

## INCOME INEQUALITY IN SURAKARTA

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### ABSTRACT

*Income inequality is the crucial issue in Indonesia. Economic growth and income inequality is the main problem in Indonesia, but very few studies explain it at the inter-subdistrict level. This argument is interesting to be studied deeply. One of the developed and famous regions in Indonesia is Surakarta that has high-level income inequality. Data which is used in this research is secondary data. We used the Williamson index and entropy index to analyze income inequality at the inter-subdistrict level, Location Quotient is used to analyze potential sectors, and Klassen Typology is used to classify quadrants of the advanced and poor zones in Surakarta. The result shows that based on the Williamson Index and Entropy Theil Index showed that Pasar Kliwon and Serangan have the highest disparity among all inter-subdistricts in Surakarta. There are three sectors that are not potential during 2010-2013, they are agriculture, mining, and industries.*

**Keywords:** Local Development, Income Inequality, Surakarta

**JEL classification:** A10, B40, E64

### 1. INTRODUCTION

Since 2001 using Law No.22/1999 on Local Government and the Law No.25/1999 on Fiscal Balance between a central and local government which was recently revised then by Law No.32/2004 and Law No.33/2004, Indonesia government has applied fiscal decentralization policy. Changing the structure of the Indonesian government, the new decentralization scheme has transformed the central-local government relationship to a great extent (Swastyardi, 2008).

The spirit of decentralization is the region has a better perception to manage the potential in the economy, religion, culture, social, and law. Local government is the decision maker, assumed to be more understand about their problem than central government. Hopefully, fiscal decentralization can increase economic growth faster. According to Oates (1993) in Zakaria (2013), fiscal decentralization is able to improve economic efficiency since local government is closer to local society than the central government so that local government will be more responsive toward local's needs and preferences. Irawan (2014) confirmed the transfer of authority and resources from the central to local government is expected to positively affect economic development. Policy formulation at a local level allows for a greater recognition of local needs and is more likely to win greater support and ensure smooth implementation, making the execution of a development plan and strategy more effective and sustainable.

Fiscal decentralization can not be separated from local economic growth and inequality. Swastyardi (2008) mentioned that inequality relates to distributional of income and not to level of income. Inequality is a relative concept whereas inequality measures are about relative wealth such as how certain members of a society are doing with respect to others. Inequality measures disparity between a percentage of the population and the percentage of resources (such as income) which are received by that population. Accordingly, inequality will increase if the disparity increases. The illustration is: if a single person holds all of a given resource, inequality is considered to be at the maximum level and it will be at the minimum level if all people hold the same percentage of a resource. But Todaro (2003) in Yeniwati (2013) mentioned that inequality has a positive and negative impacts. In a positive way, inequality should push the other less developed regions to compete, but in a negative way, inequality weakens social stability and high inequality is unfair.

Not only in Indonesia but throughout the world, the existence of income, or output, per capita disparity among regions or countries has been an important issue (Resosudarmo, et al, 2006). A large number of papers have examined issues of inequality among province, but very few studies between district. This paper examines the empirical phenomenon of inequality of income distribution in Surakarta. Since Surakarta is one of a famous city in Central Java Province because of its unique culture and religion activities. The problem questions of this research is how is the regional inequality between districts in Surakarta.

Surakarta has six districts, they are Laweyan, Serengan, Pasar Kliwon, Jebres, Banjarsari, and Surakarta City. Each district has different potential. Economic growth is an indicator of economic development, for local economic development it can be seen through the regional gross domestic product that reflects the people's welfare. The table below describes the local economic growth in Surakarta.

**Table 1**  
**Laju Pertumbuhan Produk Domestik Regional Bruto Menurut Kelompok Sektor**  
**Atas Dasar Harga Konstan 2000 Kota Surakarta (persen)**

District	Year			
	2010	2011	2012	2013
District Laweyan	6,3	5,8	6,32	6,08
District Serengan	5,54	6,57	5,73	5,98
District Pasar Kliwon	6,06	5,76	6,44	5,81
District Jebres	5,56	5,95	5,65	5,81
District Banjarsari	6,09	6,19	6,26	5,85
Surakarta City	5,94	6,04	6,12	5,89

Source: BPS, 2016

The main concepts will be discussed in this paper is a relationship between economic growth and inequality. There are several arguments in the literature that explain why income inequality affect economic growth. Knowles (2005) said that there is a negative correlation between inequality and growth across countries, but only when the focus is on inequality after redistribution has taken place. And no evidence is found of a significant correlation between gross income and economic growth.

