Income Distribution Between Local and Migrant Households in Pheri-Urban of Malang City, East Java Province, Indonesia

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Abstract

This current research aimed at analyzing income distribution between local and migrant households in Lowokwaru District, Malang City. This research occupied a quantitative method by means of a survey. Further, the sample taken for the research comprised 100 households, represented by 50 local and 50 migrant households. The data of income were analyzed by using the Gini ratio, Lorenz curve, and income earning method of World Bank. The results have shown that the income distribution based on log-normal and log-logistic has signified 0.75 – 1.00. Gini ratio index has proved that there is unequal income distribution with the scale from high to perfect level. Meanwhile, Lorenz curve has shown that the highest proportion of income occurs at the high-income interval of the migrant households, and its proportion is shown to decrease along the low income interval of the local households. In other words, the income distribution in Lowokwaru District is far below the diagonal or equity line. In addition, the income earning based on World Bank method has exhibited that as many as 40% of the group with the lowest income has been shown to earn merely 9%. This unequal income distribution, remarking economic discrepancy, has been existent due to different socio-economic characteristics between local and migrant households.

Keywords: income distribution, Gini ratio, Lorenz curve, income earning, local and migrant households

INTRODUCTION

Peri-urban area refers to a transitional zone interconnecting rural and urban areas due to spatial transformation process. As it is transforming from rurality to urbanity, suburban area frequently deals with social, economic, and cultural issues. Specifically, a research [1] has shown that there are some factors that influence the peri-urban areas of Malang City, comprising population, policy, accessibility, the presence of public activity center, and the role of residential developer.

The existence of residential developer plays a significant role for the establishment of planned residential areas. On the other hands, that the land's price keeps going high has raised people's desire and motivated them to choose suburban area around Malang City to reside. Many of the residential developers make use of such situation to keep developing planned residential areas. Most of the areas are located on farmlands, which causes significant farmland constringency and accelerates the growth of residences built on the farmlands in the suburban area. Further, the research [1] has revealed that the fastest growth

of built-up land at peri-urban areas in Malang City has been detected in Lowokwaru District accounted for 25.90% or 585.54 Ha during the period of 1990-2010, categorized as city-framing area. In other words, there has occurred a gradual interchange of land function from the state of non-built-up to built-up lands.

The growth of planned residential areas is dependent on the newcomers' existence residing at the peri-urban areas of Malang City, which is commonly termed as urbanization. The phenomenon of urbanization tends to be happening, either in secondary or metropolitan cities. The research [2] has shown that the growth of the secondary cities has leaned towards stagnancy; while suburbanization process occurs in the metropolitan cities. However, the secondary cities are more specialized. The specialization performed at the secondary cities in Indonesia has outlined a definite characteristic which differentiates them from other secondary cities. This means that the process of urbanization is not only about demographical process, but non-demographical as well.

Both of the processes happen simultaneously. By logic, the growth of population in peri-urban areas would result in a variety of economic activities. Alluding to some studies in some big cities in Indonesia, it is shown that some of peri-urban areas have experienced significant

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interchange – from being city-framing areas to new independent and urbanized areas. The independence of peri-urban areas has directly implied an effect of polarization on economic activities in urban areas. Further, some other researches [3] [4] [5] [6] have shown that the polarization on economic activities could contribute to both positive and negative impacts upon economic development in peri-urban areas. Some arising issues in peri-urban areas are the manifestation of the excessive development and growth in Malang City.

Gradually, there is an indication of poverty found in new peri-urban areas. In fact, most of local residents have submissively sold their farmlands to residential developers, especially to meet residential fulfillment for migrants, which results in farmland constringency or even serious shortage. To work other than in agricultural sector would be something seemingly impossible to actualize as their main capability is not more than being farmers. As a solution to such a problem, some of farmers work on informal sectors, such as being construction workers, factory workers, housemaids, or street vendors. The salary they earn from working at those sectors only suffices to meet their minimum physical needs. This sort of condition is critical as it potentially becomes a new determinant factor that triggers poverty in peri-urban areas of Malang City. In addition, the occupational shift, from farmer to worker at informal sectors, has worsened the condition, causing lower economic productivity in peri-urban areas.

