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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:

$$C = a + MPC*Y \quad (1)$$

$$S = - a + (1- MPC)*Y$$
$$\text{or } S = -a + MPS*Y \quad (2)$$

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.

2. 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).

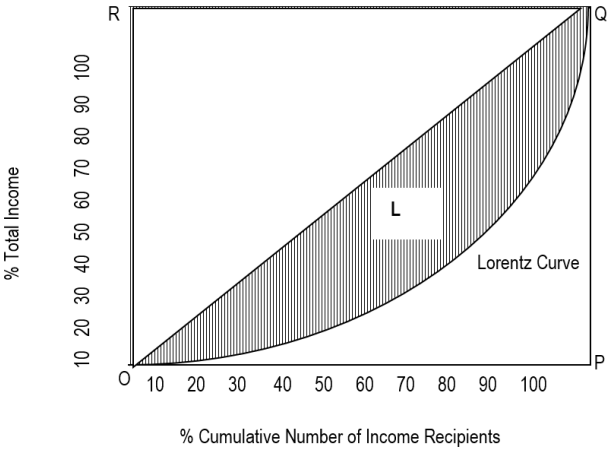

Figure 1: The Form of Lorenz Curve
Source: Maipita, 2014

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:

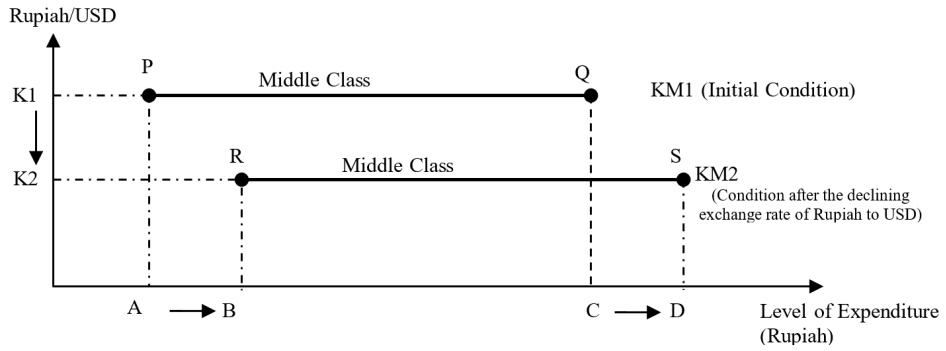

Figure 2: Illustration of the Shift of Middle Class as a Result of Changes on Exchange Rate

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	Percentage per Year						
		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	91.526	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	94.074	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

No	Province	Percentages per Year						
		2004	2005	2006	2007	2008	2009	2010
1	Lampung	27	23	12	19	3	8	1
2	Sulawesi Barat			26	6	1	1	2
3	Jawa Tengah	15	16	6	5	4	4	3
4	Jawa Timur	17	18	16	13	9	5	4
5	Nusa Tenggara Timur	30	30	32	27	26	22	5
6	Nusa Tenggara Barat	29	24	15	7	8	14	6
7	Gorontalo	28	29	27	21	24	23	7
8	Maluku	13	22	24	11	12	13	8
9	Sumatera Selatan	25	14	2	4	11	7	9
10	Jambi	6	5	3	9	2	3	10
11	Nanggroe Aceh Darussalam	20		10	1	6	11	11
12	Jawa Barat	9	9	20	16	16	16	12
13	Sulawesi Tengah	23	20	25	12	14	12	13
14	Bengkulu	16	19	4	2	7	2	14
15	Sumatera Utara	11	12	8	10	18	17	15
16	Kalimantan Barat	18	15	5	3	10	15	16
17	Kalimantan Tengah	7	1	1	14	19	9	17
18	Sulawesi Tenggara	24	25	22	18	13	10	18

No	Province	Percentages per Year						
		2004	2005	2006	2007	2008	2009	2010
19	Sulawesi Selatan	26	26	18	25	23	19	19
20	Sumatera Barat	8	7	11	17	15	18	20
21	Sulawesi Utara	3	6	9	8	5	6	21
22	Riau	4	2	19	28	27	28	22
23	Maluku Utara	14	17	13	15	17	21	23
24	Kalimantan Selatan	10	8	7	20	20	25	24
25	Papua	21	28	30	30	28	24	25
26	Banten	5	10	21	23	25	26	26
27	Bali	1	4	23	26	21	20	27
28	DI Yogyakarta	22	21	31	29	30	30	28
29	Kep. Bangka Belitung	2	3	17	22	29	29	29
30	Papua Barat			14	24	22	27	30
31	Kalimantan Timur	12	11	29	31	31	32	31
32	Kep. Riau		13	28	32	32	31	32
33	DKI Jakarta	19	27	33	33	33	33	33

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

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 distrubution (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.

