

ANALYSIS OF STRUCTURAL TRANSFORMATION OF LABOR FROM AGRICULTURE TO NON- AGRICULTURE IN ASIA

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Abstract: Through the dataset from APO (Asian Productivity Organization) comprising 22 countries in Asia from 1980 to 2015, this study is to investigate the growth pattern, decomposition, and determinants of structural transformation in Asia. A decomposition method measuring within-effect, between-static-effect, and between-dynamic-effect was adopted to explain the structural change within sectors of agriculture, industry, and services. The results show that the agriculture sector of all countries in Asia declines slowly. The agriculture sector is no longer the largest contributor to GDP in all Asian countries even though it still has the largest labor in Asian developing countries. Workers moving from the agriculture sector to the services sector as the productivity of the service sector is higher than agriculture. The structural changes positively contribute to productivity growth in Asia as a result of the positive static reallocation effects and negative dynamic reallocation effects. Overall, the structural changes contribute to a large part of labor productivity growth. The important determinants of structural transformation are the employment share in agriculture and trade. Final, the policy implication was proposed for structural changes.

Keywords: *Structural Transformation, Labor Productivity, Decomposition Method, Asia*

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INTRODUCTION

Economic development has an important meaning in describing the condition of a country. Indicators of economic development success can be seen from the increase in Gross Domestic Product (GDP), reducing poverty, overcoming income inequality, and providing employment Dalal-Clayton and Bass (2002). Economic development encourages economic growth followed by changes in economic structure. According to Saunders, Warford, and Wellenius (1994), economic development is a process of transformation characterized by changes in economic structure, changes in the base of economic activity so that modernization is needed to carry out economic development and accelerate economic growth.

One indicator of economic development in a country is changing the structure of the economy. According to Habermas and Habermas (1991), the transformation of the economic structure changes the economic structure from the agricultural sector to the industrial or service sectors, each of which

undergoes different changes. The transformation of the economic structure is not only shown by the decreasing proportion of the primary sector which was replaced by the secondary and tertiary sectors in the formation of GDP but also focused on the use of production factors one of which is labor (Marelli & Signorelli, 2010).

According to Oyelaran-Oyeyinka and Lal (2016), the structural transformation of the workforce is defined as the economic transition from economic activities with low productivity and labor intensive to activities with higher productivity and higher ability. The driving force behind structural transformation is a change in productivity in the modern sector that is dominated by industry and services. This is also marked by the movement of workers from labor intensive activities to skills intensive activities.

Structural transformation occurs in every country in the world, not apart from Asia. In most of Asia, structural transformation has taken place, such as Japan, Hong Kong, South Korea, Singapore and Taiwan. In the early 1950-1965 period, Japan

and Hong Kong had experienced a change in economic structure from agriculture to manufacturing. And 15 years later Singapore, South Korea and Taiwan developed labor-intensive manufacturing industries. Thus, this structural transformation seems to have been successful in several developed countries, but this process is still ongoing in several other Asian countries and has only begun in several developing countries (Felipe & Hasan, 2006).

Structural transformation in developing countries is not running optimally (K. Anderson & Pangestu, 1995). There are still many workers in developing countries who work in the agricultural sector. The modern industrial sector cannot absorb the surplus of labor assumed by Lewis (Naiya, Manap, & Finance, 2013). Many developing countries experience high population growth with an expansion of the workforce that exceeds the absorption capacity of the industrial and service sectors. According to Yustika et al. (2014), the agricultural sector is the sector that absorbs the most labor, but this sector in a few years has a growth rate below the level of economic growth. So that every year the share of the agricultural sector to GDP decreases, even though the number of workers working in the agricultural sector is most numerous. As a result, it cannot absorb surplus labor from the agricultural sector, exacerbating the problem of unemployment, inequality, and poverty.

