Income Distribution and Inequality in Indonesia: Study on Middle Class Household

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Abstract
The current positive trend of Indonesia’s economic growth has demonstrated that increasing income per capita is one of the economic prosperity indicators. One pillar of the increase in the income per capita of middle class is its surge to 56.5% in 2010 compared to that of in 2000 which only reached 20%, and it has brought Indonesia to be qualified as a middle-income country. It is believed that, one of the ways to reduce inequality in society is by encouraging economic growth and development of middle-class society. This study aims to analyze the profile of middle class household and its contribution on decreasing inequality in Indonesia using the data of National Survey of Social Economy (Susenas) from 2004 to 2012. By using Keynesian Consumption model and Lorenz Curve, the results showed that middle-class grouping by using the 20th and 80th percentile of income has a higher growth than that of the USD or portion average income approach. However, due to the relatively small contribution of middle class income growth in Indonesia to the economic growth, the changes on Indonesian middle class income is inelastic to the changes on national output.

Keywords: income distribution, inequality
JEL Classifications: D30, O15

1. Introduction
The term middle class is relatively and absolutely defined (Kharas, 2010). Relatively, middle class is a social group with income ranging from 20th to 80th percentile and consumption distribution from 0.75 to 1.25 times of the average income per capita (Easterly, 2001; Birdsall et al, 2000; Kharas, 2010; Bhalla, 2009; Ncube et al, 2011). For centuries, the middle class plays a distinctive role in economic thought (Kharas, 2010). The middle class group is characterized by their good housing, health and education opportunities for their children, a reasonable pension and job security, as well as additional income to be allocated for leisure and recreation. Middle class contributes quite significantly towards economy and is considered as a source of entrepreneurship and innovation of small enterprise that develops modern economy. Therefore, middle class is a source of all inputs required for the economic growth, and both the physical and human capital accumulation.

In 2012, the contribution of middle class in Indonesia based on income criteria contributed to Gross Domestic Product per capita for USD 3,850 and placed Indonesia as an upper middle income country. Previously, in 2010, World Bank recorded a surge of middle class in Indonesia for 56.6% compared to that of in 2000 that reached 20%. This increase indicated an increase in purchasing power that can absorb domestic and imported goods and services. Furthermore, middle class is capable of stimulating the domestic economy to be more passionate as well as providing a stronger import pressure. In addition, middle class showed relatively high consumption followed by many new
entrants which resulted in the growing consumer behaviour. The purpose of this study is to analyze the role of middle-class households based on the income criteria and income quartiles, using the model of the Keynesian consumption and Lorenz curve and simulate the impact of an increase in the distribution of income to economic growth.

2. Methods and Materials

This study on income distribution and inequality employed data of income level and expenditure extracted from the data of the National Socioeconomic Survey (Susenas). In the extraction, the variable was described by showing changes occurred each year by referring to the various levels of household income. Meanwhile, income level data were sorted by its value and grouped into percentile. Then, the Lorenz curve was prepared and the index of inequality of each group was calculated.

The samples were middle-class households in 33 provinces in Indonesia, defined by two criteria: (1) the determination of the middle class by Kharas (2010) which defines the middle class household expenditure is between USD 10-100 per individual per month; and (2) middle-class grouping was made based on the criteria of 60 percent income in the middle or between the 20th and 80th percentile. Furthermore, methods and analysis procedures conducted were:

1. Keynesian Consumption Model

The model used to analyze the household consumption behavior of middle-class on various goods/major services. The analysis used consumption model in which individual consumption behavior is illustrated by the coefficient of the Marginal Propensity to Consume (MPC) for every year studied. Consumption and saving functions can be described simply by linear function, namely:

\[
C = a + MPC \times Y \\
S = -a + (1 - MPC) \times Y \\
S = -a + MPS \times Y
\]

Where \(C\) is people consumption; \(Y\) is income; \(S\) is the level of public savings; \(a\) is a constant which is always positive and greater than zero; \(MPC\) is the marginal propensity to Consume and \(MPS\) is the Marginal Propensity to Saving.

The Lorenz curve

The Lorenz curve analysis aims to show the degree of inequality in income distribution (Perkins, et.al, 2001). Under the condition of perfectly equitable income distribution, \(X\) percent of the population will receive \(X\) percent of total income. In the Lorenz curve, this situation is described as a diagonal line from the lower left to the upper right (OQ). It means that the entire family income will be equal to the average income. If \(X\) percent of the number of individuals or families receive less than \(X\) percent of income, the Lorenz curve would deviate from the diagonal line OQ and is advancing down into the concave. The higher uneven income distribution, the more concave the Lorenz curve will be (Todaro and Smith, 2003).

