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HOW INCLUSIVE IS STRUCTURAL CHANGE? THE CASE OF INDONESIA

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ABSTRACT

There has been considerable attention on the concepts and empirics of inclusive growth typically defined as growth which raises consumption or employment opportunities at the lower end of the distribution. Those debates have to date paid limited attention to the drivers of growth notably structural change towards higher productivity as a more desirable driver than commodity prices. In this paper, we develop a concept of inclusive structural change and apply it to the case of Indonesia. We discuss structural change in Indonesia since the 1960s and assess the inclusivity of structural change since the Asian Financial Crisis.

KEYWORDS

Structural transformation; Indonesia; productivity; inclusion;



About the GPID research network:

The ESRC Global Poverty and Inequality Dynamics (GPID) research network is an international network of academics, civil society organisations, and policymakers. It was launched in 2017 and is funded by the ESRC's Global Challenges Research Fund.

The objective of the ESRC GPID Research Network is to build a new research programme that focuses on the relationship between structural change and inclusive growth.

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THE DEVELOPER'S DILEMMA

The ESRC Global Poverty and Inequality Dynamics (GPID) research network is concerned with what we have called 'the developer's dilemma'.

This dilemma is a trade-off between two objectives that developing countries are pursuing. Specifically:

- Economic development via structural transformation and productivity growth based on the intra- and inter-sectoral reallocation of economic activity.
- 2. Inclusive growth which is typically defined as broad-based economic growth benefiting the poorer in society in particular.

Structural transformation, the former has been thought to push up inequality. Whereas the latter, inclusive growth implies a need for steady or even falling inequality to spread the benefits of growth widely. The 'developer's dilemma' is thus a distribution tension at the heart of economic development.

1. INTRODUCTION

The availability of sustainable opportunities to carry out productive activities to a wide set of economic agents is important in building an inclusive economy. However, providing these opportunities becomes complex for developing countries as they try to kick-start economic growth through structural transformation. They often need to decide whether to concentrate resources in certain sectors, an approach which requires economies of scale and prioritises high-value added sectors, or to focus on those sectors capable of creating jobs on a large scale. The decision on allocation of resources becomes even more difficult for countries with a rapidly expanding working-age population and scarce financial resources.

In this paper, we provide a conceptualisation of inclusive structural change; take the case study of Indonesia and consider its pattern of structural change from the 1960s onwards; and discuss whether the structural change in Indonesia in the most recent period since the Asian financial crisis. The paper is structured as follows: section 2 discusses the tension between structural change and inclusive growth. Section 3 then provides a systematic overview of structural change in Indonesia since the 1960s. Section 4 focuses on structural change since the Asian financial crisis to assess its inclusivity. Section 5concludes.

2. STRUCTURAL CHANGE, INEQUALITYAND INCLUSIVE GROWTH

Developing countries are pursuing two intertwined development objectives. The first goal, structural change or transformation, meaning the reallocation of economic activity towards higher productivity activities, is essential to economic development in developing countries. This is because economic growth led by structural transformation is likely to be sustainable in the medium term (Herrendorf et al., 2013; McMillan and Rodrik, 2011). The second goal is inclusive growth, the predecessors of which include 'pro-poor growth' and 'growth with equity'. Inclusive growth (and its various conceptual predecessors) is growth which raises incomes, consumption, welfare and employment opportunities at the lower end of the distribution and thus reduces absolute poverty and is best achieved with static or falling inequality to maximise the benefits of growth at the lower end of the population (see for a range of discussion and genealogy, Bourguignon, 2003; Kakwani and Pernia, 2000; Klasen, 2010; Ravallion, 2004). There is potential for tension between these two goals, as the pursuit of

structural change tends to entail rising inequality while inclusive growth is maximised with static or falling inequality.

Of course, these are not new questions. In particular, the works of Arthur Lewis and Simon Kuznets are of relevance. Although Simon Kuznets' hypothesis of rising inequality in the early stages of the transition (based on Arthur Lewis dual and closed economy model), is discredited as a universal law, the experience of many fast-growing developing countries under globalization and open economies is one of structural transformation with unambiguous rising inequality. That is, in these countries, there is a compression of the shares of national income to the poorest deciles of the population and the expansion of the share of the richest decile (see Sumner, 2016). There have been a set of scholars writing in the Kuznets tradition with reference to the Kuznets hypothesis. Such theories have focused on open economies and agrarian liberalisation, the role of technology, and aspects of national political economy and land distribution (see for example, Acemoglu and Robinson, 2002; Galbraith, 2011; Lindert and Williamson, 2001; Oyvat, 2016; Roine and Waldenström, 2014).

In this paper, we propose a definition of inclusive structural change when (i) opportunities are sustainable and hence provide a path towards a virtuous cycle and (ii) opportunities are provided to a broad spectrum of economic agents. We analyse the composition of formal and informal employment and changes in employment of highly educated and less-educated workers. Changes of each variable are decomposed into the effects of reallocation between sectors and within sector. In the following section, we provide an overview of structural change in Indonesia since the 1960s before focusing on the most recent period to assess its inclusivity.

3. STRUCTURAL CHANGE AND TRANSFORMATION IN INDONESIA, 1960-PRESENT

3a. Economic structure

Between 1960 and 2014, the economic structure of Indonesia changed dramatically, characterised by a declining share of the agricultural and mining sectors (*FIGURE 1*). During the 1960s, agriculture dominated Indonesia's economic activities, taking up more than 35% of GDP. Then, Indonesia's industry was still in its infancy with its share at around 10%.



FIGURE 1.Indonesia: Structure of value added by broad sectors, 1960-2014 Source: World Bank (2016) and ADB Key Indicators

The mining sector (in particular the oil extraction sector) got a boost during the oil boom in the 1970s. Its share reached a peak at 34% of GDP in 1973 and it continued to be a major sector of the economy throughout the 1970s. At the end of the 1970s, the importance of the mining sector started to gradually decline, and the agricultural sector followed a similar trend.

The industrial sector's share in the Indonesian economy was stable in the 1960s at slightly above 10% and it started to increase in the early 1970s. It continued rising to the end of the 1990s, when Indonesia went through the 1997/98 Asian financial crisis. Since the Asian financial crisis, the industrial sector has not returned to the long-term trend of that between the 1970s and the mid-1990s. Its share has been stable to2016 at around 35%. The service sector was relatively less disrupted by the Asian financial crisis and its share continued to rise in the 2000s.



FIGURE 2.Indonesia: Structure of value added by 10 main sectors, 1960-2014 Source: World Bank (2016) and ADB Key Indicators

FIGURE 2 shows changes in the composition of Indonesia's value added at a more detailed sectoral level. The manufacturing sector is separated from other industrial sectors and the service sector is disaggregated into several subsectors. The manufacturing sector's share rose steadily from around 10% in the early 1970s to reach a peak at 28% just before the Asian financial crisis in 1996. The manufacturing sector was one of the hardest hit during the crisis and its share fell to 26% in 1998. After a brief recovery to 28% in 2001, its share started to decline again. In 2014, the share of the manufacturing sector's value added in the economy was less than 25%, or less than that recorded in 1992. Among the service sector, two subsectors have shown notable changes. The first is the trade sector and the second is the transport and communication sector. The communication sector has been contributing significantly to Indonesia's recent growth performance.