We cannot ignore the decrease in the contribution of the agriculture sector in economic growth, the main role of GDP and increased employment ((K. Anderson & Pangestu, 1995; K. J. A. e. Anderson, 1987; Johnston, 1994; Mellor, 1995). Empirical facts show the growing importance of the agricultural sector due to its dynamic nature and broad relationships (Fei & Ranis, 1969; Hirschman, 1958; William Arthur Lewis, 1954; Mellor, 1995). The role of agriculture is the basis for the structural transition process. Agriculture also has an important influence on economic growth and industrialization Lewis (2013); (Ruttan & Hayami, 1984) as an export commodity and source of foreign exchange, a source of employment opportunities, and food security (Alexandratos & de Haen, 1995; Hayami, 1987).

Simultaneously, increasing agricultural productivity will increase the standard of living of farmers, reduce poverty, increase the absorption of the domestic market for industrial products, and encourage trading activities (Lewis, 2013). Nissan (1989), revealed the strategic role of the agricultural sector in market contributions, production factors, and foreign exchange. Thus, the stagnation of agricultural development is not good for economic development because it can inhibit industrial growth and can cause economic and political

instability to increase food shortages (Alexandratos & de Haen, 1995).

This study replaces the role of agriculture in the structural transformation of labor in Asia. This evaluation is based on the development paths of Asian countries during modernization. We see development agriculture as a key element of structural transformation in Asia, and agriculture will continue to play an important role in transformation. However, future patterns of change may differ from those discussed in the history of economic development, due to real differences in the underlying global drivers, such as demographics, natural resources, advanced technology, and global value chains (GVCs).

Based on the background above, we can end it that Asia has changed the economy from time to time. How the transformation occurs and what is determined needs to be done so that the transformation that occurs can be done and the transformation can be anticipated and directed in a direction that is more in line with expectations. It will conduct an analysis covering 25 Asian countries from 1980 to 2015. So, it is hoped that this study can assist the government in determining alternative policies in supporting the development of the agricultural sector.

RESEARCH METHOD

This study used secondary data with panel data types. Panel data is a combination of time series and cross section data. Time series data is data from one object with several periods, while cross-section data is data obtained from one or more research objects in the same period. This study uses time series data for 35 years, from 1980 to 2015, while the cross-section data in this study are 22 countries in Asia. The data was collected from the APO (Asian Productivity Organization) and the world bank. The data in this study cover 9 economic sectors based on the International Standards Industry Classification (ISIC) Revised 2.

In this study, the formula for average labor productivity is absorbed from research conducted by De Vries, Timmer, and De Vries (2015). Where the aggregate variables are shown with capital letters; V for value added, L for the number of workers, and p for average labor productivity. In addition, sectoral aggregate variables are written with the subscript $i \in \{1, I\}$ for example producing V_i or L_i and assuming the existence of sector i in economic activity. Thus, the formula for average labor productivity can be seen in the equation below:

$$p = \frac{V}{L} \quad (1)$$

The added value of an economy can be decomposed as the sum of the added value of economic activity $I \in \mathfrak{R}^+$, then:

$$V = \sum_{i=1}^I V_i \tag{2}$$

Then, divided by the number of workers:

$$p = \frac{\sum_{i=1}^I V_i}{L} = \frac{\sum_{i=1}^I V_i}{\sum_{i=1}^I L_i} \tag{3}$$

If dividing and multiplying each of the sum provisions by the number of workers according to the economic sector, then it can define added value per worker as:

$$p = \sum_{i=1}^I S_i P_i \tag{4}$$

Where $S_i = \frac{L_i}{L}$ and $p_i = \frac{V_i}{L_i}$, each is part of the work and labor productivity of the average sector i^{th} .

The decomposition method explains the change in aggregate productivity into effects within and between. The "within-effect" measures productivity growth in the sector, while "between-effect" measures the productivity impact of reallocation of workers in various sectors. Based on M. Timmer, de Vries, and De Vries (2015) and De Vries et al. (2015), changes in aggregate productivity can be decomposed as follows:

$$p_{t+1} - p_t = \underbrace{\sum_{i=1}^I S_{i,t} (p_{i,t+1} - p_{i,t})}_{\text{Within-sector effect}} + \underbrace{\sum_{i=1}^I p_{i,t+1} (S_{i,t+1} - S_{i,t})}_{\text{Between-sector reallocation effect}} \tag{5}$$

In equation (5), there are things that must be considered, namely the weight used in the "within" component is the time t part of the work, while the weight used in the term "reallocation" in accordance with the term productivity level $t + 1$. The first term in the above decomposition is the amount of productivity growth in each sector. According to McMillan and Rodrik (2011), this term is called an internal effect or an intra effect. The second term shows the productivity effects of reallocation of labor in various sectors, this term is called structural change.