In accordance with socio-economic characteristic, most of migrants are working on informal sectors, went to university, earn relatively-high income, reside in planned and independent residential areas (only a few of them reside in rural areas), have relatively-good ownership of production factors or capital goods, and show relatively-low level of participation in local community activities. Meanwhile, there are also some identified characteristics of local residents; most of them are working on informal sectors (few of them are on formal ones), have a variety of production factors or capital goods (from the lowest to the highest level), went to senior high school (only few of whom went to university level), reside in rural areas, strongly preserve and practice Malangan culture (as one of local wisdoms that exists in Malang), and show relatively-high sense of belonging and level of participation on community activities. The difference found between these two types of households potentially arises socio-economic segregation as revealed by these two researches [7] and [8]. Unlike some other researches that have concerned on areas undergoing transition from rural to urban, this current research focused more on income distribution between local and migrant households. The distribution has been assumed to potentially result in significant inequality between the two types of household, specifically in peri-urban areas.

Migrants who come and reside in peri-urban areas of Malang City have directly contributed to occupational variety. Further, the occupational variety results in income variety. Now that most of the migrants work on formal sectors and that the locals work on informal ones (with only few of whom are on formal sector), there is an implicit difference shown in terms of income distribution between those two. If the difference occurring is relatively low, then the income distribution will be relatively on average. In reverse, if the difference shown is getting higher, unequal income earning will exist. Moreover, the inequality could possibly trigger socio-economic problems. Another important thing is to identify the pattern of the latest income distribution. The pattern, hence, is to show income data gained from the households of three different levels, high, medium, and low. In addition, the pattern of income earning also highlights the actual condition of the households from those three different levels and economic inequality that exists.

This current research took place in peri-urban areas. Precisely, peri-urban area is considered partly urbanized for it has undergone spatial transformation, suburbanization, and agricultural involution. In addition, it is also due to the fact that organizational plans, responses, and development have failed to respond to any characteristics of global pre-urbanization which are shown to be dynamic and fragmented. Then, globalization strongly influences urban planning so as to get the peri-urban areas more coopted as shown in the research of [1] [9] [10] [11] [12]. Specifically, this current research was concerned on income distribution and earning between local and migrant households.

The purpose of this research was to analyze income distribution between local and migrant households. Income distribution, essentially, constitutes one of several indicators to determine economic situation which leads to the identification of economic inequality between the two household groups residing in peri-urban

areas of Malang City. In addition, this research is expected to contribute some considerations for policy making concerning on city planning and community empowerment.

MATERIAL AND METHOD^(Calibri 10 Bold, Left, Capslock)

Material

Materials utilized in this research were data of income gained from primary and non-primary jobs within the last three months, from January to March 2018. In addition to income, the data of expenditure were also employed, covering the ones used for food and housing needs.

Method

This research was conducted by means of quantitative approach. As for the method, survey was chosen. The survey was conducted through interview with the respondents with the help of questionnaires.

The samples involved in this research consisted of local and migrant households. The number, furthermore, was determined by using quota sampling, which signified 100 people. The sample was categorized big as there were 100 participants or more [13]. Further, the samples were subdivided into two categories, namely 50 local and 50 migrant households. As for the location, it was selected by means of purposive sampling, with the consideration of those with relatively-higher growth of built-up lands in peri-urban areas compared to other districts. Meanwhile, the criterion taken for this research in terms of peri-urban area selection fell upon one with the highest growth of built-up lands. Based on research [1], Lowokwaru District was stated to have the highest growth of built-up land compared to its counterparts, such as Kedungkandang, Klojen, Blimbing, and Sukun Districts. In fact, the growth of built-up lands increased for about 25.9% or signifying 585.54 Ha from 1990 to 2010 in Lowokwaru. In addition, there were 12 urban villages undergoing the highest growth of built-up lands. The determined urban villages were set as the locations for conducting the research, including Tulusrejo, Tlogomas, Jatimulyo, Mojolangu, and Tanjungsekar.