If one takes a long-run perspective we find the following: first, as in many other developing countries, the Indonesian economy has been transformed (in terms of its composition of value added) during the past five decades from an economy dominated by mining and agricultural sectors into one dominated by industry and services. Second, the manufacturing sector's share in Indonesia's GDP increased rapidly between the early 1970s and the mid-1990s, but it stayed constant in the aftermath of the Asian financial crisis and

slightly declined in the 2000s. Third, the service sector is now the most dominant sector in Indonesia's value added. The sum of value added of two services subsectors i.e., trade and, transport and communication subsectors were larger than the manufacturing sector's share in 2014.

3b. Employment structure

As can be seen from FIGURE 3, Indonesia's employment was dominated by the agricultural sector in the early 1960s, taking up 73% of the total in 1961, and currently is dominated by the tertiary sector. In 2014, the service sector's share of total employment reached more than 50%, increasing from slightly above 20% in 1961. The manufacturing sector's share of employment also increased up to the 1990s, yet not as fast as the service sector and not as rapidly as the declining trend of the agriculture sector. Since the Asian financial crisis, the manufacturing sector's share of total employment has been stable.

The long-term shift in the composition of sectoral employment was disrupted during the Asian financial crisis and in its aftermath. The long-term trend of declining employment share of the agricultural sector stopped between 1997 and 2005 as the Asian financial crisis forced a significant amount of labour back into agriculture. However, after 2006, the long-term trend of the declining share of the agricultural sector's employment returned. Agricultural employment started to decline again, followed by the continued rising trend of the tertiary sector's employment share. The manufacturing sector's share also began to increase, but at a much slower pace. The employment composition shows that the Asian financial crisis had a significant impact on Indonesia's economic development.



FIGURE 3.Indonesia: Sectoral shares in total employment by broad sector, 1960-2014 Source: World Bank (2016) and ADB Key Indicators

FIGURE 4shows the share of other sectors' employment share in more detail. It shows that the increasing share of other sectors was led by wholesale, retail trade, hotels and restaurants subsector (or 'trade' for brevity). The government services sector shows a clear declining trend over the same period. The two subsectors that have shown notable changes in the sectoral share of employment are trade and transport and communication. Two important observations are: (i) the shares of both sectors started increasing in the early 1990s and this lasted until 2005; (ii) after 2005 the share of both sectors started to decline. This is in contrast to the changes in their share of total value added. As discussed in the previous section, the share of both sectors in total value added continued to rise without any meaningful disruption until 2014. As the employment share of the agriculture and manufacturing continued to fall, the likely candidate to create employment to compensate the decline in these sectors was the community, social and personal services. Indeed, its employment share increased from around 5% in 2005 to almost 12% in 2014. As also discussed previously, the communication sector has contributed to Indonesia's recent growth performance as indicated by its increasing share in national output. The decline of its employment share may be because the sector is relatively capital intensive.



FIGURE 4.Indonesia: Sectoral composition of employment among tertiary (others) sectors, 1970-2012

Source: World Bank (2016) and ADB Key Indicators

FIGURE5 shows Indonesia's sectoral composition of employment compared with that of Malaysia and Thailand between 1960 and 2014. Changes in the sectoral composition of these three countries share some similarities and as well as differences. Thailand, for example, entered the 1960s with a larger employment share of the agricultural sector at around 80% compared to Indonesia. The manufacturing sector's employment share was similar in Thailand and Indonesia in the 1960s, while the service sector's share of Indonesia was larger than that of Thailand. Between 1996 and 2005, Indonesia did not experience any significant change in employment composition while Thailand continued its long-run shift. As a result, after Indonesia resumed its structural change from the end of the 2000s, Indonesia and Thailand had similar compositions of employment.

Malaysia's story, however, is rather different compared to both Indonesia and Thailand. First, the employment share of the agricultural sector in Malaysia was already low or below 40% in the mid-1970s. The employment share of manufacturing and service sectors was much higher in Malaysia compared to Indonesia and Thailand. In Malaysia, the manufacturing share of the country's employment reached its peak in 1994 (25%). Since then it continuously declined, reaching 17% in 2014. The service sector has been playing a more significant role in Malaysia than in Indonesia and Thailand.



FIGURE 5. Employment share by sector of Indonesia, Thailand and Malaysia, 1960-2014 Source: World Bank (2016) and ADB Key Indicators

3c. Trade structure

Structural transformation can also be analysed using the trade composition of the economy. As seen in *FIGURE 6*, Indonesia's exports were dominated by crude materials (particularly oil and gas) until 1998. The share of the mineral fuels in overall exports reached its peak in 1982 during the oil boom and then it declined sharply to 1998. After 1998, it started rising again and coal exports contributed significantly to this recovery. On the other hand, Indonesia's manufacturing export share increased sharply between the early 1980s and the early 1990s, but started to decline in the mid-1990s.

Indonesia's imports have been dominated by machinery and transport equipment. The share of machinery and transport equipment in total imports fell sharply during the Asian financial crisis yet it remains the largest in 2014. The share of mineral fuels, particularly refined oil products, started to rise sharply from 1997 due to rising domestic demand, declining domestic oil production, and little progress in the country's refinery capacity.



FIGURE 6.Indonesia: Export share by commodities, 1967-2014 Source: World Bank's World Integrated Trade Solution (WITS)

FIGURE 7. Indonesia: Import share by commodity, 1967-2014 Source: World Bank's World Integrated Trade Solution (WITS)



- Animal and vegetable oils and fats
- Beverages and tabacco
- Chemicals
- Other commodities and transactions
- Crude materials inedible
- Food and live animals
- Machinery and transport equipment
- Manufactured goods
- Mineral fuels, lubricants etc.
- Miscellaneous manuf. articles

3d. The speed of structural transformation

In most developing countries, the process of economic development has been characterised by (i) a declining share of agriculture in value added and in employment; and (ii) a reduction in the gap between the share of agriculture in value added and that in employment representing an increase in labour productivity in the sector. A good illustration for this is Japan as discussed by Timmer (2015) and depicted in *FIGURE 8* below.

A comparison of Indonesia, Malaysia and Thailand, as shown in *FIGURE 11*, reveals the following observations: (i) these three countries share similar dynamics in terms of the declining share of agriculture in value added as well as in employment; (ii) Malaysia has managed to increase their income per capita at a much faster rate compared to Indonesia and Thailand during the structural transformation; (iii) at the same level of income per capita, Malaysia had a larger agriculture share in value added compared to Indonesia and Thailand, yet it managed a more successful and rapid structural transformation; (iv) the gap between employment share and value added share of the agricultural sector in 2014 was much lower in Malaysia compared to Thailand and Indonesia; (v) the structural transformation in these three countries was disrupted by the Asian financial crisis; (vi) Indonesia has been less successful in transforming its economic structure compared to Thailand and Malaysia as Indonesia recorded slower economic growth of non-agricultural sectors.