De Vries et al. (2015); (McMillan & Rodrik, 2011; M. P. Timmer & De Vries, 2009), modified the two-fold decomposition in an effort to correct some of the limitations posed by this decomposition. This study follows this pattern of change, where the starting point for arranging a threefold decomposition is the difference in time $t + 1$ and the average time t of labor productivity:

$$p_{t+1} - p_t = \sum_{i=1}^I S_{i,t+1} p_{i,t+1} - \sum_{i=1}^I S_{i,t} p_{i,t} \tag{6}$$

Mathematically, the components of this decomposition can be obtained by adding and subtracting products from the share of work and labor productivity at different time points. The double decomposition shown in equation (6) already uses time t labor productivity and time $t + 1$ productivity. While this time decomposition, time t labor productivity with time t productivity and time $t + 1$ labor productivity with time t productivity. The product in this is given in equation (7):

$$\text{Inner products: } \begin{cases} \sum_{i=1}^I S_{i,t} p_{i,t+1} - \sum_{i=1}^I S_{i,t} p_{i,t} & \text{(a)} \\ \sum_{i=1}^I S_{i,t+1} p_{i,t} - \sum_{i=1}^I S_{i,t+1} p_{i,t} & \text{(b)} \\ \sum_{i=1}^I S_{i,t} p_{i,t} - \sum_{i=1}^I S_{i,t} p_{i,t} & \text{(c)} \end{cases} \tag{7}$$

The first term from equation (7a) and the second term from equation (6) can be combined to get "within-effect", $\sum_{i=1}^I S_{i,t} (p_{i,t+1} - p_{i,t})$. Furthermore, the second terms of equation (6) and the first equation of (7b) can be combined to produce a "static-reallocation-effect", $\sum_{i=1}^I p_{i,t} (S_{i,t+1} - S_{i,t})$, where what differs from the reallocation effect on equation (5) is time t rather than time $t + 1$ productivity used. That is, it calculates the contribution of sectors that find work in productivity that causes this shift. Finally, the term "dynamic-reallocation-effect" combines (6) and (7c) to produce $\sum_{i=1}^I (S_{i,t+1} - S_{i,t})(p_{i,t+1} - p_{i,t})$. Taken together, these three terms have resulted in three times the decomposition of changes in labor productivity:

$$p_{t+1} - p_t = \underbrace{\sum_{i=1}^I S_{i,t} (p_{i,t+1} - p_{i,t})}_{\text{Within-sector effect}} + \underbrace{\sum_{i=1}^I p_{i,t} (S_{i,t+1} - S_{i,t})}_{\text{Static reallocation effect}} + \underbrace{\sum_{i=1}^I (p_{i,t+1} - p_{i,t})(S_{i,t+1} - S_{i,t})}_{\text{Dynamic reallocation effect}} \tag{8}$$

RESULT AND DISCUSSION

Labor Productivity

Economy in Asia has developed rapidly in the last few periods. The impact of modern development in Asia is that more and more workers from subsistence agriculture are moving into more productive industries and services. In Figure 1, GDP and labor in the agricultural sector decreased in every time period of 1980-2015. Meanwhile, both outputs and labors in the industrial and service sectors increased.