There is a famous paper that concern in the relationship between economic growth and inequality. In what has come to be known as Kuznets hypothesis, Kuznets use international data (cross section) and observation in each country data (time series). Kuznets hypothesis suggests that inequality is low at a lower income level but later increases at higher income level with economic growth. As the income level grows, inequality decreases. Thus the relationship between income distribution and income level can be described by an inverted U-curve (Kuznet, 1995). Inequality means different things to different people: whether inequality should encapsulate ethical concepts such as the desirability of a particular system of rewards or simply mean differences in income is the subject of much debate (A. Litchfield, 1999).

Castello (2010) who investigate empirically the effect of income and human capital inequality on economic growth, also say that negative effect of income and human capital inequality on economic growth in the whole sample for which there are available data as well as in the low and middle income economies, an effect that vanishes or becomes positive when it comes to higher income countries.

However, MthuliNcube, et al (2013) also said that there was a negative correlation between growth and inequality, his paper shows that income inequality reduces economic growth and increases poverty in the region. Eng (2009), his paper concludes that the evidence for Indonesia suggests an increase in inequality during the 1970s and a subsequent decrease of inequality until 1997. A comparison of the evidence with historical data for the UK and Japan suggests that income inequality in Indonesia was relatively low.

## 2. RESEARCH METHOD

This is a quantitative research based on secondary data. The secondary sources of data are collected from a local government institution. Data were used from 2010 to 2013. The paper examines the inequality of income distribution in Surakarta city and its impact on local economic development. We used: (1) Klassen Topology to describe the pattern of the economic growth structure of each region. Some studies use this analysis to determine the structure of economic growth. This analysis is used to obtain the classification of regional economic growth, while the data used is the rate of growth economic and income per capita; (2) We also used to examine the regional income per capita inequality. To measure inequality between the district, we used Williamson index. Williamson index formula uses PDRB per capita and population, Williamson index value between zero and one ( $0 < IW < 1$ ). When the index value is close to 1 that means there is inequality in the district. And if the index value is close to zero, this indicated that more equally in development. Thus, Williamson index function is:

$$IW = \sqrt{\frac{\sum [(Y_i - Y)^2 \times \frac{f_i}{N}]}{Y}}$$

where:

- IW : coefficient Williamson index
- $Y_i$  : PDRB per capita district in Surakarta
- $Y$  : PDRB per capita in Surakarta
- $f_i$  : population in the middle of the year of the district in Surakarta
- $N$  : population in the middle of year in Surakarta

(3) Entropy Theil index used to measure economic inequality and concentration of the industry. The greater value of entropy Theil index, indicate that there a greater inequality. However, the smaller value of entropy Theil index, indicate that more equally in development. Thus, Williamson index function is:

$$I(y) = \sum \left( \frac{Y_j}{Y} \right) \times \log \left\{ \frac{\left( \frac{Y_j}{Y} \right)}{\left( \frac{X_j}{X} \right)} \right\}$$

where:

- $I(y)$  : Index Entropy Theil
- $Y_j$  : PDRB Per Capita district in Surakarta
- $Y$  : Average PDRB Per Capita Surakarta
- $X_j$  : Sum of Resident of district in Surakarta
- $X$  : Sum of Resident in Surakarta

(4) The Kuznets curve is a hypothetical curve that graphs economic inequality against income per capita over the course of economic development (which was presumed to correlate with time). This curve is meant to illustrate economist Simon Kuznets' (1901-1985) hypothesis about the behavior and relationship of these two variables as an economy develops from a primarily rural agricultural society to an industrialized urban economy.

## 3. RESULTS AND DISCUSSION

Before we describe the inequality analysis in Surakarta, this table shows the leading sectors in Surakarta. Using *Location Quotient (LQ)* by divided contribution each sector in Surakarta and province of Central Java, the results show that there is three sectors that not potential during 2010-2013, they are agriculture, mining, and industries. And six potential sectors in Surakarta during 2010-2013 showed by the value of LQ is bigger than 1.

