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Structure changes, the contribution of sectors, income per capita Indonesia in 1990 – 2014

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A B S T R A C T

Economic development is seen as a process of transition from one phase to another, from simple economic structure (agriculture) to the modern economy structure. Economic development is characterized by changes in the structure of the agricultural sector into the modern sector. The changes affect all the matters related thereto. Therefore, a change or transformation of economic activity is referred to as a structural change. This study aims to analyze the structural changes in the national product, and the factors that cause changes in the structure and level of sectoral imbalances as a result of the structural changes. The study was conducted by using the economic sector, divided into four major groups, namely the primary, secondary, utilities and services from 1990 to 2014. Secondary data were collected by the method of sectoral trends, models Chanery Syrquin-Barua, Theil index. The results showed that the sectoral trend has a positive result such as utilities and services sectors, while the primary and secondary sectors tend to be negative. From the model Chenery, Syrquin-Barua shows the per capita income has a positive effect on the primary sector and the utilities, residents have positive effect on the secondary sector, utilities and services. Meanwhile dummy variable has a positive effect on the primary sector, secondary and services. Sectoral inequality occurs in the secondary sector.

A B S T R A K

Pembangunan ekonomi dipandang sebagai proses transisi dari fase ke satu fase lainnya, dari struktur ekonomi sederhana (pertanian) ke struktur ekonomi modern. Pembangunan ekonomi ditandai dengan perubahan struktur dari sektor pertanian menjadi sektor modern, perubahan tersebut berdampak pada segala hal yang terkait di dalamnya, oleh karena itu perubahan atau transformasi kegiatan ekonomi disebut sebagai perubahan struktur. Penelitian ini bertujuan untuk menganalisis perubahan struktural dalam produk nasional, serta faktor-faktor yang menyebabkan terjadinya perubahan struktur serta tingkat ketimpangan sektoral sebagai dampak dari perubahan struktur yang terjadi. Penelitian dilakukan dengan menggunakan sektor ekonomi terbagi dalam 4 kelompok besar, yaitu sektor primer, sekunder, utilitas dan jasa dari tahun 1990 hingga 2014. Data sekunder dengan metode trend sektoral, model Chanery Syrquin-Barua, indeks Theil. Hasil penelitian menunjukkan bahwa trend sektoral yang menunjukkan hasil positif adalah sektor utilitas dan jasa, sedangkan sektor primer dan sekunder cenderung negatif. Dari model Chenery, Syrquin-Barua menunjukkan pendapatan per kapita berdampak positif pada sektor utilitas dan primer, penduduk berpengaruh positif pada sektor sekunder, utilitas dan jasa. Sementara itu variabel dummy berpengaruh positif pada sektor primer, sekunder dan jasa. Ketimpangan sektoral terjadi pada sektor sekunder.

1. INTRODUCTION

In some approaches, economic development is seen as a process of transition from one level to another that is the level of simple patterned economy, to more advanced economies that include diverse activities. In the transition period, there is a transformation in the sense that changes in a variety of conditions revolve around the foundation of economic activity. This is attached to the arrangement of the economic life of the community. In other

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words, economic development as a transition is referred to as structural changes marked by changes in the transformation of the entire economic activity. The study, which describes the process of structural transformation, has been conducted since the 1940s. They have improved more and more consistently in national income data. Any study of changes in the structure was pioneered by Simon Kuznets, Collin Clark, and last comprehensively by Hollis Chenery and Syrquin Moses (1975). From observations made Chennery and Syrquin, it can be concluded in line with the increase in per capita income there are four (4) accompanying the process, namely the accumulation, allocation, demographics, and distribution.

In the 1990s, the agricultural sector contributes only a 16 percent to 20 percent, and 12.9 percent in 2006 to stay. Yet, at the end of 2006, the manufacturing sector had the largest share in the structure of production that is 28.0 percent of GDP and relatively higher than the agricultural sector that is 12.9 percent. Differences in the amount of the proportion of both of these sectors illustrate that there has been a process of transition of economic structure from agriculture to the manufacturing industry, in nearly three decades. From the data of 2014, it showed that Indonesia's GDP structure is dominated by the manufacturing sector, trade, hotels and restaurants, as well as the agricultural sector.

This study aims to analyze to what degree a process of structural change in the national product of Indonesia is, and the factors that cause changes in the structure; and what degree of sectoral imbalances that occur in the economy as a result of changes in the structure during the period 1990 to 2014.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

Structural change theory focuses on the mechanism of economic transformation experienced by developing countries. They were originally more subsistent and focused on the agricultural sector leading to a more modern economic structure and highly dominated by the industrial and services sectors. It can be seen at the macro-sectoral contribution based production sectors (activities) in shaping the economy of Indonesia's gross domestic product. By the year 1980, it was still based on agriculture but by the 1990s Indonesia Began to move toward the industrial sector.