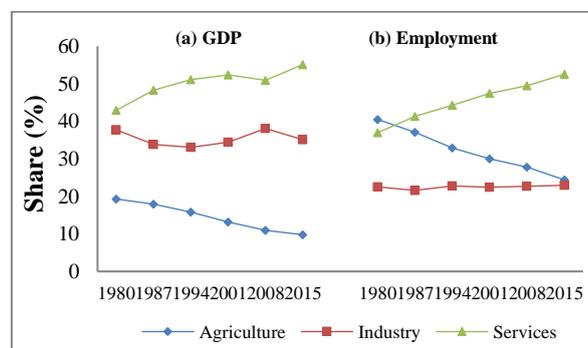


Figure 1. Sectoral Composition Shares of GDP and Employment

Sources: Authors, 2019

The shares of GDP in agricultural and employment has declined in all countries in Asia. Agriculture is no longer the largest contributor to

GDP in any country, but is still the largest employer in several developing countries in Asia. From 1980 to 2015, the share of output in agriculture had declined by 49 percent. Meanwhile, the share of agricultural agricultural workforce has declined by 40 percent. Agriculture still has the most employers in South Asia, such as Bangladesh, Bhutan, India, Nepal, and Pakistan, and Southeast Asia, such as Myanmar. This can be seen in Table 1.

Table 1. The Largest Sector in Asian Economies (Final Period Time)

	Agriculture	Industry	Services
The largest sector in GDP	None	Bhutan, Brunei Darussalam, Myanmar	Bahrain, Iran, Kuwait, UEA, Bangladesh, India, Nepal, Pakistan, Sri Lanka, Indonesia, Malaysia, Philippines, Singapore, Thailand, China, Hongkong, Japan, Mongolia, South Korea
The Largest sector in employment	Bangladesh, Bhutan, India, Nepal, Pakistan, Myanmar	None	Bahrain, Iran, Kuwait, UEA, Sri Lanka, Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand, China, Hongkong, Japan, Mongolia, South Korea

Sources: Authors, 2019

Whereas the share of industrial labor, on average, is the smallest of the three sectors. This has been true since the 1980s, and the industry today is not the largest employer in any Asian economy. The industry has never been the biggest employer in Asia. In 1980, the industrial sector used 22.5 percent of the total workforce in Asia and 2015 employed around 23 percent of the total workforce. The share of industrial labor experienced a small increase of 2 percent. The industrial share of GDP is the largest in only a few countries: Bhutan, Brunei Darussalam, and Myanmar.

During the 1980s, the share of labor in services increased by 42 percent in 2015. The sector's share of GDP was the largest in only a few countries: Bahrain, Iran, Kuwait, UEA, Bangladesh, India, Nepal, Pakistan, Sri Lanka, Indonesia, Malaysia, Philippines, Singapore, Thailand, China, Hong Kong, Japan, Mongolia, South Korea. Thus, throughout Asia over the past 4.5 decades, labor has been reallocated from agriculture largely to services.

The path and pace of structural change in developed countries, such as Japan, have followed a path similar to that of Western countries, where the share of agriculture has declined while those of industry, especially manufacturing, and services have increased. This is consistent with W Arthur Lewis (1954) theory which states that structural transformation moves from agriculture-industry-services. Currently, developed countries like Japan

are de-industrialized, with workers moving from industry to services. The result is that the service sector is bigger than the industry.

This study will document the main changes in value-added, total labor, and labor productivity in all economic sectors from 1980 to 2015. It carries the calculation of labor productivity out according to equation (1). Table 2 presents data of value-added, employment, and labor productivity in 1980, 1987, 1994, 2001, 2008, and 2015.

Based on Table 2, it is shown that the service sector expanded widely during the first period from 1980 to 2015. When in developed countries the number of jobs created in the manufacturing sector expanded widely during economic development. In other words, about a quarter to one-third of jobs was found in the manufacturing industry. Conversely, it is different in Asia. The number of jobs in the manufacturing sector is lower than in the service sector. Rodrik (2013) said that this phenomenon was premature de-industrialization. Technological progress and other factors, such as trade, have limited the potential of the manufacturing sector to create jobs. As a result, many developing countries can no longer depend on the manufacturing sector as a source of new and productive employment.

In some developing countries in Asia, employment in the agricultural sector continues to decline, but this sector still employs many workers. Mechanization and land reform will further reduce the demand for labor. The best choice for creating new jobs is in the service sector. Therefore, the service sector surpasses the manufacturing sector to share economic activity and growth in many Asian countries.