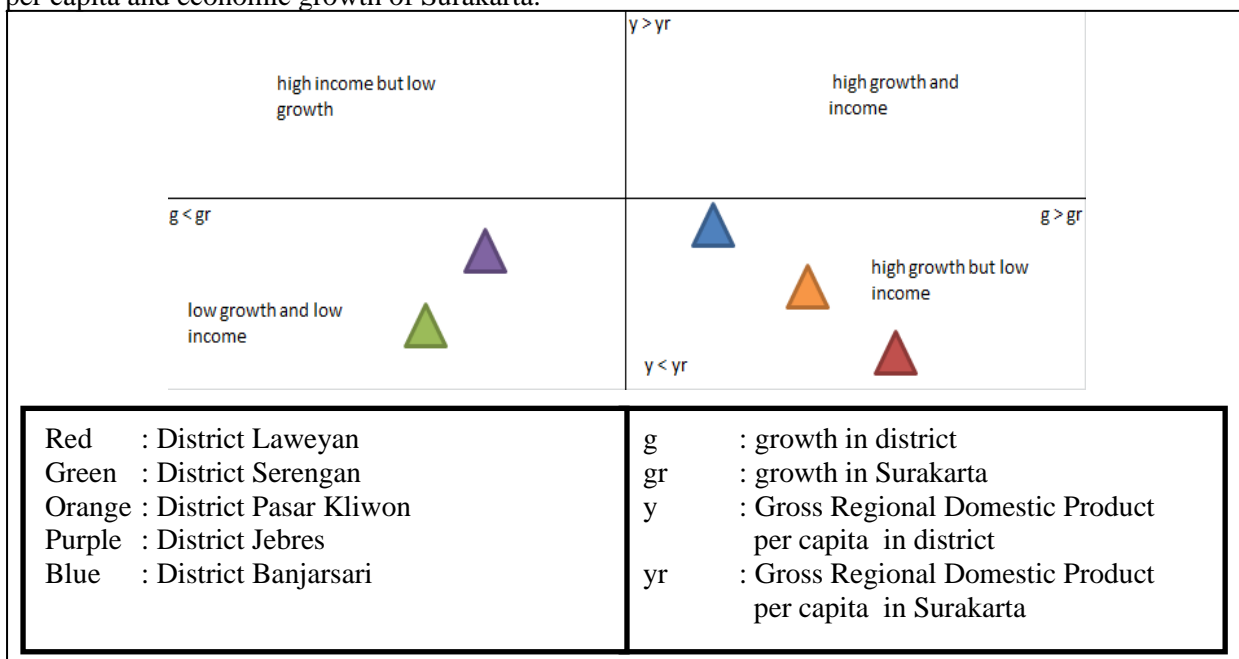
Agriculture and mining sector are not featured in Surakarta because the amount of land is getting smaller and does not have the potential excavation solo. As the city began to grow, it turns out modern sektor2 such services, hotels, and the industry became the leading sectors. Agriculture and quarrying sectors are not leading sectors in Surakarta because the amount of land is getting smaller and does not have the potential excavation. As the city began to grow, the modern sectors such as services, hotels, and the industry are becoming the leading sectors.

**Table 2**  
**Sector and LQ**

Sector	LQ				LQ			
	2010	2011	2012	2013	2010	2011	2012	2013
1. Agriculture	0.003049	0.003013	0.002913	0.002887	not basis	not basis	not basis	not basis
2. Quarrying	0.032102	0.030208	0.027891	0.025850	not basis	not basis	not basis	not basis
3. Industries	0.762266	0.735045	0.718187	0.704811	not basis	not basis	not basis	not basis
4. Electricity, Gas, & Water Supply	2.704254	2.754290	2.776617	2.743907	basis	basis	basis	basis
5. Construction	2.235000	2.235438	2.235396	2.214340	basis	basis	basis	basis
6. Trade, Hotel, Restaurant	1.251104	1.245140	1.233426	1.232983	basis	basis	basis	basis
7. Transport & Communication	1.922038	1.892013	1.872132	1.863454	basis	basis	basis	basis
8. Financial, Ownership & Business Service	2.701583	2.772500	2.753455	2.687087	basis	basis	basis	basis
9. Service	1.212182	1.188658	1.194154	1.176867	basis	basis	basis	basis

Source : Author's Calculation

Klassen Typology analysis is a tool that can be used to determine patterns or economic conditions in the level of districts in Surakarta compared with the economy of Surakarta City. The classification used in Klassen Typology is as follows: (1) Quadrant I: Advance and Fast Growing Regions PDRB per capita and economic growth districts are greater than the PBRD per capita and economic growth in Surakarta City; (2) Quadrant II: Advance but Depressed PDRB per capita districts is greater than the PDRB per capita Surakarta City but its economic growth is lower than the economic growth of Surakarta; (3) Quadrant III: Fast Growing Regions PDRB per capita districts is lower than PDRB per capita Surakarta but the economic growth is greater than the economic growth of Surakarta; (4) Quadrant IV: Underdeveloped Regions PDRB per capita and economic growth districts are lower than the PDRB per capita and economic growth of Surakarta.



**Figure 1. Klassen Typology**

Source: Author's Calculation

The graph shows Klassen typology in all district in Surakarta. The vertical axis is y/income (measured by the income per capita in all district in Surakarta), and the horizontal axis is x/ growth (measured by the growth rate of income in all district in Surakarta). And the typology shows that there are 2 districts in Surakarta who have low growth and low income, they are Serengan and Jebres because their growth and their income are lower than growth and income in Surakarta.