FIGURE 8. Structural transformation in Japan and Indonesia, 1880-2010, Source: Timmer (2015)



FIGURE 9. Structural Transformation in Indonesia, Malaysia, and Thailand by GNI per capita (2005PPP\$) Source: World Bank (2016) and ADB Key Indicators

3e. Salient features of structural transformation

Indonesia's structural transformation since the Asian financial crisis was accompanied with two worrying signs: 'jobless growth' of the manufacturing sector and 'premature deindustrialisation'. We consider each of these next. The employment absorption capacity of Indonesia's manufacturing sector changed significantly after the Asian financial crisis. Before the crisis, the manufacturing sector was the primary driver of Indonesia's economic growth and job creation. The manufacturing sector value added grew 11.2% per annum during 1990-1996 (while the average economic growth rate was 7.9%) and its employment grew 6% per annum (while the average national employment growth rate was only 2.3%). Aswicahyono et al. (2011) estimated that the implied output elasticity (percentage change in employment with respect to percentage change in output growth) of the manufacturing sector was 0.53 in 1990-1996. However, the authors highlighted that the elasticity declined to 0.18 in 2000-2008 and analysed this as a period of (virtually) 'jobless growth.'

This 'jobless growth' phenomenon was most visible during the period of 1998-2005. FIGURE 10plots value added and employment of the manufacturing sector. Between 1990 and 1996, Indonesia's manufacturing sector value added grew rapidly with the sector's employment. However, the output and employment declined between 1997 and 1998 during the Asian financial crisis. The manufacturing sector started to recover and the employment level reached its pre-crisis level in 1999, but it remained stagnant between 1999 and the mid-2000s despite continued growth in output (blue line in FIGURE 10). The jobless growth phenomenon in the manufacturing sector ended in the mid-2000s and the positive association between value added and employment resumed in the second half of the 2000s and the first half of the 2010s (orange line in FIGURE 10).

One hypothesis on what caused the manufacturing sector to grow without creating much employment points to the evolving characteristics of Indonesia's labour market during the period of democratisation. Before the crisis (during the Soeharto era), the labour unions were coopted into the state and minimum wages were not strongly enforced (Aswicahyono et al., 2011). After the crisis, minimum wages increased by 90% between 1999 and 2002 with democratisation (Aswicahyono et al., 2011). Yusuf et al. (2013) look more closely at the causes of 'jobless growth' in the manufacturing sector between 1998 and the mid-2000s by analysing the plant-level data from the survey of manufacturing establishment between 1990 and 2008. They find that, (i) the jobless growth phenomenon happened in almost all subsectors within the

manufacturing sector; and (ii) jobless growth happened most notably in the unskilled labourintensive manufacturing sector, yet less so in the resource-based sector. That said, some alternative hypotheses are as follows: (i) it could simply be a lasting negative effect of the AFC on the sector-specific investment climate, including public austerity effects; (ii) the AFC encouraged the adoption of labour-saving technologies (iii) There could also be a 'survival effect', meaning the AFC eliminated (less efficient) firms that were labour-absorbing to a greater extent than other firms.



FIGURE 10.Indonesia: Growth and employment in manufacturing sector Source: ADB Key Indicators

Alisjahbana and Yusuf (2004) also show that the resource-based sector was more resilient to the crisis and it contributed to absorbing employment. These observations suggest that what happened in the unskilled labour-intensive manufacturing sector may explain the slowdown of employment absorption in the overall manufacturing sector during this period. Furthermore, Yusuf et al. (2013) find that employment grew rapidly while the level of the capital utilisation rate remained fairly constant during the pre-crisis period (FIGURE 11). However, a completely different picture emerged during the post-crisis period (1999-2005) as the capital utilisation rate recovered fast and employment stayed stable. After the crisis, an increase in capital use, which was idle during the crisis, was the main driver for the recovery



of the manufacturing sector. This means that the manufacturing sector experienced an increase in capital intensity or capital-labour ratio, indicating intensification of capital use as the economy began to recover from the Asian financial crisis.



FIGURE 11.Indonesia: Utilisation rate and employment in manufacturing Source: Survey of Manufacturing Establishment (BPS), various years.

In terms of openness and contemporary economic development, Rodrik (2015) outlines a hypothesis of 'premature deindustrialization' of developing countries. He posits that a declining share of manufacturing in GDP and/or employment indicates this phenomenon. Rodrik calls attention to the inverse U-shaped curve in manufacturing's share in value added. The downturn of the curve, he argues, marks deindustrialization, as he defines it, and the expansion of the service sector. Rodrik observes that, to date, this curve has solely been associated with advanced economies. However, he argues that deindustrialization is now visible in developing countries and that the inverse-U shape has shifted downward and leftward because late industrialisers are running out of industrial opportunities sooner, at lower levels of output per capita than early industrialisers. In short, developing countries are turning into service economies without full industrialisation first, with a small number of exceptions. He notes the importance of manufacturing in terms of its potency for economic growth, productivity, labour absorption, and trade. The causes of the shifting curve, he hypothesises, is related to trade liberalisation, which has opened up manufacturing sectors while developing countries continued to have weak competitive advantage. Furthermore, the fall in the relative price of manufactures in advanced countries may have pushed down prices in developing countries manufacturing too, as developing countries liberalised their economies.

FIGURE 12shows the development of the share of the manufacturing sectors in value added and employment in Indonesia, Thailand, and Malaysia. These three countries all went through the stagnation phase of the share of the manufacturing sector in value added and employment after the Asian financial crisis. The timing at which the manufacturing share began to decline varies between countries. The manufacturing share began to decline in 2000 in Indonesia, around the mid-2000s in Malaysia, and in the early 2010s in Thailand. The declining manufacturing sector share in Indonesia started, however, at a much lower income level, and it seems that Indonesia is going through what Rodrik calls 'premature industrialisation' as he defines it and triggered by trade liberalisation and China's entry into global manufacturing on a larger scale in the late 1990s and early 2000s. Aswicahyono and Hill (2015, p. 11-13) however argue that relative to per capita income, Indonesia's share of manufacturing value added in GDP is larger than predicted by standard cross-country regressions over the 1960-2012 period but Indonesia is below average with respect to employment shares. The authors argue that this simply shows higher relative capital intensity of manufacturing in Indonesia compared to other countries and that there is no desirable share for manufacturing. They go on to argue that the industrial slowdown since the Asian financial crisis is due to historically high terms of trade since the early 2000s leading to a larger natural resource sector and real exchange rate appreciation hence squeezing non-commodity tradable sectors; a policy regime that has hindered competitiveness of manufacturing exports (such as rises in minimum wages and poor infrastructure) and the rise of China in a wide range of manufactures has depressed returns to labour-intensive manufacturing.



