the population and the average regional wage, have induced this population migration.

References

Achsan, A. C., Rizkhi, R., & Awalia, R. (2019). Perencanaan lanskap kawasan perkotaan Kota Palu berbasis mitigasi temperatur permukaan lahan. *Jurnal Belantara*, *2*(1), 43–52. https://doi.org/10.29303/-jbl.v2i1.97

Agusta, A. (2013). Faktor-faktor yang mempengaruhi mobilitas penduduk ke desa Kota Bangun Dua Kecamatan Kota Bangun Kabupaten Kutai Kartanegara. *EJournal Pemerintahan*, *1*(2), 862–874.

Alhogbi, B. G. (2017). Urban sprawl di Kota Semarang: Karakteristik dan evaluasinya terhadap rencana detail tata ruang kota. *Journal of Chemical Information and Modeling*, *53*(9), 21–25.

Desiyana, I. (2017). Urban sprawl dan dampaknya pada kualitas lingkungan. *Jurnal Komunikasi Visual ULTIMART*, *9*(2), 16–24.

Divigalpitiya, P., & Handayani, K. N. (2015). Measuring the urban expansion process of Yogyakarta City in Indonesia: Urban expansion process and spatial and temporal characteristics of growing cities. *International Review for Spatial Planning and Sustainable Development*, *3*(4), 18–32. https://doi.org/-10.14246/irspsd.3.4_18

Dzulfikar, F., & Syafriharti, R. (2018). Pengaruh tingkat kekompakan perkotaan terhadap karakteristik pergerakan penduduk di Kota Bandung. *Jurnal Wilayah dan Kota*, *5*(2), 9–15.

Lutfi, L. (2012). Pengembangan wilayah sebagai konsep Kota Baru. *Jurnal SMARTek*, *5*(1), 30–39.

Mardiansjah, F. H., & Rahayu, P. (2019). Urbanisasi dan pertumbuhan kota-kota di Indonesia: Suatu perbandingan antar wilayah makro Indonesia. *Jurnal Pengembangan Kota*, *7*(1), 91–110. https://-doi.org/10.14710/jpk.7.1.91-108

Mardiansjah, F. H., & Rahayu, P. (2020). Perkembangan kawasan perkotaan kecil di pinggiran Kota Pekalongan. *Jurnal Geografi Gea*, *20*(2), 151–168. https://doi.org/10.17509/gea.v20i2.25842

Mardin, R. (2011). Analisis perkembangan fisik Kota Palu dengan citra landsat. *Ruang*, *3*(1), 45–54.

Martini, E. (2011). Perkembangan kota menurut parameter kota (studi kasus: Wilayah Jakarta Pusat). *Planesa*, *2*(2), 131–135.

Muamar, A. (2014). Pada struktur ruang pusat Kota Palu. *Katalogis, 5*(4), 194–205.

Murtadho, A., Wulandari, S., Wahid, M., & Rustiadi, E. (2018). Perkembangan wilayah dan perubahan tutupan lahan di Kabupaten Purwakarta sebagai dampak dari proses konurbasi Jakarta-Bandung. *Journal of

Regional and Rural Development Planning, *2*(2), 195. https://doi.org/10.29244/jp2wd.2018.2.2.195-208

Nazaruddin, T. (2015). Perencanaan kota secara komprehensif berbasis hukum integratif menuju pembangunan kota berkelanjutan (comprehensive urban planning based on integrative law towards sustainable urban development). *Jurnal Cita Hukum, 3(2), 95533*.

Puspitosari, P. (2014). Kajian mobilitas penduduk sirkuler di Kecamatan Waru Kabupaten Sidoarjo. *Jurnal Geografi*.

Rachmawati, L., & Latifa, A. (2020). Lintasan penghidupan (livelihood trajectories) dan migrasi lingkungan di Delta Mahakam. *Jurnal Kependudukan Indonesia*, *15*(1), 103. https://doi.org/10.14203/jki.v15i1.475

Ramlah, M. W., Suparman, S., & Adda, H. W. (2017). Pengaruh Kota Palu sebagai pusat pertumbuhan terhadap pertumbuhan ekonomi wilayah Hinterland. *Katalogis, 5*(9), 72–79.

Romdiati, H., & Noveria, M. (2006). Mobilitas penduduk antardaerah dalam rangka tertib pengendalian migrasi masuk ke DKI Jakarta. *Jurnal Kependudukan Indonesia*, *1*(1), 13–28.

Saputra, I. A., Rahmawati, R., & Listiqowati, I. (2019). Urban sprawl in Palu City. *Tadulako Sciencetech Journal*, *1*(1), 12–25.

Sarapang, H. T., Rogi, O. H. A., & Hanny, P. (2019). Analisis kerentanan bencana tsunami di Kota Palu. *Spasial*, *6*(2), 432–439.

Sarmita, I. M., & Treman, I. W. (2019). Studi mobilitas penduduk: Analisis mikro perilaku mobilitas mahasiswa Jurusan Pendidikan Geografi Universitas Pendidikan Ganesha. *Jurnal Ilmiah Ilmu Sosial*, *3*(2), 117–128. https://doi.org/10.23887/jiis.v3i2.16519

Sidabutar, N. V. (2020). Hubungan migrasi terhadap tingkat kualitas sarana sanitasi rumah tangga di Jakarta: Analisis data mikro Susenas 2017. *Jurnal Kependudukan Indonesia*, *15*(2), 165–182.

Theresiana, E., & Dewi, S. P. (2013). Analisis perkembangan struktur ruang kawasan bersejarah Kampung Kauman Kota Semarang. *Teknik PWK (Perencanaan Wilayah Kota)*, *2*(3), 851–862.

Wagistina, S., & Antariksa, A. (2019). Urban sprawl and residential segregation in Western Suburb Area of Malang City, East Java, Indonesia. *Jurnal Pendidikan Geografi: Kajian, Teori, dan Praktek dalam Bidang Pendidikan dan Ilmu Geografi, 24*(1), 11–24. https://doi.org/10.17977/um017v24i12019p011

Widiawaty, M. A., Dede, M., & Ismail, A. (2018). Analisis tipologi urban sprawl di Kota Bandung (urban sprawl typology analysis in Bandung City using geographic information system). *Seminar Geomatika*, *3*(October), 547–554.

Woltjer, J. (2014). A global review on peri-urban development and planning. *Jurnal Perencanaan Wilayah dan Kota*, *25*(1), 1–16. https://doi.org/10.5614/jpwk.2014.25.1.1