Williamson Index used to analyze inequality among all district in Surakarta. This index shows that district Pasar Kliwon has the highest inequality periodically, and district Laweyan has the lowest inequality.

**Table 3**  
**Williamson Index**

District	IW			
	2010	2011	2012	2013
District Laweyan	0.075392387	0.081149992	0.074172105	0.132390706
District Serengan	0.486192893	0.50289796	0.503524268	0.397790105
District PasarKliwon	0.541832348	0.549586722	0.579844031	0.563089448
District Jebres	0.442888935	0.45381646	0.477680685	0.369843798
District Banjarsari	0.157761991	0.158447407	0.162407434	0.177551196
Surakarta City	0.340813711	0.349179708	0.359525705	0.32813305

Source : Author's Calculation

Besides Williamson index, Entropy Theil Index can also be used to measure economic imbalances. The higher number of Entropy Theil index indicates a greater inequality in the area. However, if the number of Entropy Theil index is small, then the discrepancy in the area is small too.

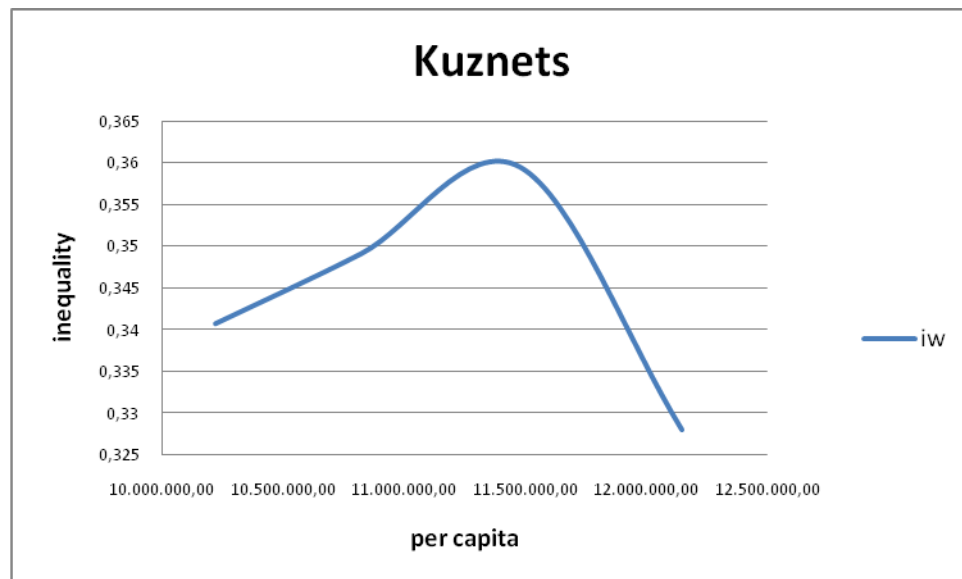
**Table 4**  
**Entropy Theil Index**

District	Theil			
	2010	2011	2012	2013
District Laweyan	0.696276	0.689329	0.700824	0.641417
District Serengan	1.875655	1.869793	1.852663	1.575377
District PasarKliwon	1.418978	1.403124	1.423737	1.370883
District Jebres	0.313436	0.312281	0.309704	0.387377
District Banjarsari	0.421086	0.420448	0.423576	0.416896

Source : Author's Calculation

Entropy Theil Index shows that district Serengan has the highest value of Theil Index, it means Serengan has inequality among all district. In the other side, Jebres have the lowest value of Theil Index, it means Jebres has more equality in their development.

Simon Kuznets (1955) was the first who suggested the existence of a general relationship between the income inequality and the income per capita. His hypothesis states that the income inequality initially rises with economic development but after reaching its maximum it subsequently falls in advanced stages of economic development. Hence, the relationship between the income inequality and the average income expressed as GDP per capita has the shape of inverted U-curve. For Surakarta, the hypothesis is suitably shown in the figure below.



**Figure 2. Kuznets**

Source: Author's Calculation

#### 4. CONCLUSIONS

Discussion of the results of this study can be summarized as: (1) From the results of Klassen typology in Surakarta can be divided into two regions classification. The first area of high grow area but lower income consists of three districts are Laweyan, Pasar Kliwon, and Banjarsari. The second areas which are the area that is relatively underdeveloped (low growth and low income) are Serengan and Jebres; (2) During the observation period 2010-2013, the rate of inequality is calculated by Williamson index rate is quite small, it can be said that inequality in Surakarta quite small. But according to Entropy Theil index show that the highest inequality in Serengan, while the lowest inequality in Jebres; (3) The Kuznets hypothesis inverted U-curve applies in Surakarta during 2010-2013. Graph of the relationship between per capita income and inequality index Williamson shaped like an inverted U-shaped.

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