Changes in the structure of agriculture towards industry is actually not true that is still very early. Changes to the industry are based solely on sectoral contribution in shaping gross domestic product or national income. The industrial sector is not yet supported by the sectoral contribution to absorb the workforce. If the sectoral contribution in revenue and accounted for in absorbing these workers are faced, or comparable, then the structure of the Indonesian economy at the macro-sector was still dualistic. Changes in economic structure in the development process of a country can be demonstrated using various means. In terms of the process of allocation of resources, economic development can be considered as a process of economic growth or the increase in income per capita. This process, among others, is accompanied by the emergence of the process of transformation of the economy dominated by the primary sector (agriculture and mining) into industry sector (processing industry) and later expanded into the service sector.

Structural Change Model

Structural changes in the model of analysis is done using the approach of neo-classical theory of the concept of price and allocation of resources as well as econometric methods to explain the structural changes that occur. Structural change approach supported by W. Arthur Lewis with Two theoretical models surplus labor sector is very well known. It is Hollis B. Chenery very famous with patterns of development (patterns of development). The process of changing is from the economic structure of agricultural structures to industrial structures and others.

It is often interpreted as changes process in the structure of primary, secondary and tertiary. The reduced contribution of the agricultural sector and the increases contribution of industrial sector in GDP, the GDP. It is also in line with the increase in per capita income brings consequences of changes in economic structure. WW Rostow (1960) in Todaro, using a historical approach in carrying out the process of economic growth, that the economic growth process can be divided into five (5) stages and every country in the world can be classified into one of five stages of economic growth. The fifth question is a growth stage; (1) the stage of traditional society; (2) a prerequisite takeoff; (3) takeoff; movement to maturity (5) high consumption period. UNIDO (United Nations Industrial Development Organization of) suggested stages of industrialization more detailed than the stages of economic growth proposed Rostow.

Doyle (1997), found that structural changes in Ireland and the labor productivity is the key factor

to the structural changes that occurred in that country this regard than that in other European countries. Productivity workforce will have an impact on aggregate productivity in the event of relocation across sectors and reducing the gap between Ireland with other European countries in terms of the productivity.

Papapetrou (2006), conducted a study of the dynamic between the saving-investment in Greece for a period of structural change with a change in the policy regime. It indicates the level of savings and investment correlations weakened during the period of financial liberalization.

Chennery and HB (2000), did a study related to the transition of economic growth and industrialization of the world, the rapid acceleration of economic growth due to the relocation of economic activity from developed to developing countries. They are due to high growth over the last 25 years. Developing countries experienced economic transformation so quickly after the end of world war.

Milan and Rodrik (2011), conducted a study structural changes in Asia, Africa and Latin America. They found a fairly subtle changes between these countries. They became the basis of the difference between these countries is productivity. Countries with high productivity will undergo structural changes faster due to the growth in overall productivity.

Pissarides, Ca (2012), found that a multisectoral balanced growth could lead to changes in the economic structure of a country. It also leads to a shift in economic activity from sectors with low technology to high technology sectors. Similarly, labor productivity, a shift occurred from the agricultural sector to the industrial sector, and this will have an impact on the labor market. However, in terms of the movement of aggregate output of the sector which has high growth sectors with low growth.

Uy, T, KM & Zhang, J (2013), changes in the structure of the open economy that occurred in South Korea, shows the importance of international trade in the structural changes that occur in a country. The process of shocks that occur as a result of the impact of international trade will affect the industrial sector in the country concerned. The shift of labor from agriculture, services and an increase in the processing industry. Transmission mechanism changes can occur through two routes, namely the choice is no longer the same community as well as an open economy that is very important for South Korea.

Zulkhibri, Naiya, Ghazal (2015), looked at the relationship long-term structural change and economic growth of four developing countries over the period 1960-2010. Co integration panel test results indicate that the structural change and economic growth are co integrated for these countries. In addition, the results estimator Dols panel revealed that there is a strong long-term relationship between structural change and economic growth in these countries. It also found that the structural change and economic growth has a positive and statistically significant, but the impact of GDP on structural change is higher than the impact of structural changes on GDP. The bigger impact of growth on structural changes may imply that higher economic growth tends to accelerate the process of structural change as the structure of demand for products in different sectors have a significant impact with increased revenue.

The growth rate is higher than the GDP that results in increased revenues and changes in demand. The structural transformation is all about improving the productivity and the movement of resources from the lagging sector more efficient. There are 3 facts generated, namely: first, the structural changes resulted in positive or negative contribution to the growth of aggregate productivity; second, the average structural changes seem to have only a weak impact; Third, for certain types of industry systematically achieve higher levels of productivity growth in the other. Increasing the productivity of productive factors is a very important factor in the structural transformation.

Albala, Bertrand (2016), found that there were changes in the pattern of sectoral and industry in China during the period from 1995 to 2010. It shows the growth rate of national output high will affect the increase in industrial sector output (secondary) and lower output of the primary sector and services. The main contribution of the export sector is as a result of increased export growth, and openness of international trade.