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FIGURE 12. The trend of manufacturing share in value added and employment

Source: World Bank (2016) and ADB Key Indicators

3f. Factorial distribution of value-added

The next question is how Indonesia's GDP or value added has been distributed among the different factors of production, namely labour and capital, and among different types of labour particularly between formal and informal labour. This information is important in understanding the nature of economic transformation, particularly where the effects of structural transformation on distribution are concerned and thus the inclusivity of structural change. While this data is not widely available compared to macroeconomic indicators, the Indonesia Statistics Office has recently published time-series data of such information for the period 1975-2008, which are included in the Indonesian Social Accounting Matrix.

FIGURE 13shows the composition of the Indonesian economy's value added by types of factors of production. These shares are shown for the total economy as well as for the manufacturing and service sectors. These graphs show the following: First, the share of nonlabour income in the total value added has been gradually increasing while the share of labour has been decreasing over the long term. The labour share in value added declined from around 60% in 1975 to less than 50% in 2008. The Asian financial crisis caused a temporary disruption to this trend and the capital share in value added fell significantly. Second, the formality in the Indonesian labour market has improved but at a very slow pace. The share of the formal labour in total national wage bill increased only slightly. As a result, after more than five decades of economic development, the current level of informality in Indonesia's labour market is still high. Third, the manufacturing sector and service sector have shown very different trends. The manufacturing sector has not seen notable changes in the distribution of value added between labour and capital. This contrasts with the service sector, whose capital share has continually increased. Moreover, the level of formality in the manufacturing sector is high while the labour compensation has been dominated by the informal labour in the service sectors. At the same time, we find the level of formality in the manufacturing sector began to decline from the 1990s while that in the service sector remained stable.

Total labour





Manufacturing sector



Manufacturing sector labour









FIGURE 13.Indonesia: Compensation of factors of production, 1975-2008 (%) Source: Indonesian Social Accounting Matrix (BPS), Various years

In summary, combined with the earlier discussion on the structural shift both in terms of sectoral composition of output and employment, the findings in this section have an important implication. It is well known that Indonesia has achieved major structural change in GDP, employment, and trade structure between 1960 and the present. However, Indonesia's structural transformation has been less dramatic than neighbouring Malaysia and Thailand. Moreover, the process of industrialisation has become less dynamic since the Asian financial crisis, during which the manufacturing sector share in value added began to decline and the share in employment stagnated. In contrast, the service sector's share of GDP and employment has increased significantly. Based on this observation, there have been concerns about the service-sector-led structural transformation as it could have a negative impact on income distribution if there are no measures to improve the quality of services jobs and compensation composition. It is important to note that Indonesia experienced an unprecedented increase in income inequality during the last decade (Yusuf and Sumner, 2013).

In the following section, we discuss the structural transformation since the Asian financial crisis in more depth by focusing on the shifts in the distribution of factors of production across subsectors. The section analyses whether or not Indonesia's structural transformation has been inclusive, taking our earlier definition.

4. HOW INCLUSIVE HAS STRUCTURAL CHANGE BEEN IN INDONESIA SINCE THE ASIAN FINANCIAL CRISIS?

4a. Structural change in Indonesia since the Asian financial crisis

The next decade will be a key phase for the Indonesian economy as it tries to move out of the middle-income status towards high income status. Changes in Indonesia's population structure in the next decade are expected to provide opportunities as the working-age population ratio peaks around 2030 (see UN World Population Prospects). At the same time, Indonesia is facing the challenge of increasing long-term investment. Other major Asian economies that have achieved faster economic growth than Indonesia have recorded gross fixed capital investment ratios of approximately 30% and up to 40% in some cases (FIGURE 14). Although, Indonesia's gross fixed capital investment ratio has recovered quickly since the Asian financial crisis, Indonesia is still at an initial stage of investment-driven economic growth.



Against this background, structural transformation will play a central role in absorbing labour and capital. However, structural transformation could create problems as well as opportunities because certain patterns of structural transformation may be linked to changes in inequality and poverty. Yusuf, Sumner and Rum (2014) suggest an expansion of the commodity sector and a lack of formal employment in the manufacturing sector during the 2000s may have acted as potential drivers of the rise in expenditure inequality in Indonesia over that time which was substantial.





Note: Gross fixed capital formation of Indonesia between 1960 and 1978 is calculated using the long-term ratio of gross capital formation to gross fixed capital formation Source: World Bank(2016)

Broadly speaking, the structure of the Indonesian economy in nominal terms, (as with real terms), has not experienced a significant transformation since 2000. Indonesia's structural change in the past 15 years is subtle and can be described as 'gentle waves' with no notable trend of rise or decline. It is best characterised as intra-sectoral reallocation rather than intersectoral in terms of the broad categories used to discuss shares. The long-term trend of decline in the agricultural sector has stopped, as most of the decline in the crop cultivation sector shares and the forestry sector shares has been cancelled out by an increase in fishery sector shares.

Within the service sector, a decline in trade, hotel and restaurants and financial services shares has been largely cancelled out by an increase in the communication sector and government services shares.

As in other sectors, the GDP share of industry has not changed much as a whole. However, there have been some significant structural changes within the sector, which one could now call 'non-manufacturing industrialisation' (FIGURE 15). The downward trend of mining & quarrying shares reversed in the mid-2000s with the rise in international commodity prices, but it began to decline again in the early 2010s as commodity prices started to drop. The construction sector share has experienced a remarkable expansion. It nearly doubled between 2000 and 2010 and has hovered around 10% since then. Conversely, the manufacturing sector share has gone through a prolonged decline since the early 2000s as noted previously.



FIGURE 15. Share of industrial subsector in GDP in Indonesia Source: Badan Pusat Statistik (various years).

There have recently been external and internal changes that encourage us to believe that the structural change of the Indonesian economy may accelerate. Firstly, the prices of natural resources, which are Indonesia's major export items, have been declining after a brief pick up in 2010 (FIGURE 16). The price of coal, rubber, palm and copper has been declining continuously since 2011, and the price of natural gas began to plummet at the end of 2014. While the rate of decline has slowed somewhat, prices are likely to remain much lower than they were before the global financial crisis for some time (World Bank Commodity Markets Outlook). These low prices will inevitably hit the estate crops and mining sectors.



FIGURE 16.Prices of Indonesia's major export commodities Source: IMF Agricultural Commodity Prices.

Secondly, Indonesia is expected to experience a construction boom. The Indonesian government under President Jokowi, who was elected in 2014, has significantly increased infrastructure investment after cutting fuel subsidies, and the construction firms are riding on this wave. After nearly doubling in 2015, the share of infrastructure spending in the total government budget reached 15.0% in 2016 (Republik Indonesia, 2016). The infrastructure boom will also affect the utilities sector in the longer term.