Figure 1: The Form of Lorenz Curve
Source: Maipita, 2014
3. Results and Discussions

Criteria determination for middle-class households as the samples was based on three methods comprising income criteria and the criteria of 60 percent of income in the middle or between the 20th and 80th percentile. According to Kharas (2010), the category of middle-class households can be defined as household with expenditure ranging from USD10 - 100. Referring to this definition, grouping and grading households based on household expenditure in USD implies changes and tend to fluctuate as a result of the fluctuation of rupiah to USD. The higher exchange rate of rupiah /USD or the lower the value of rupiah to USD, then by the same amount of Rupiah (fixed), the value in USD will be lower. In other words, exchange rate fluctuation leads to a shift towards groups that fall into the middle class. For example, individuals (households) who have expenditure slightly above the lower limit (USD 10) in 2004 is said to fall into the middle class, but the same income (fixed) in 2005 may no longer belong to the middle class due to the declining Rupiah to USD. As a result of this decline in exchange rate, the scope of observation is widened (shift up). The illustration is presented in Figure 2 below:

![Figure 2: Illustration of the Shift of Middle Class as a Result of Changes on Exchange Rate](image)

Based on Figure 2, at the level of rupiah to USD by K1, the middle class is along the PQ. This group is at the level of expenditure of AB (e.g. A is equivalent to USD 10, and B is equivalent to USD 100). When the exchange rate of rupiah to USD decreases from K1 into K2, then the value of A formerly equivalent to USD 10 will be less than USD 10 (for example the amount of rupiah required for today is B). Thus, there is a lower shift of the middle class from the initial point A to point B. Similarly, the upper limit also requires more amount of Rupiah to be equivalent to USD 100 so that the upper limit of middle class in Rupiah shifts from C to D. The consequence of this declining exchange rate is the shift of middle class from PQ to RS.

Based on Table 1, the percentage of middle class by province in Indonesia, showed that during 2004-2009 period, the average number of middle-class reached more than 90 percent, even in 2006, it reached 95.02 percent although it was declining in 2010 to 86.23 percent. Thus, middle-class grouping based on the criteria of USD showed that the number of middle class in Indonesia is in the average distribution of more than 90 percent for each province.
Table 1: Percentages of Middle Class to Total Population by Province in Indonesia