To perceive income distribution, Gini ratio coefficient and Lorenz curve were used; the former was formulated as follows:

$$Gini\ Ratio = \frac{1}{2n^2 - \bar{y}} \sum_{i=1}^{n} \sum_{j=1}^{n} |y_i - y_j|$$

where: y = respondent income $\bar{y}$ = average income

The Gini ratio coefficient was combined with Lorenz curve displaying the function of cumulative income distribution. Meanwhile, Lorenz curve was proxied on each interval class of income. Afterwards, the area of the curve was proxied by means of Gini ratio coefficient. The following exemplifies the proxy function of Gini ratio coefficient.

$$Gini\ Ratio = \frac{1}{2n^2 - \bar{y}} \sum_{i=1}^{n} \sum_{j=1}^{n} |y_i - y_j|$$

X_k referred to cumulative proportion of the number of households, signifying k = 0,...,n, with X_0 = 0, and X_n = 1. Y_k constituted cumulative proportion of total household income to arrive at k level, explicating k = 0,..., n, with Y_0 = 0, and Y_n = 1. Lorenz curve was approximated by gaining non-linear function, through interval coordinate plotting on cumulative income and the number of households with the number of classes or groups. Based on Lorenz curve, Gini ratio coefficient was equal to an A area which was divided by a cumulative area (A+B). Now that (A+B) = 0.5, G = A/0.5 = 2A = 1 − 2B. Besides, if the Lorenz curve is stated by Y function, with Y = L(X), B value can be sought by referring to integral value of the function. Accordingly, at last, Gini ratio coefficient would be:

$$G = 1 - 2 \int_{0}^{k-1} L(X)\ dX$$

When Gini ratio coefficient was combined with Lorenz curve, the curve was shown to be as the following exemplification:
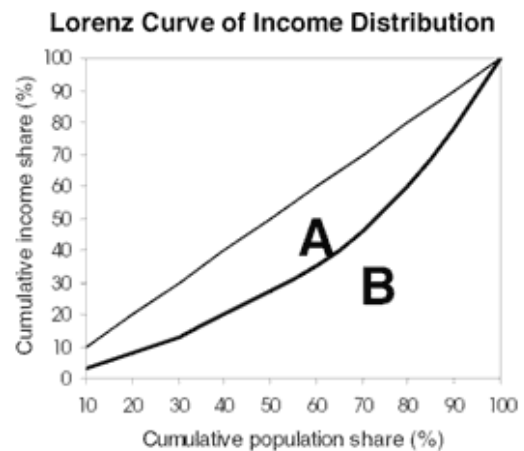

Figure 1. Lorenz Curve of Empirical Income Distribution

The vertical line represents the cumulative percentage of household income; while the horizontal line represents cumulative percentage of residents. Equal distribution is fulfilled when curve A is approaching linear line. The more convex the curve, the more income discrepancy is shown to be.

Data Collection

The analysis on the respondents' income earning was based on World Bank method, which classified the respondents into three subdivisions, to name:

1) low-income respondents for 40%;
2) average-income respondents for 40%; and
3) high-income respondents for 20%.

It articulates that the level of unequal income distribution is said to be high if 40% of the respondents from low-income group earn less than 12% from the total income; it is stated to be average only if they earn 12-17% from the total income; and it is claimed to be low in the event that they earn as much as 17% from the total income.

RESULT AND DISCUSSION

The income data from 100 respondents were sorted from the lowest to the highest. Next, the data were divided into specific intervals; each of which signified 100,000. The intervals were fitted to the income data. The result showed that the lowest income of the respondents constituted IDR 3,667,000/month, and the highest was IDR 15,000,000/month. The subsequent stage was to count and arrange cumulative income distribution.

The cumulative income distribution was very significant to Lorenz curve formulation. Due to significant difference between the lowest and the highest data, this research made use of the data of cumulative proportions. The prior income data, considered as continuous data, had shifted to be discrete data. This has outlined that the data used for Lorenz curve arrangement refer to cumulative proportions of the respondents' income. Moreover, the form of Lorenz curve from the empirical distribution represented a plot of cumulative proportions of the earned income between local and migrant households. The highest proportions of income earners occurred at the high rate of income interval; and the proportions went down as the income interval declined.

The next phase was to pilot normal distribution test upon the income data. Kolmogorov-Smirnov test has shown that the income data of the respondents were beyond the normal distribution with the value of Sig = 0.000 and the margin of error was around 5%. The following is the result of the test on the respondents' income distribution data.