Thirdly, the Jokowi administration has repeatedly mentioned the importance of building a production-oriented economy or re-industrialisation. It has recently adopted various policies aimed at stimulating domestic industrial activities. 'Made in Indonesia' policies have been introduced in a number of sectors, including automobiles and smartphones, and most of the twelve economic stimulus packages that the administration announced between September 2015 and April 2016 contain policies to improve the business environment for the manufacturing sector.

While the current government's policies are focused on construction and manufacturing sectors, some (e. g., Findlay & Pangestu, 2016) have pointed out the potential of the service sector to act as a driver for economic growth. We contribute to this debate by

analysing the changes in the composition of labour with difference characteristics during structural transformation. We divide the past 14 years into three periods: economic recovery (first half of the 2000s); economic boom (second half of the 2000s); growth moderation (first half of the 2010s). Data on employment by economic sectors, compiled in the national labour force survey or Sakernas are used. Since 2005, this survey has been conducted twice a year; we use the data collected in the second half of each year from 2005 to 2014.

The employment composition has seen a more dramatic structural change than that found in the GDP (nominal) composition. Between 2000 and 2014, the employment share of the agricultural sector declined by 11.3 percentage points while that of the industrial and service sectors increased 3.7 percentage points and 7.5 percentage points, respectively. During the same period, the GDP shares of agricultural and industrial sector declined by 1.3 percentage points and 0.9 percentage points, respectively, while the service sector share increased 2.1 percentage points. These numbers differ from those in section 3 as this section uses nominal GDP shares whereas section 3 uses real GDP shares.

In 2014, the service sector had the largest employment share, followed by the agricultural and the industrial sector. By subsectors, agriculture, livestock, forestry and fishery had the largest employment share (34.0%), followed by trade, hotel and restaurants (21.7%), community, social and personal services (16.1%), and manufacturing (13.3%).

In order to see the relationship between employment and GDP shares of economic sectors during Indonesia's structural changes since 2000, employment-to-GDP ratios (EGR) were computed. An EGR of more than one means that the sector's employment share is more than its GDP share in the economy. The EGR of the labour-intensive agricultural sector is above 2, whereas that of the industrial sector is below 0.5, and it is around 1 for the service sector (FIGURE 17). By subsectors, agriculture, livestock, forestry, and fishery and trade, hotels and restaurants have EGRs of more than one (see ANNEX 1). Other subsectors have EGRs of less than one, and the mining and quarrying and electricity, gas and water supply (henceforth, public utilities) have very low EGRs.



FIGURE 17. Employment-to-GDP ratio by broad sectors in Indonesia Source: Central Bank of Indonesia (various years).

As noted, the agricultural sector's EGR increased in the early 2000s as it soaked up labour from other sectors in the aftermath of the Asian financial crisis. It acted as the employment of last resort in a sense. Between 1997 and 2003, the employment share of the

agricultural sector increased by 5.8 percentage points, and it only dropped to the pre-Asian financial crisis level in 2008. The EGR began to decline rapidly from the mid-2000s as its employment share started on a downward trend while the GDP share remained stable. During this period, many workers left rural areas to find jobs in other sectors, as reflected in an increase in urbanisation rate in Indonesia.

Throughout the 2000s, the employment share and the GDP share of the industrial sector changed in line with each other, and therefore the EGR remained stable. Starting in the late 2000s, the industrial sector's EGR began to rapidly increase as the GDP share began to decline while the employment share continued to rise. This trend was particularly strong in manufacturing, and a rapid slowdown of the mining and quarrying sector with a very low employment share also contributed to this. EGR in the construction sector showed a unique pattern of change. The construction sector is the only industrial subsector that had a lower EGR in 2014 than in 2000. The construction sector saw a substantial increase in its employment share, but the changes were not as fast as changes in the GDP share. This resulted in a steep decline of EGR in the 2000s. The ratio began to pick up in the early 2010s, but the 2014 level remained much lower than that in 2000. This means that the construction sector's ability to turn growth into jobs was limited despite a rapid development.

The service sector also saw a drop in its EGR in the early 2000s, but the mechanism was different to the construction sector. The service sector experienced jobless growth during this period as its GDP share recovered quickly compared to other sectors while its employment share declined. This pattern of growth was led by trade, hotels, and restaurants. From the mid-2000s, the service sector began to create jobs at a reasonable pace and its employment share exceeded the GDP share in 2007 meaning that its EGR rose to more than one. In the first half of the 2010s, both GDP and employment share rose significantly and in line with each other, and therefore EGR remained stable at around 1.1. The employment shares of trade, hotel and restaurants, finance, real estate and business services, and community, social and personal service sectors rose particularly quickly in this period.

4b. Assessing the inclusivity of structural change since the Asian Financial Crisis

Next we discuss the inclusivity of structrual change in Indonesia since 2000 using formality in employment and worker's education levels. Formal jobs provide stronger job security and higher wages compared to informal jobs and therfore play an important role in inclusive growth in Indonesia (BPS & ADB, 2010; Cuevas et al., 2009; Matsumoto & Verick, 2011; World Bank,

2010). The International Labour Organisation points out that informal jobs are often characterised with a 'lack of protection in the event of non-payment of wages, compulsory overtime or extra shifts, lay-offs without notice or compensation, unsafe working conditions and the absence of social benefits such as pensions, sick pay and health insurance' (ILO, 2017). While there is no clear definition of informal sector workers, Indonesia's statistics office (BPS) provides data on the employment status of workers which can be used as an indicator of the formality of the job. In this study, a simplified definition of formal and informal sectors introduced by the World Bank (2010) is used (See ANNEX 2).

In 2014, there were more informal workers than formal workers in Indonesia (FIGURE 18). 88.2% of workers in the agricultural sector are informal workers while informal workers account for 32.6% and 37.8% of the workforce in the industrial and service sectors, respectively (FIGURE 19). During the Asian financial crisis, the share of informal workers in the total workforce increased rapidly until the early 2000s as the agricultural sector absorbed labour from other sectors. An increase in the employment share of the industrial and the service sector, which had a much higher formal employment share than the agricultural sector to begin with, led to an increase in the formal worker share in the overall economy from the mid 2000s. However, it was not a result of an increase in the formal employment share within these sectors. The formal employment shares showed a sustained decline within the industrial sector from 80.6% in 2000 to 61.1% in 2010, and no significant change within the service sector at around 55% during the 2000s and they only began to pick up in the early 2010s. In 2014, the utilities subsector had the largest within-sector formal employment share (92.1%) followed by finance, real estate and business services (88.2%) and community, social and personal services (78.3%). The lowest shares were found in agriculture, livestock, fishery and forestry (11.8%), construction (45.2%) and transport and communication (49.3%).