Conceptual Framework

Income per Capita of the Sectoral Contributions

The increase in per capita income will increase consumption. The degree of changes in the consumption of goods and services is determined by the elasticity of income. The pattern of changes in the structure of production for economic growth was also influenced by developments in income distribution. Chenery in Todaro 2006 on the Analysis of Development Pattern theory explaining change in the structure of economic change process stages from developing countries experiencing the trans-

formation from traditional agriculture to switch to the industrial sector as the main engine of economic growth. Increasing the role of the industrial sector in the economy is in line with the increase in per capita income are strongly associated with the accumulation of capital and increased resources (Human Capital).

The allocation process is driven also by the accumulation process (the process of increasing resources and funds to expand production capacity), the process of demographic and urbanization. In the allocation process, there are three (3) factors that influence behind the transformation process of production structure that accompanies economic growth, namely: (1). Changes in the demand for goods and services; (2). Changes in the quantity, quality and composition of the factors of production and technology development; (3). Improvement and specialization as well as a shift in activities among sectors of economic, and business units as well as within each business unit.

The process of transformation in the structure of production is influenced mainly by demand factors, particularly consumption patterns when income increases. When linked to the elasticity of demand for foodstuffs to changes in income (income elasticity of demand for good), it is smaller than one (Em <1), whereas the elasticity of demand is for goods rather than the food as the opposite, i.e., greater than one (Em> 1). The nature of community demand thus corresponds to the law Engel (Ernst Engel Law), that the higher the level of people's income, the less the percentage of revenue is used to purchase food, whereas the percentage of income devoted to purchasing non-food items to be larger. Changes in consumption patterns become one of the basic foundations that explain the causes of the structural transformation of the kind described in Yotopoulus Fisher and Clark (2000), economic growth is usually accompanied by a shift in demand from the primary sector to the secondary sector and finally to the tertiary sector.

The per capita income is the amount of the average income of the population in a country. The per capita income obtained from the division of national income of a country with the population of the country. The per capita income reflects the GDP per capita, income per capita is often used as a measure of prosperity and the country's development level, the greater the per capita income of the country's increasingly affluent. Of the few studies that have been done both by Chenery, Chenery and Syrquin, Barua, stated that the income per capita of significant positive effect on sectoral contributions.

The increase in income per capita tends to change the structure of the economy not only in terms of production, but also of the structure of domestic demand (consumption), international trade, employment, demographics, and distribution. From the production side there is a declining trend in the primary sector and an increase in the secondary sector in the economy. From the structure of demand decline in consumption to GDP and consumption of basic goods to the total consumption. Conversely, an increase in consumption of non-food in the consumption structure.

Transition of economic structure of poor countries towards a developed society involves changes in the composition of demand, production, trade and employment. All are highly correlated with per capita income levels. Thus, it is proved that Kuznets of the research which has been done. Likewise made by Chenery and Syrquin (1975), they did it by comparing several countries and the incorporation of cross-sectional data and time series for the period 1950-1970. Chenery-Syrquin models assume that as long as economic growth, the share of the manufacturing sector, grew along with per capita income and population size and other relevant data (capital inflow, trade, etc.). Thus, the structural change will have an impact on the increase in per capita income, Papapetrou (2006).

Sectoral Contribution to Gross Domestic Product

Changes in the structure of the economy is one of the indicators for growth in a country or region. This is in accordance with the opinion of Syrquin (1988: 208) states that there is a strong relationship between growth and structural change. The study of the structural change is important in explaining the process and the formation of the theory of development, especially modern economic growth. According to Chenery (1979) economic development is a change of economic structure is needed in sustainable growth (see Syrquin 1988: 208).

Changes in the structure of the traditional into the modern is a change in the economy related to the composition of demand, trade, production, and other factors necessary continually to improve the income and social welfare through increased income per capita (Chenery 1960, 1966, Chenery, Robinson and Syrquin 1986; Chenery and Syrquin 1975; Chenery and taylor 1968; Chenery and Watanabe 1958). For Indonesia, Hill 1996, structural transformation the era from 1966 to 1992 experienced a rapid change of the contribution of the agricultural sector to the manufacturing sector, and a change in the employment. The same is done by

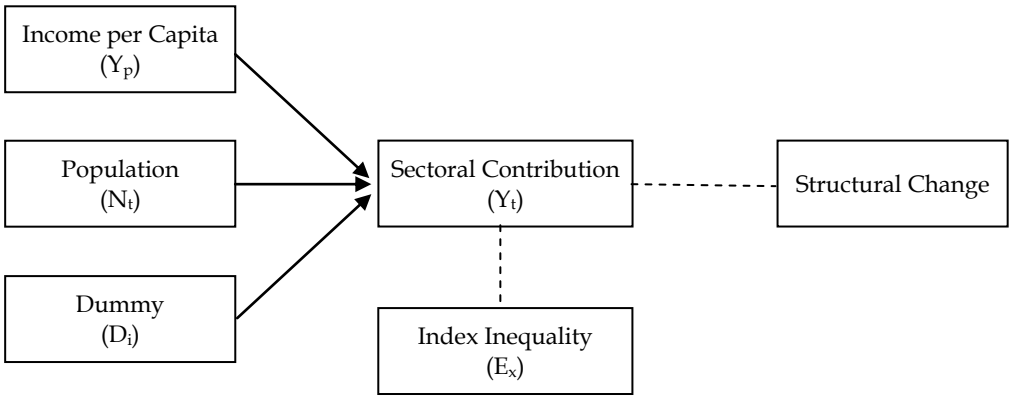

Figure 1
Schematic Framework

Source: Chenery and Syrquin 1975, Barua and Sawhney 2010.