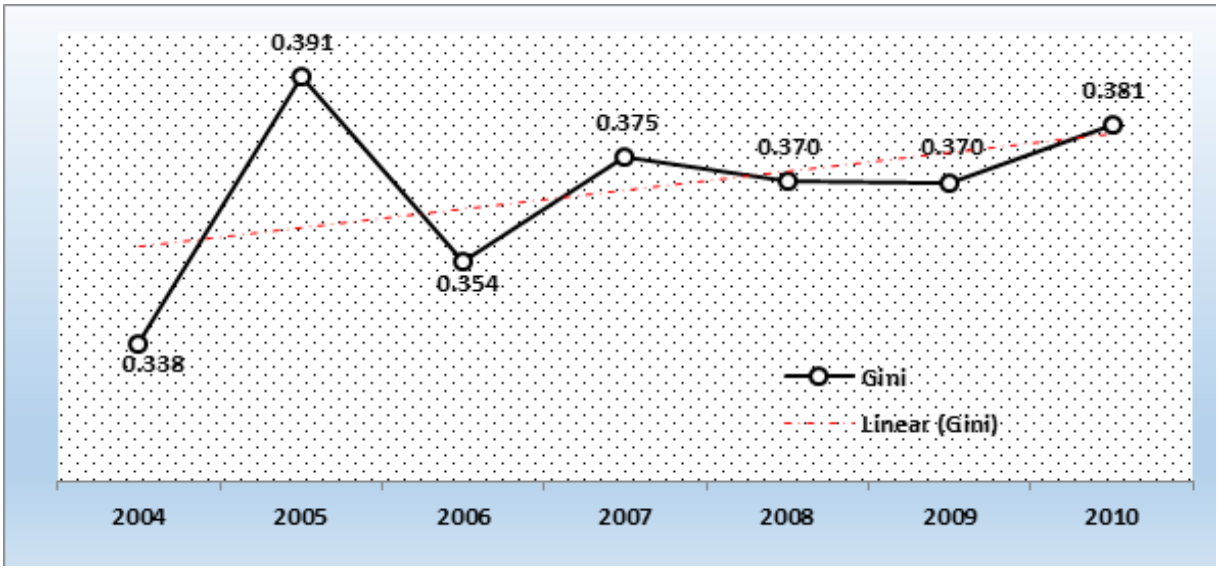

Figure 3: Gini Index of Indonesia
Source: Data of National Survey of Social Economy Processed, 2016

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	Year						
		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	0.255	0.255	0.281	0.311	0.307	0.297	0.297
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

