Working Papers in Trade and Development

Is Structural Transformation-led Economic Growth Immiserising or Inclusive? The Case of Indonesia

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IS STRUCTURAL TRANSFORMATION-LED ECONOMIC GROWTH IMMISERISING OR INCLUSIVE? THE CASE OF INDONESIA

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Abstract: This paper examines the relationship between structural transformation and the inclusivity of growth using the case of Indonesia. In the past two decades, Indonesia has become a service-centred economy; manufacturing sector's capacity to generate employment and lead productivity growth has deteriorated compared to during the two decades prior to the Asian financial crisis. A multidimensional analysis of Indonesia's structural transformation shows that productivity growth since the crisis has been higher than the long-term average, driven both by within-sector productivity gains and labour movement to higher productivity sectors. Also, Indonesia has not experienced a rising level of informality that is increasingly a concern for other developing countries going through service-led structural change. We argue thus that structural transformation has offered sustainable opportunities to the Indonesian workers in general. However, Indonesia's economic growth is unlikely to as dynamic as during the high growth period (1986–1996) if the service sector continues to lead structural transformation. Compared to the industrial subsector, the service subsector with large employment absorptive capacity, has low productivity. Indonesia face challenges of recovering economic dynamism as well as managing the consequences of structural transformation.

Key words: Indonesia, structural change, inclusive growth, productivity, employment.

Jel Codes: O14, O16, O53

IS STRUCTURAL TRANSFORMATION-LED ECONOMIC GROWTH IMMISERISING OR INCLUSIVE? THE CASE OF INDONESIA

1. INTRODUCTION

In this paper we approach the question of immiserising growth by discussing the source of growth itself, specifically structural transformation or structural change which we define as the shift of economic activities from low to higher productivity. Such a shift drives economic growth and has implications for the extent to which economic growth is immiserising or inclusive. Indeed, the availability of sustainable opportunities for the working-age population is important in building an inclusive economy. However, providing these opportunities is complex for developing countries. As developing countries try to stimulate economic growth through structural transformation, they often face a dilemma: Should they concentrate on sectors that are capable of leading productivity growth, or should they focus on sectors that are capable of creating jobs on a large scale? Decisions about allocating resources are especially difficult for countries with a rapidly expanding working-age population and scarce financial capacity.

In short, developing countries are pursuing two intertwined development objectives. The first goal, structural change or transformation, meaning the reallocation of resources towards higher productivity activities, is essential to economic development. Economic growth led by such structural transformation is likely to be sustainable (Herrendorf, Rogerson, and Valentinyi, 2013; McMillan, Rodrik, and Verduzco-Gallo, 2014). 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 consumption, welfare, and employment opportunities for the population at the lower end of income distribution and thus reduces absolute poverty; inclusive growth is therefore easiest to achieve when the level of inequality is low or falling (for further discussion on inclusive growth in developing countries, see Bourguignon, 2003; Kakwani and Pernia, 2000; Klasen, 2010; Ravallion, 2004). Tension may arise between these two goals, as the pursuit of structural change may entail rising inequality, while inclusive growth is maximised with static or falling inequality.

Of course, these concerns are not new. The works of Arthur Lewis and Simon Kuznets are particularly relevant. Although Kuznets' hypothesis that inequality rises in the early stages of a transition (based on a Lewisian dual economy model) is discredited as a universal law, the experience of many fast-growing developing countries under globalisation and open economies is one of structural transformation *with* unambiguous rising inequality. That is, these countries experience a compression of the shares of national income going to the poorest deciles of the population and an expansion of the shares going to the richest decile (Sumner, 2016). A set of scholars has written in 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).

Although economic growth reduces poverty on average, there is heterogeneity in the relationship between economic growth and changes in poverty across countries, and economic growth in some cases has even occurred along with a rise in poverty. Shaffer (2016) highlights the sectoral composition of growth as one of eight potential sources of this heterogeneity. Structural transformation involves changes in the input intensity of productive activities and influences the geographical location of economic growth, and therefore different patterns of structural change have dissimilar effects on poverty and income distribution. This paper takes a deeper look at this issue by analysing Indonesia's experience of structural transformation-led economic growth. We provide a conceptualisation of inclusive structural transformation-led growth; consider Indonesia's 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 has been inclusive. The rest of this paper is structured as follows: Section 2 discusses the tension between structural change and inclusive growth and provides background to the case study. Section 3 then provides a systematic overview of structural change in Indonesia since the 1960s. Section 4 focuses on structural change-led growth since the Asian financial crisis to assess its inclusiveness. 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 the composition of highly educated and less-educated workers. Changes in these variables are decomposed into the effects of reallocation between sectors and within sector changes. Section 5 concludes.