Figure 2. The Result of Kolmogorov-Smirnov Test on the Income Distribution Data

Figure 2 shows that the income distribution of the respondents is not normally distributed. Accordingly, information regarding normal and proper distribution is deemed necessary for further analysis.

To identify the type of income distribution, fit distribution from program EasyFit 5.3 was used. In Figure 3 and 4, the result of the analysis has shown that the income distribution data could be approximated by means of log-normal and log-logistic distributions.
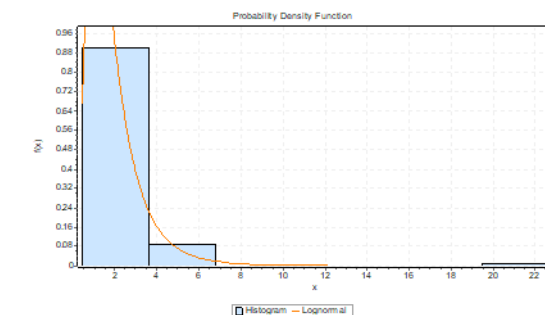

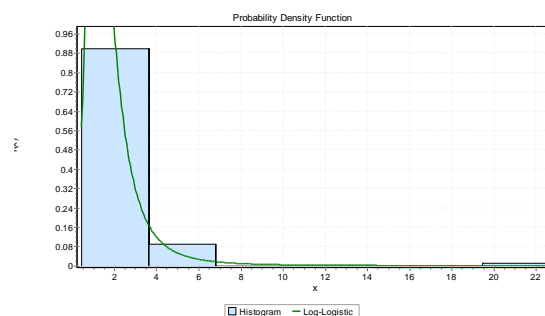**Figure 3.** Log-normal Distribution of the Respondents' Income Data

Figure 4. Log-logistic Distribution of the Respondents' Income Data

The following displays the result of parameter assumption from the function of income distribution.

Table 1. Gini Coefficient Values of Income between Local and Migrant Households

No	Functions of Income Distribution	Results of Parameter Assumption	P
1	Log-logistic $$f(x, \alpha) = \frac{\alpha\, x^{\alpha-1}}{(1+x^\alpha)^2}, x > 0, \alpha > 0$$	x=2.9172 α=1.5039	P(X<=x) with x = 100, so P=0.75
2	Log-normal $$f(x) = \frac{\exp\left(\frac{1}{2}\left(\frac{\ln(x-\gamma)-\mu}{\sigma}\right)^2\right)}{(x-\mu)\sigma\sqrt{2\pi}}$$	σ=0.63538 μ=0.43517	P=1.00

The results of parameter assumption have outlined significantly-unequal incomes between local and migrant households. The values of Gini coeffiicient which were derived from Lorenz curve have shown the following results : 1) log-logistic signified 0.75, and 2) log-normal signified 1.0. it implies that the income distribution between local and migrant households was unequal. In addition, the form of Lorenz curve generated from empirical distribution portrayed a plot between cumulative proportions of income earned by the local and migrant households. The highest rate of proportions for the income earners was shown on the high rate of interval, and declined along with the decrease of the income interval. The income distribution revealed by Lorenz curve is exemplified as the following:
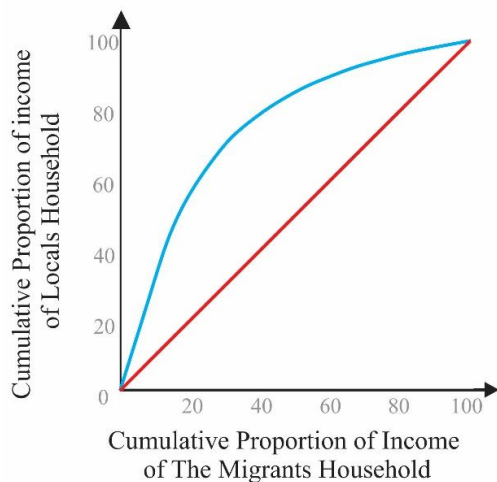

Figure 5. Lorenz Curve of Income Distribution between Local and Migrant Households

The area development in Lowokwaru District which used to be categorized as rural area in 1990 [1] has turned out to be urban area in 2015 with significant effect on the occurring physical changes. However, it has not shown significant contribution to social community dimension. The social dimension portrayed by unequal income between local and migrant households has explicated that the city development has arisen momentous bias towards community welfare as mentioned by [14].