FIGURE 18. Employment statusFIGURE 19. Employment status by sector, 2014Source: Badan Pusat StatistikSource: Badan Pusat Statistik

We define the achievement of sustainable structural change as follows: Subsectors which recorded an increase in the formal employment share in the total economy (FES) as a result of both an increase in the employment share in the total employment (EF) and an increase in the formal employment share within the sector (WFES). These subsectors are defined as having achieved a sustainable structural change (see also ANNEX 3). In the second half of the 2000s, the service sector recorded a sustainable structural change. This sustainable structural change was driven by the trade, hotels and restaurants sector, the only services subsector in those years to achieve a sustainable structural change (FIGURE 20a). The service sector's FES increased mainly through a rise in ES while its WFES increased only slightly. The industrial sector recorded a large drop in FES as its WFES declined from 70.8% to 64.0%. A drop in WFES was particularly large in the manufacturing and construction sectors.

In the first half of the 2010s, both industrial and service sectors recorded a sustainable structural change. FES of the service sector as a whole increased by 5.1 percentage points, which was much larger than the industry sector's increase of 1.8 percentage points (FIGURE 20b). All subsectors in the industrial sector achieved a sustainable structural change and the manufacturing sector recorded a particularly large increase in FES as its WFES recovered to the level of the first half of the 2000s. WFES of the utilities sector increased significantly, surpassing that of finance, real estate & business services. All services subsectors, except transport and communication, also achieved a sustainable structural change. The WFES of

transport and communication sector increased significantly by more than 11 percentage points, but at the same time ES experienced a large decline.



FIGURE 20. Decomposition of changes in formal employment share by sector Note: Sector 1 -Agriculture, Livestock, Forestry & Fishery,

- 2 Mining & Quarrying,
- 3 Manufacturing Industry,
- 4 Electricity, Gas & Water Supply,
- 5 Construction,
- 6 Trade, Hotels & Restaurants,

- 7 Transport & Communication,
- 8 Finance, Real Estate & Business Services,
- 9 Community, Social & Personal services

Source: Badan Pusat Statistik(various years).

If we compare the first half of the 2000s and the first half of the 2010s, we find that the service sector, and its trade, hotels and restaurants subsector, achieved a sustainable structural change (FIGURE 20c). Services subsectors which already had a higher within-sector formal employment share, e.g., the finance and social service sectors, saw a large increase in their employment share. The within-sector formal employment shares of other subsectors, such as trade and transportation, caught up. However, the WFES of the industrial sector declined as a whole and therefore failed to achieve a sustainable structural change, even with three industrial subsectors recording a sustainable structural change. This was because the construction sector's WFES declined significantly by 12.4 percentage points.

Next we turn to the inclusivity of structural change by education levels of workers. Indonesia has shown an impressive progress in education provision since 2000. The proportion of the population, which had completed senior secondary education or above increased while that which had no schooling or incomplete primary schooling declined (FIGURE 21a). A similar improvement is found in the education attainment level of workers (FIGURE 21b). This happened along with a general rise in school participation rates and enrolment ratios at all levels (Badan Pusat Statistik- Education). They can be attributed to the government's continued investment in education as it abides to the Article 31 of the Constitution, which states that the government has to allocate 20% of the national budget to education.¹

However, workers whose highest level of education attainment is primary or junior secondary education (henceforth identified as less-educated workers) continue to represent approximately half of total workers. In 2014, they took up 55.9%, 51.1%, and 37.2% in agriculture, industry and services' employment, respectively (FIGURE22). By subsectors, the within-sector share of less-educated workers was largest in construction (60.9%), followed by agriculture, livestock, fishery & forestry (55.9%) and mining (48.7%). While new generations are more highly educated with a net enrolment ratio of 59.4% at the senior secondary education level in 2014 – an impressive growth from 40.1% in 2003 – there is still a large workforce of

¹ Despite an improvement in the quantity of education provision, the quality of education remains low. For example, Indonesia's latest mathematics PISA score for 2012 ranked 64th out of 65 countries (OECD, 2014).

older generations who have attained education below that level and are likely to be vulnerable during the structural transformation of the economy.



FIGURE 21a and FIGURE 21b. Population and workers by the highest level of education attainment

Source: Badan Pusat Statistik (various years).





We define the achievement of inclusive or broad-based structural change follows: Subsectors which recorded an increase in the share of less-educated workers in total workers(LES) as a result of both an increase in the employment share in the total employment (ES) and an increase in the share of less-educated workers within the sector (WLES). We define the subsectors as having achieved inclusive or broad-based structural change (see also ANNEX 4 and ANNEX 5). In the second half of the 2000s, two subsectors, mining & quarrying and finance, real estate & business services, experienced a broad-based structural change (FIGURE 23a). LES also increased in most other subsectors, but it was mainly through an increase of ES, not WLES. In the first half of the 2010s, the utilities sector joined the finance, real estate & business services and generated a broad-based structural change (FIGURE 23b).

Three more findings stand out. Firstly, the number of subsectors that saw a rise in LES decreased from seven between 2000-2004 and 2005-2009 to five between 2005-2009 and 2010-2014. Secondly, subsectors that recorded a broad-based structural change were those with a very low ES, amounting to less than 3% in both periods. This means that a rise in their WLES had a negligible effect on overall percentages. In addition, these subsectors in the first half of the 2010s had the lowest WLES, another factor that made their effects on overall percentages in the economy not very significant. Thirdly, manufacturing was the only subsector which did not see a rise in LES in both periods.

When we compare the first half of the 2010s and the first half of the 2000s, we find that only one subsector, finance, real estate and business services, achieved a broad-based structural change (FIGURE 23c). A rise in ES and a decline in WLES nearly cancelled each other out in both industrial and service sectors, and therefore LES did not show a significant change. A large decline in ES and WLES of the agricultural sector meant that its LES declined by nearly 8 percentage points between two periods.

In summary, in this section, we have argued that after a slow recovery of the job market in the first half of the 2000s, the speed at which the Indonesian economy, and service sector in particular, provided sustainable opportunities in terms of formal or 'good' jobs accelerated in the first half of the 2010s. While sectoral differences exist, sustainable structural transformation in the job market has been driven by both reallocation of labour and a rise in the formal employment share within sectors. However, we find that the opportunities created in the job market were provided only to a limited spectrum of workers. A decline in the share of lesseducated workers within most sectors largely reflects the changes in the education level of the total population, but these dynamics made the decline much larger in employment than in the general population in the first half of the 2010s. The reallocation effect had a limited impact on the employment of less-educated workers as the employment share of the agricultural sector, which has a very high within-sector employment share of less-educated workers, declined rapidly. Therefore, the opportunities created during structural changes have been limited for less-educated workers, who are already vulnerable as they are likely to have informal jobs.



FIGURE 23. Decomposition of changes in employment of less-educated workers by sector Note: Sector 1 - Agriculture, Livestock, Forestry & Fishery,

- 2 Mining & Quarrying,
- 3 Manufacturing Industry,
- 4 Electricity, Gas & Water Supply,
- 5 Construction,

- 6 Trade, Hotels & Restaurants,
- 7 Transport & Communication,
- 8 Finance, Real Estate & Business Services,
- 9 Community, Social & Personal services

Source: Badan Pusat Statistik (various years).