| No | Province          | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  |
|----|-------------------|-------|-------|-------|-------|-------|-------|-------|
| 1  | Nanggroe Aceh Darussalam | 91.079 | -     | 96.647 | 97.493 | 96.419 | 95.861 | 90.704 |
| 2  | Sumatera Utara    | 94.918 | 93.100 | 97.112 | 95.994 | 94.911 | 94.336 | 89.399 |
| 3  | Sumatera Barat    | 95.254 | 94.334 | 96.576 | 94.623 | 95.129 | 94.268 | 87.097 |
| 4  | Riau              | 96.742 | 95.785 | 95.924 | 91.900 | 92.272 | 90.388 | 85.390 |
| 5  | Jambi             | 96.546 | 95.515 | 97.780 | 96.119 | 96.820 | 97.292 | 91.545 |
| 6  | Sumatera Selatan  | 88.424 | 92.171 | 97.801 | 96.566 | 95.961 | 96.256 | 92.211 |
| 7  | Bengkulu          | 91.571 | 88.434 | 97.734 | 97.270 | 96.326 | 97.513 | 89.458 |
| 8  | Lampung           | 84.347 | 87.356 | 96.561 | 94.302 | 96.765 | 96.105 | 94.960 |
| 9  | Kep. Bangka Belitung | 97.737 | 95.750 | 96.386 | 93.445 | 91.117 | 89.811 | 79.697 |
| 10 | Kep. Riau         | -     | 92.248 | 91.440 | 84.807 | 85.039 | 84.190 | 68.326 |
| 11 | DKI Jakarta       | 91.126 | 86.154 | 81.250 | 77.012 | 73.367 | 71.813 | 56.820 |
| 12 | Jawa Barat        | 95.163 | 93.809 | 95.914 | 95.190 | 95.121 | 95.311 | 90.133 |
| 13 | Jawa Tengah       | 92.823 | 91.883 | 97.409 | 96.455 | 96.506 | 97.092 | 94.225 |
| 14 | DI Yogyakarta     | 90.104 | 88.201 | 89.462 | 91.026 | 90.311 | 88.178 | 80.214 |
| 15 | Jawa Timur        | 95.126 | 90.064 | 96.447 | 95.487 | 96.108 | 96.589 | 93.967 |
| 16 | Banten            | 96.580 | 93.436 | 95.742 | 92.337 | 93.460 | 91.654 | 80.945 |
| 17 | Bali              | 97.905 | 95.576 | 95.197 | 92.056 | 94.189 | 94.047 | 80.714 |
| 18 | Nusa Tenggara Barat | 81.705 | 87.289 | 96.448 | 96.189 | 96.222 | 95.544 | 92.694 |
| 19 | Nusa Tenggara Timur | 72.379 | 67.132 | 88.232 | 92.013 | 92.331 | 93.548 | 93.563 |
| 20 | Kalimantan Barat  | 91.247 | 91.894 | 97.519 | 96.882 | 96.064 | 95.515 | 89.353 |
| 21 | Kalimantan Tengah | 95.292 | 96.474 | 98.104 | 95.372 | 94.651 | 96.092 | 89.201 |
| 22 | Kalimantan Selatan | 95.081 | 94.123 | 97.265 | 94.014 | 94.245 | 92.788 | 83.888 |
| 23 | Kalimantan Timur  | 94.703 | 93.390 | 91.351 | 89.296 | 87.230 | 82.792 | 71.889 |
| 24 | Sulawesi Utara    | 96.848 | 95.076 | 96.872 | 96.133 | 96.460 | 96.536 | 86.016 |
| 25 | Sulawesi Tengah   | 89.696 | 88.358 | 95.070 | 95.543 | 95.148 | 95.804 | 89.801 |
| No | Province         | Percentage per Year |
|----|------------------|---------------------|
|    |                  | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| 26 | Sulawesi Selatan | 86.536 | 86.214 | 96.167 | 92.085 | 93.626 | 94.239 | 88.241 |
| 27 | Sulawesi Tenggara | 89.688 | 86.469 | 95.657 | 94.362 | 95.207 | 96.084 | 89.144 |
| 28 | Gorontalo        | 82.937 | 84.261 | 94.190 | 93.915 | 93.478 | 93.076 | 92.426 |
| 29 | Sulawesi Barat   | -     | -     | 94.769 | 96.409 | 97.302 | 97.527 | 94.444 |
| 30 | Maluku           | 93.952 | 88.180 | 95.123 | 95.640 | 95.733 | 95.710 | 92.341 |
| 31 | Maluku Utara     | 93.826 | 90.488 | 96.518 | 95.248 | 94.939 | 93.725 | 85.138 |
| 32 | Papua Barat      | -     | -     | 96.482 | 92.326 | 93.750 | 91.423 | 78.719 |
| 33 | Papua            | 90.894 | 84.886 | 90.756 | 90.937 | 91.617 | 93.075 | 82.946 |

Rata-rata: 91.554, 90.268, 95.027, 93.589, 93.570, 93.158, 86.231

Source: Data of National Survey of Social Economy Processed, 2016

Table 2: Percentages of Middle Class to Total Population by Province by Upper Rank in Indonesia
The profile of middle class households based on the criteria of 60% of income in the middle of between 20th to 80th percentiles showed that during 2004 to 2010, the level of average expenditure of middle class continued to grow at the average of 14.99 percent per year. Generally, based on table 3, during 2004-2010, the level of expenditure of middle class households in Indonesia has risen for more than doubled. The relatively high expenditure growth indicates the higher purchasing power of the middle class.

### Table 3: The Highest and Lowest Expenditure of Middle Class (Rupiah)

| Year | Min.   | Growth (%) | Max.     | Growth (%) | Average | Growth (%) |
|------|--------|------------|----------|------------|---------|------------|
| 2004 | 117,696| -          | 283,423  | -          | 182,341 | -          |
| 2005 | 131,350| 11.60      | 359,863  | 26.97      | 215,562 | 18.22      |
| 2006 | 160,242| 22.00      | 409,832  | 13.89      | 254,093 | 17.87      |
| 2007 | 176,696| 10.27      | 498,036  | 21.52      | 297,312 | 17.01      |
| 2008 | 188,512| 6.69       | 523,342  | 5.08       | 316,664 | 6.51       |
| 2009 | 214,934| 14.02      | 578,638  | 10.57      | 351,973 | 11.15      |
| 2010 | 238,414| 10.92      | 712,413  | 23.12      | 419,402 | 19.16      |
| Average | 175,406 | 12.58     | 480,792  | 16.86      | 291,051 | 14.99      |

Source: Data of National Survey of Social Economy Processed, 2016

### 3.1 Middle Class Inequality

Middle class is important part in economy. There are at least three reasons to consider that the middle class is important for the economy: (1) new entrepreneurs, emerging from the middle class that creates jobs and growth opportunities for the whole society, (2) the middle class with strong values emphasizes accumulation of human capital and savings; (3) the middle class is willing to pay a little extra for quality,
thereby encouraging investment in production with better quality and competitive marketing, spurring higher production levels and leading to an increase in income for everyone (Banerjee and Duflo, 2007; Nayab, 2011).