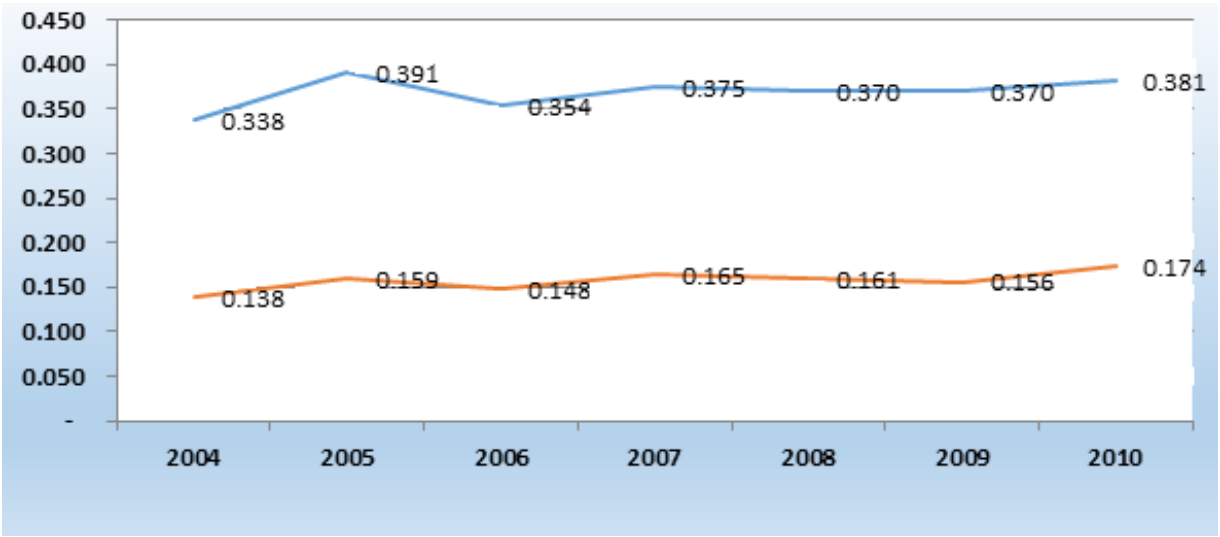

Figure 4: National Gini Index and Gini of Middle Class
Source: Adapted from National Survey of Social Economy, 2016

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 foud 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 ***Consumption = -22939.6 + 0.779844 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.

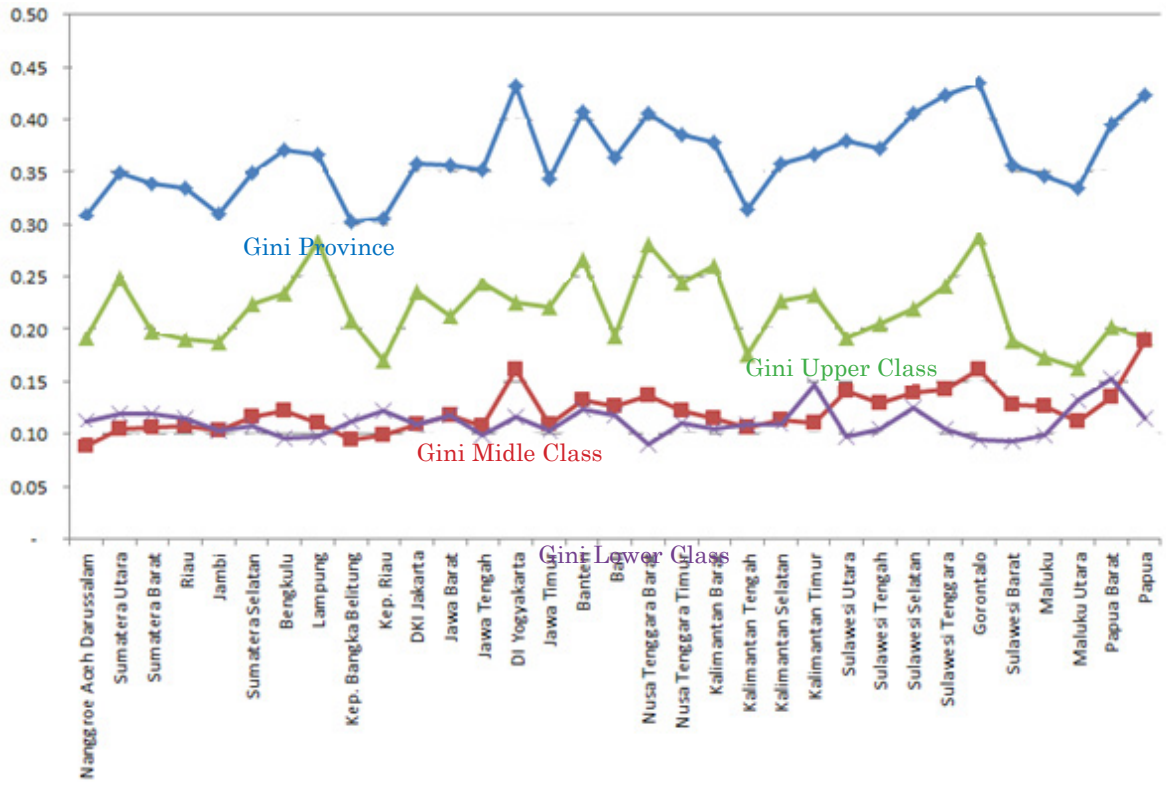

Figure 5: Gini index for Middle Class, Lower, and Upper in Provincial level
Source: Data of National Survey of Social Economy Processed, 2016

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	
imulation 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 20^{th} and 80^{th} 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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