5. CONCLUSIONS

Indonesia has gone through major structural change since the 1960s. The structural change since the Asian financial crisis is subtler, more intra-sectoral in terms of the broad categories usually analysed (the primary sector, the secondary or industry and manufacturing and the tertiary or service sector) and we find it sustainable in general, but not broad-based. One could though ask whether achieving 'sustainable' and 'broad-based' structural change is compatible given that lower-educated workers will find it difficult to get formal jobs. This may push one to look more precisely at which subsectors were particularly good and bad.

We make the following conclusions. First, on the compatibility of 'structural transformation' and 'inclusive growth': Structural transformation, and more precisely industrialisation, played an important role in expanding the middle-class population in many advanced economies. The manufacturing sector provided many jobs during the industrialisation phase of development, which in turn provided income for a large section of the population, who were not necessarily highly skilled or highly educated. Therefore, structural transformation is often viewed as a vital component of inclusive growth that provides sustainable opportunities to a broad spectrum of economic agents. However, 'structural transformation' and 'inclusive growth' are sometimes dealt separately in the developing world. Industrial policies of developing countries tend to focus on moving up the value chain rather than creating employment. On the other hand, policies for inclusive growth tend to focus on making the fruits of growth or opportunities distributed fairly across society and less on growth drivers. Structural transformation and inclusive growth can go hand in hand, however, it is uncertain whether the manufacturing sector has the ability to create value added and a vast number of jobs as it did in many advanced countries. This is not only about the Rodrik's thesis of deindustrailisation. A recent concern is about the automation of the manufacturing sector through which robots replace labour-intensive manufacturing jobs in developing countries (Chang et al., 2016). This will have important implications on Indonesia whose working-age

population is continuing to grow rapidly. Therefore, the government needs to balance the needs to adapt to the new era of industrial revolution and to foster job creating sectors. On the other hand, it is expected that the use of new technologies in the service sector has the potential to create many jobs, a recent example being Go-Jek and similar companies as though whether the employment creation in net overall is not clear.

Second, on the definition of inclusive structural transformation: This paper examined the inclusivity of structural transformation in Indonesia. This paper defined structural transformation as inclusive when (i) its opportunities are sustainable and (ii) it provides opportunities to a broad spectrum of economic agents. The sustainability component measured an increase in employment in subsectors were likely to create a virtuous cycle by offering 'better jobs'. The 'broad-based' component highlighted whether the opportunities created in subsectors were shared with a disadvantaged group of the society, i.e. less-educated workers. We analysed how different economic subsectors contributed to inclusive structural transformation using these definitions. Further studies are required to find out how these components link with changes in poverty and inequality.

Third, on whether or not Indonesia's structural transformation has been inclusive: We find that the Indonesian economy as a whole experienced structural transformation, albeit largely inter-sectoral in terms of the broad sectoral categories, that was sustainable, but not broad-based during the last decade. The structural transformation in Indonesia since 2000 has been significant yet subtle, meaning that we need to look at the GDP composition more closely and other 'input' variables to spot the trend. When we analyse the nominal or real GDP shares of broad economic sectors (i.e. primary/agriculture, secondary/industry, and tertiary/services), we find that the structural transformation was limited from 2000 to 2014. Yet we find that changes in GDP shares of subsectors, such as large increases in construction, and transport & communication sector shares and a large decrease in the manufacturing sector share, indicate that the Indonesian economy experienced noticeable structural transformation. We again find significant structural transformation during the past decade and a half, albeit intra-sectoral reallocations of resources or 'inputs', as opposed to changes in GDP composition or 'outputs'. For example, between 2000 and 2014, the employment share of the agricultural sector declined by 11 percentage points while that of the industrial and service sectors increased 4 percentage points and 8 percentage points, respectively. Another important point of the paper is that economic subsectors have different levels of ability to contribute to sustainable or broad-based structural transformation. Furthermore, the paper shows that the service sector contributed significantly to inclusive, or sustainable to be more specific, structural transformation,

supporting Findlay and Pangestu (2016)'s view that the service sector has the potential to act as a driver of healthy economic growth in Indonesia.

A final thought: Are services so bad? Many such as Rodrik (2015) argues that most of services are (i) non tradable, and (ii) technologically not dynamic, and (iii) some sectors are tradable and dynamic but they do not have the capacity to absorb labour, but similar shortcomings can be said about the manufacturing sector. A significant share of manufacturing is (i) non-traded (even though they are tradable), (ii) much of manufacturing in developing countries are not technologically advanced (at least in relative terms to other modern sectors), and(iii) Where some manufacturing sectors are technologically dynamic, they may not create much employment. This is especially true now that more factory work in electronics is done by robots and machines and what was labour intensive shoe making is another example. Developing manufacturing industry is important, but one should be careful of 'industrial fundamentalism' (as mentioned in Aswicahyono, Hill & Narjoko, 2011). To achieve the goal of upgrading the economy and creating jobs, one should not overlook opportunities in other sectors. In short, there is a need to go beyond blue collar jobs and manufacturing investment, and need policies for boosting and improving quality of jobs and investment in the service sector.

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	Agricultural	Industrial	Services
	Sector	Sector	Sector
Self Employed	Informal	Informal	Informal
Self Employed Assisted by Family Member or Temporary Help	Informal	Formal	Formal
Employer with Permanent Workers	Formal	Formal	Formal
Employee	Formal	Formal	Formal
Casual employee in agriculture	Informal	-	-
Casual employee not in agriculture	-	Informal	Informal
Unpaid Worker	Informal	Informal	Informal

ANNEX 2: Simplified definition of formal and informal sectors for Indonesia

Source: World Bank (2010).

ANNEX 3: Methodology for section 4

Changes in the share of formal employment in the total economy (FES) in sector i is the result of changes in two components, namely employment shares (α) in sector i and sector i's within-sector formal employment share (WFES). Changes in FES are therefore decomposed with the following formula:

$$FES_{i,t} = \alpha_{i,t-k} \Delta WFES_{i,t} + WFES_{i,t} \Delta \alpha_{i,t}$$

The first term multiplies the employment share (α) of each sector at the beginning of the period by the change in WFES between t-k and t. The second term multiplies WFES at the end of the period by the change in the employment share (α) of each sector between t-k and t. WFES term is presented in a ratio.