There were 56% local residents who worked under informal sectors; while as many as 86% of migrants worked under formal sectors. In reality, the informal sectors have played an important role in providing job vacancies in the peri-urban areas of Malang City. One of the most remarkable characteristics of big cities in developing countries refers to the role of informal economy in behalf of regional economic development [15] [16] [17]. Informal-sector workers are commonly found out in electronic, garment, construction, transportation, household, and service businesses.

The occupational differences have directly affected the amount of salary the workers earn. As for the variance of working hours, the migrant households (39 hours/week) work less hours than the local households (46.32 hours/week). However, the significant contributor to the amount of income lies on the types of occupation. It articulates that the local households have needed more working hours at work than those migrants. The occupations performed in informal sectors were timeless, which was different from those in formal sectors. The working hours did not positively correlate to the income earning, so that it could be summed up that the working hours in the economic groups of local households were so flexible. Such a condition was experienced by most of households in informal sectors as also found out in India and other developing countries [18] [19].

The result of Gini coefficient was equal to income earning. Unequal income distribution was remarked by significant difference of income earning between the high-income, average-income, and low-income groups of respondents. This research has revealed that 40% of the low-income group earned 9% from the total income. With the same portion, 40% of the average-income group has earned 27% of the total income. At last, 20% of the high-income group made 64% of the total income.

Table 2. Income Earning based on World Bank Method

No	Groups of Respondents	Income Earning (%)
1	40% low-income	9
2	40% average-income	27
3	20% high-income	64

Alluding to one of criteria determined by World Bank, the unequal level on income distribution is high if 40% of the households from low-income group earn less than 12% of the total income. The income distribution between those households has highlighted the existence of significant inequality as noted in the criteria of World Bank. This criterion was relevant to Gini ratio value, which signified around 0.75 – 1.00, imparting that there has been nearly-perfect level of inequality as the result approached and/or was equal to 1.

40% of low-income group earning 9% of the total income consisted of local households. The economic dynamic in Lowokwaru District could not be stabilized by the adaptation of local households. They were unable to uplift their life welfare as their working competence and educational background did not fulfill the work requirements at all, causing low income earning. Meanwhile, the migrant households who worked under the formal sectors kept upgrading their life welfare by earning much more income from overtime works and pay hike, assumed to contribute to higher income earning compared to those of local households.

The unequal income distribution has pinpointed an indication of economic gap proving that the development of peri-urban areas has been relatively fast and non-linear to the development of regional economical dynamic. The urbanization process has been remarked by the existence of migrant households, claimed not to constantly give positive impacts as stated by [20] [21].

This critical issue on unequal income distribution could not be let go any longer for there would be a great potential for social issues. The local households, with local authenticities, such as straight forwardness, openness, egalitarianism, and expressiveness [22], would gradually shift. Malang, known as one of the big cities, is potential to change its local culture (named as arek) to be cosmopolitan. Moral values and etiquettes embedded within the local cultures have also been influenced by the

irresistible coming of migrants. Gradually, cosmopolitan culture, the symbol of community universalism and sentiments, is assumed to exist very shortly [23].

One of the most conceivable ways to cope with unequal income distribution is to initiate an enrichment program to improve Malangan people's capacity. This sort of program could be initiated by conducting a training for local households. By means of capacity improvement program, there would a greater prospect for the locals to increase their income earning. This program, further, is to target specific goal and be more organized. Departing form that reason, intensive supervisory and guidance are of importance. Thematic village program, for instance, has been run and potential for strengthening the roles of local households in developing areas in Malang. The other capacity building program is urban farming located in informal housing.

CONCLUSION

There are some aspects to conclude from this current research, namely:

1. The income distribution between local and migrant households in peri-urban areas in Malang city has shown to be unequal;
2. Unequal income distribution was the result of income difference between local and migrant households in peri-urban areas in Malang city;
3. Occupational aspect has constituted the most determinant factor to result in income difference between local and migrant households.

ACKNOWLEDGEMENT

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