Pissarides, Ca (2012), Zulkhibri, Naiya, Ghazal (2015), Albala, Bertrand (2016).

Population of the Sectoral Contributions

Changes in economic structure are not directly resulted in a change of the production side. Changes that occur in terms of manpower is caused by a change from the traditional economic sectors (agriculture) to the modern (industrial processing). It has an impact on the employment side. Clark in Nasution (1991), economic growth through the transformation process can be achieved by (1) an increase in labor productivity sectors, and (2) the transfer of labor from the productive sector to the economic sectors whose productivity is higher. Economic activity creation affects directly or indirectly the job creation. The structural changes also affects indirectly the changes in labor structure.

Spatial Inequality

It is the whole dimension of inequality in economic and social fields between the geographic units in a territory. Spatial inequality size can be demonstrated by Thiel index value of each indicator development. It is decomposed into sector between Thiel Index. By increasing the value of inter-sectoral Thiel index, it leads to the fact that the construction sector provides the excesses increase in spatial inequality (Barua 2010). The schematic framework of this study is shown in Figure 1.

3. RESEARCH METHOD

This study is done to see changes in the structure and economic growth in Indonesia, using observation time period 1990 – 2014. The data used are time series data. The research design is Causal Comparative (Kuncoro 2003) to see the cause and effect (causality) between the variables used in view of economic structural change and its impact, especially in terms of allocation and demographics.

Data and Source Data

In this study, the unit of analysis is focused on sectors in the economy. It used time series data for 25 years (1990-2014) for the contribution of each sector, population, income per capita. The data are the secondary data obtained from: a. Bank Indonesia; b. Central Bureau of Statistics; c. Institutions/Agencies.

Empirical Model

1. Contributions Each Sector Model

To solve the problems, this study used the model such as analysis of time series contribution of each sector;

$$Vi=a+bt. \quad (1)$$

2. Chenery Syrquin – Barua Model

$$LnVi=a+\beta 1lnYp+\beta 2lnYp2+\beta 3lnNit+\beta 4lnNit2+\beta 5D. \quad (2)$$

3. Index Inequality Economic Activity of Theil Model

$$E_x = \sum_i X_i log\left(\frac{X_i}{p_i}\right). \quad (3)$$

It used a classic assumption test; multicollinearity, heteroscedasticity, autocorrelation and normality as a condition of use of multiple regression models.

4. DATA ANALYSIS AND DISCUSSION

The Development of the Sectoral Growth Rate

Over the last 25 years, Indonesia sectoral contribution to GDP has experienced significant changes. The primary sector (agriculture, livestock, mining and quarrying) shows the condition of decreasing over time, although it had increased from 1999 to 2003 and until today the rate of growth in primary