The last column of Table 2. shows the level of labor productivity measured by value-added divided by the people who work. The relative level of productivity in the agricultural sector of 0.5 in 1980 shows that the average level of productivity in agriculture is half of the total economy, and decreased by 0.1 in 2015. In 2015, we can see it in the table that the highest labor productivity is in the sector mining and financial and business services sectors.

The 1979 oil crisis, currency instability, and related events resulted in a long period of stagnation. Between 1975 and 1990, low growth across continents triggered a large process of restructuring and liberalization through structural change programs (Collier & Gunning, 1999; Gupta & Lensink, 1996). The share of agriculture in GDP and employment continues to decline slowly in all countries in Asia. Many countries have not yet followed the transition from agriculture to industry and finally to services, the path taken by South Asia or developing countries in Asia.

In 1980, when there was an economic recession, structural changes occurred where workers were reallocated quickly. The share of agricultural employment fell, but what was surprising was that manufacturing did not develop during this period. It absorbs workers who leave agriculture in the market services sector, especially distribution services (Rodrik, 2013). Table 2. shows that the share of distribution services is increasing every year.

Various reasons for switching to services can be provided. Market-oriented policy reforms in the 1990s will probably increase the demand for wholesale and retail services. For example, trade liberalization facilitates the import of various consumer goods and most investment and stimulates the expansion of foreign retail chains through FDI. In contrast to shifts in the 1990s and 2000s, the reallocation of workers to services is not always associated with an increase in aggregate productivity. The last column in Table 2. shows that labor productivity in the distribution sector has decreased.

In the 2000s, precisely in 2008, there was a global financial crisis, this affected the economy in Asia. This can be seen from the third column, that the level of productivity in the financial and business sectors declined, from 2001 to 3.3 and in 2008 it was 2.9. According to Carrasco, Hayashi, and Mukhopadhyay (2010), India and Sri Lanka were most affected by the global economic crisis

among South Asian countries. While GDP growth rates in South Asia are still below trend, the output gap is less than in many other countries in the region, suggesting that stimulus can cause a leak from output to price effect.

The reallocation patterns discussed in this section apply to most of the 22 Asian countries analyzed. Developing countries like India underwent a structural transformation from the agricultural sector to the service sector. The service sector will absorb excess labor in the agricultural sector, resulting in an increase in added value in the service sector. Based on the findings from Grabowski (2017) that structural changes in India are from agriculture to services. This is caused by rising food prices which will cause resources to flow out of manufacturing. In particular, wages will rise in agriculture, attracting labor from manufacturing and into food-producing agriculture. However, an increase in the wage rate is likely to lead to an increase in agricultural mechanization, in the long run, implying that employment growth in this sector can slow down. Labor-intensive informal service activities in rural areas tend to grow.

Based on the description above, we can conclude that labor productivity in agriculture is much lower compared to services and even lower on the industry. In 2015 the value-added of agriculture in Asia was 9.8 percent while the share of employment was 24.4 percent.

Table 2. Share of GDP, employment, and relative productivity levels in Asian (average of 22 countries), 1980-2015