Many empirical studies concluded that middle class growth have associated with better governance, economic growth and poverty reduction (Ncube et al., 2011). The middle class is increasingly seen as a prerequisite for the occurrence of stability in the socio-economic structure of a country (Nayab, 2011). A country with good growth will have an increasingly middle class (Landes, 1998). One of several ways to reduce the gap in society, and to spur economic growth and development is through middle-class economic society. The middle class is also regarded as the backbone of both the market economy and democracy in the face of globalization (Birdsall et al, 2000).

Easterly (2001) in her study found that countries with large middle class tend to grow faster, at least in situations of ethnic homogeneity. The middle class in some countries including China and Africa is a major source of private sector growth (Ncube et al, 2011). However, the phenomenon show that there is any inequality in middle class household. The measurement of inequality that commonly used is Gini Coefficient or Index Gini. Gini index can be used to measure the dispersion of a distribution of income, consumption, or wealth of any other kind of distribution (Jedrzejczak, 2008). Further, the result of Gini Index can be expressed in terms of the area under the Lorenz curve. In this study, the calculation of middle class inequality also using Gini Index which indicated the level of income distribution inequality. The results revealed that, overall, the Gini index (the level of income distribution inequality) of all income in Indonesia as shown by Figure 3 tends to increase although the real or nominal of income per capita increases.

If income criteria of USD 10 – 100 is used, the level of income distribution inequality in the middle class is relatively low compared to the level of national inequality. It means that the distribution of income in this group is relatively homogeneous. During 2004-2010, the level of income distribution was relatively constant, regardless of any changes, but the fluctuation was
relatively small. Of the 33 provinces in Indonesia, the lowest level of inequality in middle class was in DKI Jakarta province, followed by Riau Islands and Bangka Belitung. It indicates that income distribution of the middle class in those provinces is relatively more equal than the others.

Table 4: Gini Index of Middle Class Based on Income Criteria by Province in Indonesia (5 Biggest and Smallest) in 2010

| Number | Province               | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|--------|------------------------|------|------|------|------|------|------|------|
| 1      | DKI Jakarta            | 0.225| 0.225| 0.195| 0.186| 0.183| 0.178| 0.156|
| 2      | Riau Islands           | -    | -    | 0.246| 0.220| 0.220| 0.218| 0.182|
| 3      | Bangka Belitung        | 0.243| 0.243| 0.232| 0.218| 0.215| 0.228| 0.188|
| 4      | East Kalimantan        | 0.273| 0.273| 0.253| 0.242| 0.239| 0.246| 0.207|
| 5      | Nanggroe Aceh Darussalam | 0.252| 0.252| 0.262| 0.254| 0.252| 0.242| 0.221|
| 29     | East Nusa Tenggara    | -    | -    | -    | -    | -    | -    | -    |
| 30     | South Sulawesi         | 0.268| 0.268| 0.283| 0.309| 0.306| 0.302| 0.304|
| 31     | Southeast Sulawesi     | 0.250| 0.250| 0.273| 0.314| 0.298| 0.289| 0.311|
| 32     | Papua                  | 0.298| 0.298| 0.315| 0.332| 0.339| 0.323| 0.315|
| 33     | Gorontalo              | 0.260| 0.260| 0.283| 0.295| 0.292| 0.284| 0.322|

Source: Data of National Survey of Social Economy Processed, 2016

Figure 4: National Gini Index and Gini of Middle Class
Source: Adapted from National Survey of Social Economy, 2016

Phenomena that appear in the profile of middle class inequality based on the criteria of 60% gives the same result as the previous criteria, where inequality on the middle class is lower than the total inequality using the USD approach. This may occur because the scope of
USD approach is broader than the 60% approach. It illustrates that the distribution of 60% income group is more evenly than the other income. Figure 4 illustrates the significant gap of total inequality and inequality in the middle class. The small Gini index rate provides higher economic growth in the middle class due to its relatively better access than the lower income class.