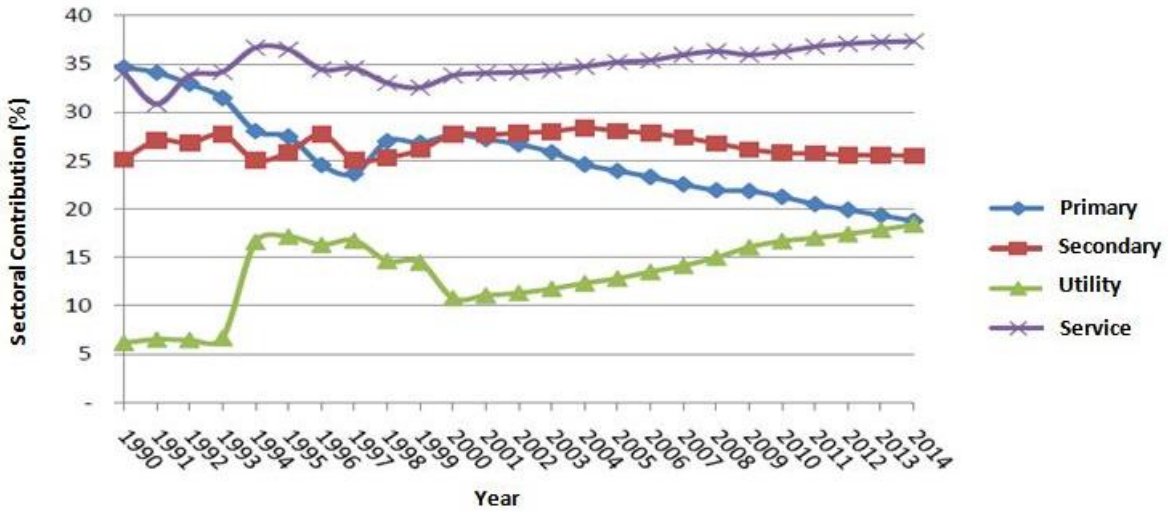

Figure 2
Graph Sectoral Contribution 1990 – 2014

sectors experiencing deterioration. The secondary sector (manufacturing industry) is also experiencing the same thing as the primary sector, which in the early nineties became the foundation source of economic growth. However, in recent years, the secondary sector also decreased. The utilities sector during the 1990s fluctuated quite high but since 2000 until today continuously (see Figure 2). The same as it was experienced by service sector growth constantly increasing, although not as big as in the utilities sector.

The process of change is also in the structural transformation in Indonesia. Over the last 25 years, it has been changing very rapidly, at which time (years 1980-1990) source of economic growth comes from the secondary sector as the backbone of the economy. However, changing quite rapidly in 2000 with the utility sector and services can compete with the growth of the secondary sector.

Sectoral Trend Calculation Results

Results of simple linear regression between the times in the sectoral contributions, the time variables, showed significant positive impact on the sectoral contribution, while the economic sector is the sector utilities and services. The variable of time has negative effect on the primary sector but it does not affect the secondary sector (see Table 1).

The linear equation of the sectoral trend, to the primary sector, time negatively affects sectoral contribution. This means that the primary sector contribution to GDP declined from year to year visits of the coefficient is negative. Secondary sector also decreased contribution to GDP. As for the utilities and services sector contribution to GDP increased from time to time.

Of the two sectors (utilities and services) that has an ascending trend, the utility sector appears most of which affect sectoral contribution, with a regression coefficient of 0.33850. This means that every year the role of the utility sector in the structure of national production increased by 34%. Meanwhile, the services sector contributes only 15% to GDP. As with the primary and secondary sectors have a declining trend, in which the primary sector experienced a deterioration in the most to GDP is 55%, and the secondary sector fell by 0.8%.

The trend line for the primary and secondary sectors tend to decrease over time, meaning that the longer the role of primary and secondary sectors decreased. Yet, the trend line for the utility sector and services tends to increase, with the increase varied. This trend line changes indicate a shift in the economic structure of Indonesia, which was originally based on the primary sector to switch to the secondary sector and currently heading the utility and services sector.

The results of the sectoral trend regression equation in Table 1, for the primary and secondary sectors showed a negative impact on the time variable contribution of primary and secondary sectors. Variable of time has a negative impact on the contribution of the primary sector. It can be caused by the decreasing role of the primary sectors of the output produced in the economy, in this case, it is the GDP. Reduced contribution of the primary sector from time to time is reflected in the time variable is used, that the longer the primary sector has begun to diminish the contribution it is possible because people started to shift consumption patterns of the primary needs (food) to other needs.

Similarly, the contribution of the secondary

Table 1
Summary of Calculation Results in Sectoral Trend Equation

Sector	Constant	Coefficient	p-Value	R^2	Addjusted R^2	F-Count
Primary Time (t)	32.71487	-0.55943	0.0000	0.854803	0.84849	135.4059
			0.0000			
Secondary Time (t)	26.74271	-0.00828	0.0000	0.002922	-0.040429	0.067414
			0.0005			
Utilities Time (t)	9.115048	0.338504	0.0000	0.419819	0.394594	16.64281
			0.0005			
Services Time (t)	33.03777	0.151052	0.0000	0.476332	0.453564	20.92098
			0.0001			

sector negatively affects the contribution of secondary sector. This shows that the secondary sector from time to time also started declining contribution to output. Decrease in contributions over time is possible because people are starting to shift consumption from the secondary sector to other sectors (utilities and services). Began to shift people's consumption of primary and secondary sectors to other sectors in accordance with the development and changes in consumption. Where people who have entered the semi-industrialization phase, sectoral contribution is the secondary sector that ranges from 20-30% of GDP.

Meanwhile, for the utilities sector, the time variables contribute positively to the utilities sector. This condition indicates that the utility sector from time to time increased contribution to GDP, this can happen due to the more advanced people's lives then the need for the utilities sector (electricity, gas, water, transport and communications) will be increased, resulting in increased demand for the utility sector will have an impact on the increase in the utility sector's contribution to GDP.

The same thing happened in the services sector. It shows that the time has contributed to the service sector. This condition indicates that the service sector from time to time to increase the contribution to the GDP, it can happen for the better the level of people's lives, the need for the service sector (trade, hotels, restaurants, finance, leasing and business services, as well as other services) will increase, resulting in increased demand for the service sector will impact on increasing the contribution of the services sector to GDP.