Economic Sector	GDP						Employment					Relative Productivity Levels						
	1980	1987	1994	2001	2008	2015	1980	1987	1994	2001	2008	2015	1980	1987	1994	2001	2008	2015
Agriculture	19.3	17.9	15.8	13.2	11.0	9.8	40.5	37.1	32.9	30.0	27.8	24.4	0.5	0.5	0.5	0.4	0.4	0.4
Industry	37.7	33.8	33.1	34.5	38.1	35.1	22.5	21.6	22.8	22.5	22.7	23.0	1.7	1.6	1.4	1.5	1.7	1.5
Mining	13.4	8.6	7.7	9.3	12.9	10.6	1.1	0.9	0.8	0.9	1.0	0.9	12.2	9.6	9.1	10.6	13.4	12.2
Manufacturing	16.0	16.5	16.8	16.8	16.5	15.5	12.7	12.8	13.5	13.1	12.0	11.8	1.3	1.3	1.2	1.3	1.4	1.3
Other Industry	8.4	8.7	8.6	8.4	8.7	9.0	8.7	7.9	8.5	8.5	9.8	10.3	1.0	1.1	1.0	1.0	0.9	0.9
Services	42.9	48.3	51.1	52.4	50.9	55.1	37.0	41.3	44.3	47.5	49.5	52.6	1.2	1.2	1.2	1.1	1.0	1.0
Market Services	29.1	32.6	35.8	36.6	37.0	39.2	18.5	20.6	23.2	25.8	28.5	29.2	1.6	1.6	1.5	1.4	1.3	1.3
Distribution Services	19.9	21.5	22.7	23.2	22.5	23.1	16.5	18.0	19.9	21.8	23.5	23.9	1.2	1.2	1.1	1.1	1.0	1.0
Financial and Business Services	9.2	11.1	13.1	13.4	14.5	16.1	2.0	2.6	3.4	4.1	5.0	5.3	4.6	4.3	3.9	3.3	2.9	3.0
Non-market Services	13.8	15.7	15.3	15.7	13.9	15.9	18.4	20.7	21.1	21.6	21.0	23.3	0.7	0.8	0.7	0.7	0.7	0.7
Total Economy	100	1	1	1	1	1	1											

Notes: The result are averages across 22 Asian countries. Other industry include Electricity, gas and water supply; and Construction. Distribution services includes Wholesale and retail trade, repair of vehicles and household goods, hotels and restaurants; and Transport, storage and communications. Non-market services include Community, social and personal services.

Source: Authors, 2019

This shows that the productivity of agricultural labor is on average around 0.4 of the total economy. In contrast, the share of value-added services is 50.9 percent while employment is 49.5 percent, while the value-added industry's share is 35.1 percent while employment is 23.0 percent. Therefore, labor productivity in the service sector

and the industrial sector is above the economic average.

Structural Transformation: Decomposition Method

In this study, an analysis of the structural transformation of the workforce is carried out. This

analysis uses labor productivity growth with three terms (i) within-effect, namely contribution in each sector; (ii) between-static-effect, i.e. contributions from changes in labor allocation between sectors; and (iii) between-dynamic-effect, where the combination of within-effect and between-static-effect, which is contribution between changes in labor productivity and changes in labor allocation between sectors. The last two effects, between-static and between-dynamic reflect structural changes. Structural transformation is the reallocation of labor from low productivity to high productivity, which is the core of economic development (Dabla-Norris, Thomas, Garcia-Verdu, & Chen, 2013). This study uses equation (8) of the decomposition method. The decomposition results can be seen in Figure 2.

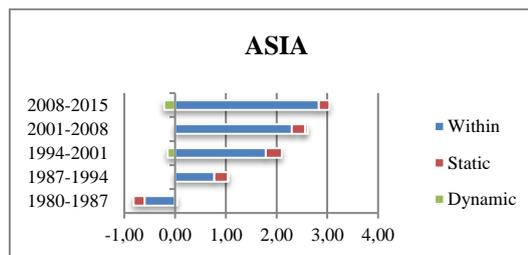


Figure 2. Average Annual Labour Productivity Growth

Sources: Author, 2019

Figure 2. shows the shift-share decomposition for 22 countries in Asia. This analysis considers nine economic sectors. During the crisis years, from the early 1980s in Asia, growth stagnated, as did structural change. Productivity growth is slow in all sectors. The worker continue to move to higher productivity sectors, resulting in the reallocation of labor. This can be seen from the positive between-static value. For more details, the results of decomposition can be seen in Table 3.