The share of less-educated employment in the total economy (LES) is decomposed in the same way with the following formulas:

$$\Delta LES_{i,t} = \alpha_{i,t-k} \Delta WLES_{i,t} + WLES_{i,t} \Delta \alpha_{i,t}$$

		Agriculture			Industry			
Year		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Total	
2000-	ES	44.62	0.83	12.74	0.17	4.40	18.13	
2004	WFES	9.48	58.47	75.76	89.76	58.13	70.82	
Ave.	FES	4.23	0.48	9.65	0.15	2.56	12.84	
2005-	ES	41.45	1.01	12.41	0.21	5.11	18.74	
2009	WFES	8.24	53.95	72.46	87.18	44.59	64.02	
Ave.	FES	3.42	0.55	8.99	0.18	2.28	12.00	
2010-	ES	35.74	1.29	13.35	0.23	5.81	20.68	
2014	WFES	10.62	61.95	75.86	91.83	45.78	66.71	
Ave.	FES	3.80	0.80	10.13	0.21	2.66	13.80	
				Services				
Year		Sector 6	Sector 7	Sector 8	Sector 9	Total	TOLA	
2000-	ES	19.64	5.25	1.18	11.18	37.25	100.00	
2004	WFES	43.02	39.01	93.18	80.19	55.20	37.64	
Ave.	FES	8.45	2.05	1.10	8.96	20.57	37.64	
2005-	ES	20.28	5.95	1.37	12.21	39.81	100.00	
2009	WFES	44.48	35.08	88.77	79.20	55.25	37.41	
Ave.	FES	9.02	2.09	1.22	9.67	22.00	37.41	
2010-	ES	21.10	4.67	2.32	15.49	43.58	100.00	
2014	WFES	49.87	46.77	89.07	79.36	62.11	44.66	
Ave.	FES	10.52	2.18	2.07	12.29	27.07	44.66	

ANNEX4. Employment share and formal employment share by subsector (%)

Note 1: Sector 1 = Agriculture, Livestock, Forestry & Fishery, Sector 2 = Mining & Quarrying, Sector 3 = Manufacturing Industry, Sector 4 = Electricity, Gas & Water Supply, Sector 5 = Construction, Sector 6 = Trade, Hotels & Restaurants, Sector 7 = Transport & Communication, Sector 8 = Finance, Real Estate & Business Services, Sector 9 = Community, Social & Personal services

Note 2: ES = sectoral share in total employment, WFES = formal employment share within the subsector, FES = formal employment share in the total employment

Note 3: Cells with numbers which have increased from the previous period are shaded Source: Badan Pusat Statistik

		Agriculture			Industry		
Year		Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Total
2000-	ES	44.74	0.80	12.92	0.16	4.40	18.28
2004	WLES	61.66	54.07	55.42	24.10	67.53	58.01
Ave.	LES	27.59	0.43	7.16	0.04	2.97	10.60
2005-	ES	41.45	1.01	12.41	0.21	5.11	18.74
2009	WLES	61.35	55.04	55.37	22.69	66.30	57.98
Ave.	LES	25.43	0.56	6.87	0.05	3.39	10.87
2010-	ES	35.74	1.29	13.35	0.23	5.81	20.68
2014	WLES	54.98	49.71	49.10	22.89	60.92	52.18
Ave.	LES	19.65	0.64	6.56	0.05	3.54	10.79
		Services _					
				Services			Total
Year		Sector 6	Sector 7	Services Sector 8	Sector 9	Total	Total
Year 2000-	ES	Sector 6 19.38	Sector 7 5.28	Services Sector 8 1.19	Sector 9 11.13	Total 36.98	Total 100.00
Year 2000- 2004	ES WLES	Sector 6 19.38 55.59	Sector 7 5.28 62.44	Services Sector 8 1.19 16.89	Sector 9 11.13 30.47	Total 36.98 47.76	Total 100.00 55.85
Year 2000- 2004 Ave.	ES WLES LES	Sector 6 19.38 55.59 10.77	Sector 7 5.28 62.44 3.30	Services Sector 8 1.19 16.89 0.20	Sector 9 11.13 30.47 3.39	Total 36.98 47.76 17.66	Total 100.00 55.85 55.85
Year 2000- 2004 Ave. 2005-	ES WLES LES ES	Sector 6 19.38 55.59 10.77 20.28	Sector 7 5.28 62.44 3.30 5.95	Services Sector 8 1.19 16.89 0.20 1.37	Sector 9 11.13 30.47 3.39 12.21	Total 36.98 47.76 17.66 39.81	Total 100.00 55.85 55.85 100.00
Year 2000- 2004 Ave. 2005- 2009	ES WLES LES ES WLES	Sector 6 19.38 55.59 10.77 20.28 53.66	Sector 7 5.28 62.44 3.30 5.95 58.22	Services Sector 8 1.19 16.89 0.20 1.37 17.19	Sector 9 11.13 30.47 3.39 12.21 29.72	Total 36.98 47.76 17.66 39.81 45.74	Total 100.00 55.85 55.85 100.00 54.50
Year 2000- 2004 Ave. 2005- 2009 Ave.	ES WLES LES ES WLES LES	Sector 6 19.38 55.59 10.77 20.28 53.66 10.88	Sector 7 5.28 62.44 3.30 5.95 58.22 3.47	Services Sector 8 1.19 16.89 0.20 1.37 17.19 0.24	Sector 9 11.13 30.47 3.39 12.21 29.72 3.63	Total 36.98 47.76 17.66 39.81 45.74 18.21	Total 100.00 55.85 55.85 100.00 54.50 54.50
Year 2000- 2004 Ave. 2005- 2009 Ave. 2010-	ES WLES LES ES WLES LES ES	Sector 6 19.38 55.59 10.77 20.28 53.66 10.88 21.10	Sector 7 5.28 62.44 3.30 5.95 58.22 3.47 4.67	Services Sector 8 1.19 16.89 0.20 1.37 17.19 0.24 2.32	Sector 9 11.13 30.47 3.39 12.21 29.72 3.63 15.49	Total 36.98 47.76 17.66 39.81 45.74 18.21 43.58	Total 100.00 55.85 55.85 100.00 54.50 54.50 100.00
Year 2000- 2004 Ave. 2005- 2009 Ave. 2010- 2014	ES WLES LES ES WLES ES WLES	Sector 6 19.38 55.59 10.77 20.28 53.66 10.88 21.10 46.81	Sector 7 5.28 62.44 3.30 5.95 58.22 3.47 4.67 49.48	Services Sector 8 1.19 16.89 0.20 1.37 17.19 0.24 2.32 18.31	Sector 9 11.13 30.47 3.39 12.21 29.72 3.63 15.49 27.13	Total 36.98 47.76 17.66 39.81 45.74 18.21 43.58 38.58	Total 100.00 55.85 55.85 100.00 54.50 54.50 100.00 47.25

ANNEX5. Employment share and share of workers with primary or junior secondary as their highest level of education attainment by subsector (%)

Note 1: Sector 1 = Agriculture, Livestock, Forestry & Fishery, Sector 2 = Mining & Quarrying, Sector 3 = Manufacturing Industry, Sector 4 = Electricity, Gas & Water Supply, Sector 5 = Construction, Sector 6 = Trade, Hotels & Restaurants, Sector 7 = Transport & Communication, Sector 8 = Finance, Real Estate & Business Services, Sector 9 = Community, Social & Personal services

Note 2: ES = sectoral share in total employment, WLES = share of workers who have completed either level of basic education within subsector, LES = share of workers who have completed either level of basic education in the total employment

Note 3: Cells with numbers which have increased from the previous period are shaded Source: Badan Pusat Statistik