Based on the stages of development made by a country that presented UNIDO or the World Bank, it can be stated that during the 1990s the Indonesian economy relies on secondary sectors/industries. However, lately they rely on the services sector or Indonesia today tend to enter the era of industrialization full rather a service industry (contribution> 30%). From this evidence, it can be concluded that while the economy of Indonesia through every stage of industrialization or change the structure of the economy for more than 10 years. If some time ago from the results of research conducted Paulina et al. 1997 changes in Indonesia's economic structure from the primary sector to the secondary sector, in contrast to the conditions that occur at this time.

Results of Regression Equation Chenery-Syrquin-Barua

Of the four major sectors studied, there is one sector of the economy that tends to increase contributions in line with the increase in income per capita. The economic sector is the primary sector, this can be seen from the regression coefficient (elasticity) of the primary sector is positive. If there is a 1% increase in per capita income and the change in time (dummy) will have an impact on increasing the contribution of the primary sector. As for the other three sectors, namely the secondary sector, utilities and services, there is a tendency of rising per capita incomes will negatively affect the contribution of the sector concerned.

Likewise, if viewed from a variable population and dummy, the population growth of 1%. This will positively affect the sectoral contribution, the same thing happened to the dummy variable, where future changes/conditions for the secondary sector and services. They also have a positive impact on the sectoral contribution, while for service sectors dummy condition would likely have a negative impact on sectoral contribution.

Based on the results of these calculations (in Table 2), income per capita does not significantly influence the primary sector's contribution. That is, the increase in per capita income for the primary sector does not give any impact on the contribution of the primary sector, even an increase in per capita income indicates a decrease in the contribution of primary sector. This can happen because of the demand side there is a change of food consumption into non-food consumption, while on the supply side due to the impact of the demand side, the production sector would respond by reducing the output of the primary sector. This trend does not only

Table 2
Summary of Results of Regression Equation Model Chenery Syrquin Barua Sectorial

Sector	Constant	Coefficient	p-Value	R^2	Addjusted R^2	F-Count
Primary	77976.17		0.0123	0.94676	0.93275	67.57979
LnYKapita		40.24953	0.1071			
LnYKapita2		-1.20857	0.1108			
LnPdd		-8088.01200	0.0129			
LnPdd2		208.87940	0.0133			
Dummy		2.76961	0.0094			
Secondary	-41393.24		0.0370	0.64369	0.54992	6.86477
LnYKapita		-24.31030	0.1353			
LnYKapita2		0.73918	0.1348			
LnPdd		4340.09400	0.0366			
LnPdd2		-113.15050	0.0360			
Dummy		2.68994	0.0004			
Secondary	-70883.28		0.1837	0.76258	0.70010	12.20538
LnYKapita		-24.02537	0.5836			
LnYKapita2		0.72395	0.5891			
LnPdd		7346.05800	0.1876			
LnPdd2		-189.73010	0.1900			
Dummy		-7.19742	0.0006			
Secondary	-45007.08	-48.97549	0.0981	0.65699	0.55672	7.27839
LnYKapita		1.45541	0.0371			
LnYKapita2		4698.67900	0.0409			
LnPdd		-121.42590	0.0987			
LnPdd2		0.45357	0.1003			
Dummy			0.6122			

happen in Indonesia but in other developing countries. It can also be seen from the level of the income elasticity that is greater than 1 (€> 1). This indicates that structural changes to the case of Indonesia during the period 1990-2014 can increase in per capita income and this can lead to increasing demand for non-food.

The population or the number of people in a country has significant and positive effect on sectoral contribution. This means a population growth will result in increased consumption of the sector that is food consumption. Thus, it pushes the primary sector to boost output in the economy. Changes in economic structure are not directly resulted in a change of the production. The changes that occur from the side of labor is caused by the change from traditional economic sectors (agriculture) to the modern (manufacturing) will have an impact on employment side. Clark in Nasution (1991), found that economic growth through the transformation process can be achieved by (1) an increase in labor productivity sectors, and (2) the transfer of labor from the productive sector to the economic sectors whose productivity is higher.

Dummy variable (condition before and after the crisis in Indonesia) has a significant and positive effect on contribution of the primary sector. Good economic conditions also contribute to the production sector that can generate the output especially primary sector output. Besides that, it can often lead to a normal economic condition and makes the output grow by itself (cyclical economy).

The results of this study are in line with research conducted by Chenery, Chenery and Syrquin, Barua; that population and dummy has a positive and significant effect on the sectoral contribution. Thus, it is clear that countries with high concentrations of the primary sector are quite high. The population also has a positive impact on the creation of the output of the primary sector, especially in developing countries sector primary is still traditional (agricultural and livestock). Yet, the forestry and mining subsector are in a semi modern but still depend on the use of labor that is quite a lot.

The result of the calculation shows that population has a significant and positive effect on the contribution of secondary sector. The condition occurs when there is an increase in population of 1% in a given year that can affect the contribution of the secondary sector. This could be caused by an increase in the population and will have an impact on increasing demand fulfillment of community. The community needs it from the secondary sector.