In the level of province, if we adopt World Bank methods which divide income at 40% low, 40% moderate and 20% high, then inequality for a population of 40% of middle-class income will show a lower inequality than with the 60% criterion. Or in other words, inequality in the middle class there is a tendency to rise, thus giving the phenomenon of a part of this class society that rises faster its income level, so that the gap between income and the level of inequality becomes increased. For example, DKI Jakarta which usually has low inequality for the middle class, on this criterion has a high enough inequality. Further, using this criterion, if the Gini Index is calculated for each income group, it is seen that high income groups are more uneven than low and medium income levels. The middle class, on average, has the lowest level of inequality compared to lower and upper class inequality. This is evident in Figure 5, where the upper class goes far beyond the other two classes. If combined, then the income gap becomes more visible.

Other related empirical study that focused on income distribution using Gini Index can be shown from study Jedrzejczak (2008), Gounder and Xing (2012), and Bryan and Martinez (2008). Using data on Household Budget Survey for family income in Poland by socio-economics group from 1999-2003, Jedrzejczak found that the main sources of income concentration in Poland are wages and salaries, while, income from social insurance such as retirees pension, old-ages pensions, etc. and social services is negatively correlated with disposable income. Thus, based on the study Jedrzejczak, the increase of inequality in these income sources can reduce overall inequality.

Gounder and Xing (2012) investigated the degree of inequality in the Fiji’s household income distribution using Fiji’s Household Income and Expenditure Survey 2002-2003, found that urban households, in particular, experience greater inequalities, in both positive and normative terms. Further, they conclude that the Indo-Fijian households had experienced greater income inequalities than the Fijian households.

Bryan and Martinez (2008) analyzed the individual income inequality trends in United States. They argued that focusing on individual income instead of household income allows to present inequality trends that are not directly affected by changes in household composition. Further, they found that the increase in income inequality among both males and females has been increasing during the period under study is concentrated at the top of the income distribution and any differences path between males and females.

3.2 Keynesian Consumption Model

Keynesian consumption model shows that consumption level is influenced by income level which implies the influence of the demand side. Based on the data for the period of 20 years (1993-2012), the consumption function is

\[ \text{Consumption} = -22939.6 + 0.779844 \text{Income} \]

The consumption function has an \( \alpha \) level of significance at 1%, thus it is valid to be used as the basis for determining the level of MPC (Marginal Propensity to Consume). MPC value = 0.78 or a ratio of the consumption rate on earnings indicates that if there is an increase on people’s income for IDR 100, it will be used for consumption for IDR 78. Due to the limitation of the data, the MPC value does not reflect the MPC of the middle class, but it remains a good proxy to estimate the consumption level of all income group in the community.
Table 5: Keynesian Model Simulation

| Approach                     | Average of Household Expenditure |
|------------------------------|----------------------------------|
| Total                        | 2,449,919.00                     |
| Group of 20%-80%             | 1,867,434.00                     |
| Group of USD 10-USD 100      | 1,639,903.00                     |
| Simulation I                 |                                  |
| Increase in Income (%)       | Economic Growth (%)              |
| Group of 20%-80%             | 10                               | 0.12                              |
| Group of USD 10 – USD 100    | 10                               | 0.11                              |
| Simulation II                |                                  |
| Group of 20%-80%             | 15                               | 0.18                              |
| Group of USD 10 – USD 100    | 15                               | 0.16                              |
| Simulation III               |                                  |
| Group of 20%-80%             | 20                               | 0.24                              |
| Group of USD 10 – USD 100    | 20                               | 0.21                              |

Source: Data of National Survey of Social Economy Processed, 2016

Based on Table 5, the simulation results using the increase in income for 10%, 15%, and 20% for each middle class household criterion showed that the growth of middle class revolves around 20%. The impact of growth based on the criteria of the group of 20% - 80% leads to the
greater economic growth compared to the increase in income for 10% to 15%. The impact of 0.24% on economic growth is as a result of the increase in income on household expenditure so that the portion of middle class household consumption quite significantly contributes to economic growth.

4. Conclusion

Although income distribution is one of the oldest parts of economic theory, we are still far from having any satisfactory theory explaining why income distribution in one country is more or less equal than in another, or what makes distribution move towards or away from equality over time. This study focused on analyzing the income distribution and inequality in Indonesia, particularly on middle class household. Using the data of National Socioeconomic Survey (Susenas) and the Gini index calculation, then simulate using Keynesian consumption model, we found that middle class household in Indonesia increases significantly during the period observed. Based on the three criteria used, the middle class grouping using 20th and 80th percentile of income has a greater growth than that of the USD and portion of average income approach. However, the simulation result of increase in income for 10%, 15%, and 20% revealed that the contribution of middle class income growth is relatively small or lower than 1 percent so that the response to the changes on middle class income in Indonesia is inelastic to changes on national input.

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