Table 3. Decomposition results in Asia, 1980-2015

Economic Sector	1980-1989			1989-1994			1994-2001			2001-2008			2008-2015		
	W	S	D	W	S	D	W	S	D	W	S	D	W	S	D
Agriculture	0.11	-0.01	-0.01	0.25	-0.03	-0.04	0.32	-0.04	-0.02	0.22	-0.01	-0.02	0.57	-0.08	-0.09
Industry	-0.92	-0.30	0.04	0.08	0.10	-0.01	0.88	0.06	-0.11	1.29	0.05	0.04	0.93	-0.04	-0.19
Mining	-0.84	-0.27	0.03	-0.12	-0.02	0.01	0.45	-0.10	-0.08	0.54	0.07	0.06	0.11	-0.03	-0.25
Manufacturing	-0.12	-0.04	0.00	0.09	0.08	-0.01	0.32	0.04	-0.02	0.40	-0.04	-0.04	0.36	-0.10	-0.01
Other Industry	0.04	0.01	0.00	0.11	0.04	-0.02	0.11	0.12	-0.01	0.34	0.02	0.02	0.46	0.09	0.07
Services	0.21	0.09	0.01	0.44	0.19	0.07	0.59	0.29	-0.02	0.79	0.23	0.02	1.33	0.33	0.06
Market Services	0.11	0.06	0.02	0.33	0.16	0.06	0.31	0.29	0.00	0.55	0.26	0.05	0.98	0.24	0.03
Distribution Services	0.04	0.03	0.01	0.24	0.06	0.02	0.29	0.08	0.02	0.35	0.13	0.03	0.65	0.14	0.01
Financial Services	0.07	0.03	0.01	0.09	0.10	0.04	0.01	0.21	-0.02	0.20	0.12	0.03	0.34	0.10	0.02
Non-Market Services	0.10	0.03	0.00	0.11	0.03	0.01	0.28	0.00	-0.01	0.24	-0.03	-0.03	0.35	0.09	0.03
Total Economic	-0.60	-0.22	0.05	0.77	0.26	0.02	1.79	0.31	-0.14	2.30	0.27	0.05	2.83	0.21	-0.22
Labor Productivity Growth			-0.77			1.05			1.96			2.62			2.82

Notes: The result are averages across 22 Asian countries. W is within, S is between static, D is between dynamic

Sources: Author, 2019

Based on Table 3. Growth in labor productivity in each sector is the most important contributor to overall labor productivity growth. The movement of workers from agriculture to the service sector has increased, so that the share of workers in the service sector has increased. This relates to Table 2. that employment share and labor productivity in the service sector is higher than the agriculture sector. So that, resulting in structural transformation is positive in its overall way. The effect of structural changes is obtained from the sum of intermediate and dynamic effects. This shows that workers have shifted to sectors with higher productivity. But in absolute terms, the value of intermediate effects in most economies is smaller than internal effects.

In the 2008-2015 period, the static reallocation effect was positive, while between-dynamic was negative. In the previous explanation it was explained that workers moved from agriculture and were absorbed in the service sector. The level of productivity in services is higher compared to. Thus this shows that structural changes increase labor productivity growth. Based on the results of the shift-share decomposition, it can be concluded that overall labor productivity growth in Asia in 1980-2015

resulted from productivity growth in sectors, while, reallocation of labor from lower sectors to higher productivity, has smaller effect.

Policy Implication

Based on research results found that the agricultural sector in all countries in Asia has lower productivity growth compared to the industrial and service sectors. Thus, the policy implication of this research is that governments in Asian countries need to expand agricultural land and develop investment in the agricultural sector so that it can absorb new workers in the agricultural sector. In addition, agricultural mechanization in the process of agricultural production also needs to be developed to increase the productivity of the agricultural workforce so that it can attract young workers and are relatively highly educated.

CONCLUSION

The conclusions obtained from the results of this study are:

1. Agricultural Labor Productivity is smaller than the industrial and service sectors. Agricultural Labor Productivity is less than total economic. Whereas Industry and services sectore Labor Productivity is average to total economic.
2. The transformation structure that occurs is the

transition from low productivity to high productivity, which is from the agriculture sector to the service sector. The workers moving from agriculture sector to services sector as the productivity of the service sector is higher than agriculture. These structural changes positively contribute to productivity growth in Asia. This research resulted that between-static is positive and between-dynamic is negative. Overall, the structural changes contribute to a large part of labor productivity growth.

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