Table 3
Thiel Index Sectoral Indonesia

Sector	Index Theil
Primary	1.176
Secondary	-7.824
Utilities	1.171
Service	1.171
Average Sector	-1.074

The allocation process is driven also by the accumulation process (the process of increasing resources and funds to expand production capacity), the process of demographic and urbanization. In the allocation process itself, There are three factors that influence in addition to the transformation of the production structure that accompanies economic growth, namely: (1). Changes in the demand for goods and services; (2). Changes in the quantity, quality and composition of the factors of production and technology development; (3). Improvement and specialization as well as the shift of economic activity between sectors and business units as well as within each business unit.

The process of transformation of the structure of production is primarily affected by demand factors, especially linked to human nature in their consumption patterns if their incomes increase. If related to the elasticity of demand for foodstuffs to changes in income (income elasticity of demand for good) it is smaller than one (€ <1), whereas the elasticity of demand for goods rather than the food is the opposite, i.e., greater than 1 (€> 1).

Population multiply is accompanied by an increase in public demand for the output of secondary sector or the resulting product processing industry. It is done by the people to meet their household needs as well as those conducted by the industry itself. It is also associated with the above statement, wherein changes in food consumption into non-food consumption.

The dummy variable or time period was before and after the monetary crisis in Indonesia. In this time, the contribution of the secondary sector fluctuated from time to time. Along with the improving economic conditions in Indonesia, development of the secondary sector also experienced an increase in the output produced, although still lower than the service sector.

Based on the findings in Table 2, the dummy variables negatively affect the utility sector contribution. This means that the economic conditions before and after the economic crisis Indonesia negatively affect the utility sector contribution. It has a negative impact of differences in economic conditions before and after the economic crisis of the contribution of the utilities sector. It is also due to the nature of community demand thus corresponds to the Law of Engel (Engel Law), during the economic crisis occurred in Indonesia which indirectly impact on per capita income declining,. This also affects the level of public demand for goods and services, the same thing also happened when Indonesia out of the economic crisis that happened. There is a tendency that the higher the level of people's income, the less the percentage of revenue that is used to purchase food, whereas the percentage of income devoted to purchasing non-food items to be larger.

Changes in the pattern of consumption has become one of the basic foundations that cause structural transformation as proposed by Fisher and Clark. According to Fisher and Clark, economic growth is usually accompanied by a shift in demand from the primary sector to the secondary sector and ultimately to the utility sector and services. Increase in demand on the utilities sector output cannot always be offset by the sector, it also happened in Indonesia, until this time the utility sector could not meet the public demand, thereby continuously increased the population. This in turn affect the utilities sector pressures.

The calculation in Table 2, shows that per capita income has a significant and negative effect on the service sector contribution. This means that the per capita income negatively affect the contribution of the service sector. The increase in per capita income will cause a reduction in the services sector's contribution to GDP. The condition is contrary to the theory put forward earlier, that the increase in income per capita will have positive impact on the contribution of the service sector. The situation can be caused by an increase in per capita income will lead to a decrease in demand for the output of the service sector (trade, hotels, restaurants, finance, leasing and business services, and other services). This is because the people still prefer consumption to meet the needs of other major after primary and secondary needs. They are such as increased electricity, water, gas and others as supporting the

main activities of the community.

The increase in income per capita tends to change the structure of the economy not only in terms of production, but also of the structure of domestic demand (consumption of food and non-food), international trade, employment, demographics and distribution. From the production side, there is a downward trend in primary and secondary sectors in the economy. Meanwhile, the structure of demand decline in the share of consumption in GDP and consumption of basic goods to the total consumption. Conversely, an increase in the role of non-food consumption in the consumption structure.

As noted earlier, the allocation process is driven also by the accumulation process (the process of increasing resources and funds to expand production capacity), the process of demographic and urbanization. In the allocation process itself, there are three factors that influence in addition to the transformation of the production structure that accompanies economic growth, namely: (1). Changes in the demand for goods and services; (2). Changes in the quantity, quality and composition of the factors of production and technology development; (3). Improvement and specialization as well as the shift of economic activity between sectors and business units as well as in each business unit.

The process of transformation of the structure of production is primarily affected by demand factors, especially linked to human nature in their consumption patterns if their incomes increase. If related to the elasticity of demand for foodstuffs to changes in income (income elasticity of demand for good) is smaller than one (€ <1), whereas the elasticity of demand for goods rather than the food is the opposite, i.e., greater than 1 (€> 1), Structural changes that occur in Indonesia during 1990 and 2014 shows that, for the primary sector increasing per capita income elasticity of demand coming from the primary sector is greater than 1 (€> 1). This shows that for the case of Indonesia demand for foodstuffs derived from primary sector progressively reduced and people switch to the consumption of other sectors (non-food).

Model Calculation Results of the Sectoral Thiel Inequality Index

The index Thiel is used to determine sectoral gap in Indonesia,. In general, most sectors of the Indonesian economy are likely not too far from the average value. this means that the primary sector, utilities and services did not experience a gap when compared with other economic sectors. Yet, the secondary sectors obviously are different from the index average value of all the sectors. It indicates that there is a tendency gaps secondary sector and other economic sectors. This situation can occur, because the secondary sector is the economic sector related to other economic sectors and the development of the secondary sector more quickly than other sectors as construction/structural changes that occur in a country. The Progress was so rapidly in the secondary sector (manufacturing industry) and this also affects directly and indirectly other sectors. Thus, there is no difference in the time and opportunity development of the secondary sectors. First it was experienced in a country that can cause the gaps in other economic sectors. This happened in Indonesia. First, the secondary sector grew in the 80's and its rose well into the 2000s, while utilities and services sectors experienced growth after that period.

As for the results of calculations using Thiel sectoral indices can be seen in Table 3. It can be indicated by regression between the index Theil and the contribution of each sector. It turned out that of the four major sectors, only the primary sector has a pretty good value and significant gaps, which means that although the primary sector grew with the contribution value decreasing over time, it tends to be stable compared with other sectors.

Discussion

The Effect of Changes on Economic Structure in a State

Structural changes occurred in Indonesia in the new order that likely to leads to the primary sector to the secondary sector. This condition occurs until Indonesia entered a period of economic crisis in 1998 but the situation changed after Indonesia could go out of the economic crisis, the structural changes that occurred shows that the role of the secondary sector is slowly being replaced by the service sector and the utilities sector.

Structural changes that occur in developing countries such as Indonesia are caused by internal factors (Tambunan 2011), namely: (1). the conditions and the initial structure of the domestic economy (the economic base); (2). The size of the domestic market; (3). The pattern of income distribution; (4). Characteristics of industrialization; (5). Industrial development strategy were applied, the type of industry that were seeded, the pattern of industrial development and incentives were provided. Aspects that vary between countries and that can produce different patterns of industrializa-

tion; (6). The existence of natural resources; (7). Foreign Trade Policy. What is raised by Tambunan 2011, it is indeed the case in Indonesia, and the transition from one economic structure to other economic structure is caused more by internal factors.

If seen from the condition of Indonesia, structural changes have occurred so rapidly since some time ago from the primary sector to the secondary sector to the service sector and utilities. It was very dominantly influenced by internal factors. The conditions of economic structure beginning Indonesia include the primary sectors (agriculture, farming, fishing, forestry, and mining), which became the backbone of the Indonesian economy. They are also in the domestic market pattern of income distribution that is still in high gaps, industrial development policy, the domestic market, up to our capabilities entering the market internationally. They are also due to the benefits and losses that may occur in the Indonesian economy. They can also indirectly affect the economic structure of Indonesia today.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

It can be concluded that changes in the structure of the Indonesian economy were during the period 1990 - 2014, in which they can be summarized as follows:

1. Factors influencing changes in the structure of Indonesia are different for every sector of the economy. The per capita income affects the contribution of the services sector, while the number of people affects the primary and secondary sectors. However, dummy variables affect the primary and secondary sectors and utilities. This means a period of time will have an impact on the economic sector.
2. As for the tendency of growth of the sector, a sector that has a positive trend is the utility sector and services. It is possible, due to population growth that needs the utilities sector and they will be even greater, as well as an increase in the services sector due to increasing economic activity in the future.
3. Sectoral gap measurement using Theil Index in four major sectors showed no differences/inequalities if compared with the sector average index (primary, utilities and services), while the secondary sector has a considerable gap compared with the average sectoral indices Index of Theil which is big enough for the secondary sector. This is caused by many factors, notably internal factors related either directly or indirectly to the development of the secondary sector, and is not intended that the development of the secondary sector should be preferred but other key sectors should also still be considered (primary, utilities and services) and not neglect even distribution across sectors, groups, communities and between regions.

It implies that economic structural changes that occur in one country affect the output produced in the economy. Such changes can occur due to changes in per capita income, population, economic conditions related to them. Therefore, the variables that become concentrated in structural changes and their impact on the economy of a country should be managed and controlled as well as possible, so that the structural changes that occur will have a positive impact on the economy for the community and region.

This study suggests that all sectors in the economy can contribute to the economy as expected. The economic development is not only focused on one or a few sectors, but for all sectors, so that there will be an even development across sectors, optimization of factors of production, to the ability to master the domestic and international markets. Across sectoral contribution and role in the creation of output in the economy, it is proper for the government to cultivate the existing economic sectors (primary, secondary, utilities and services), to improve the welfare of its people.

There are several limitations in this study. First, the equation model of changes in the economic structure is not only seen by per capita income, population, dummy, but there are several other variables that are not used, such as foreign trade activities, domestic market, and others. Second, studies changes in the economic structure and sectorial contributions so far has created an idea of the structural changes that occur in a country and its impact on the country's economy, especially with regard to gap index measurement using only the measurement model of index Thiel. Yet, other indices, such as Williamson etc. and involve the area might be important too.

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