2. BACKGROUND

At the early stages of development in East Asia's late-industrialising countries, the labour-intensive manufacturing sector acted as an engine of structural transformation. The many semiskilled manufacturing jobs spread the benefits of economic growth across a large section of the population in these countries. The manufacturing sector thus played a central role in initiating inclusive structural transformation that involved explosive productivity growth and rapid poverty reduction. Figure 1a shows the changes in the employment share of the manufacturing sector in four countries: Japan, Korea, Malaysia, and China. These four economies have the highest per capita GDP among the East Asian countries with a population of over ten million. The manufacturing employment shares in these countries have expanded up to around 20% at their peak. The peak manufacturing employment share was reached in the early 1970s in Japan, late-1980s in Korea, and late-1990s in Malaysia, by which time each had grown into an upper-middle income country with a low poverty rate. Subsequently, these countries, albeit to a lesser extent in Malaysia, moved up the value chain, a phenomenon often described as the flying geese model (Kojima, 2000). During the 2000s, there was also a spurt in the manufacturing employment share in China as well as a dramatic decline in poverty rate.

FIGURE 1 Employment share of manufacturing sector, selected Asian countries

Unfortunately, the positive experiences of East Asian countries have not been representative cases. Despite undergoing structural transformation, most developing countries have failed to graduate from low and low-middle income brackets, and their social indicators have not improved as rapidly as those of East Asian economies. In this regard, a number of studies have analysed the economic structural change of India. Tejani (2012) shows that while India has experienced noticeable changes in its economic structure since the late 1970s, the country still lacks labour-intensive sectors. This 'jobless' economic growth has resulted in an imbalanced output-employment structure characterised by large services output and a mass of agricultural, and mostly informal, workers. Tejani suggests that this skewed structure has had an effect on inequality between rural and urban areas. Hasan, Lamba, and Gupta (2013) find that movement of workers from low earning (low productivity) sectors to high earning (high productivity) sectors has been an important contributor to poverty reduction in India. However, this movement has not occurred on a broad scale, and therefore the economy has failed to absorb a large number of semiskilled workers. At the same time, productivity growth within agriculture, which employs a large share of labour, has been weak and therefore had limited impact on poverty reduction.

Many developing countries are currently trying to develop the manufacturing sector in the hope that industrialisation will accelerate productivity growth and provide much-needed jobs for their expanding workforce. Such hope has been particularly strong in the recent decade with the end of the resource boom and the signs of shifting development strategy in China towards consumption and high-technology sectors. Haraguchi, Cheng, and Smeets (2017) argue that the manufacturing sector's potential to contribute to economic development and employment creation continues to be significant in the developing world. The failure of many developing countries to develop the manufacturing sector in recent decades does not suggest that the potential of the manufacturing sector to lead economic development has weakened; rather, that failure is the consequence of the concentration of manufacturing activities in a small number of populous countries, including China in particular.

Developing countries are also searching for a source of inclusive structural transformation in services. The weakening of the gravitational pull of China's manufacturing sector will likely be gradual, given that the country's strong infrastructure offers companies the option to move inland from the coastal hubs (Lemoine, Mayo, Poncet, and Ünal, 2014). Also, many developing countries lack the competitiveness and policy space necessary to stimulate manufacturing sector growth in the globalised world (Wade, 2016). The fast spread of industrial robots in manufacturing in both developed and developing countries is further complicating countries' competitive advantage. Factory automation is progressing quickly in segments that have acted as an important source of job creation in late-industrialising countries. For example, Chang and Huynh (2016) found that three out of five manufacturing workers in

less-developed Southeast Asian countries are in areas where there is a high risk of displacement due to technology. On the inclusiveness front, it is unclear whether manufacturing-led structural transformation is superior.

Loayza and Raddatz (2010), in a cross country empirical study, argue that the labour intensity of various economic sectors is an important variable that explains the relationship between structural transformation and poverty reduction. On a similar note, Amirapu and Subramanian (2015) suggest that the development option is not as simple as manufacturing versus services. Their work examines different economic sectors' ability to lead inclusive structural transformation in India using five criteria, namely the productivity level, productivity convergence, input usage, alignment of skill requirement and comparative advantage, and tradability. It finds that India's registered manufacturing sector and several services subsectors are similar not only in their abilities to contribute to productivity growth but also in their inabilities to generate inclusive or widely shared growth, as these sectors require few skill-intensive workers. Therefore, the future path of structural transformation will depend on whether developing countries adopt 'comparative advantage deifying' policies aimed at intensively utilising a large pool of unskilled workers or 'comparative advantage defying' policies that require few skilled workers. Each option has its own benefits, costs, and policy implications, as also highlighted in the debate between Lin and Chang (2009). The country's strategic focus will affect not only the future pattern of economic growth but also who will enjoy the opportunities created from structural change.

There is an additional component that plays an important role in determining inclusiveness of structural transformation: the characteristics of jobs. Formal jobs provide stronger job security and higher wages compared to informal jobs and therefore contribute to inclusive growth (Jütting and de Laiglesia, 2009; World Bank, 2014). The International Labour Organisation points out that informal jobs are 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). Also, the characteristics of the population that can benefit from structural transformation are linked to inclusiveness of economic growth. Structural transformation leads to changes in the demand for workers with a different level and kind of skills and therefore there will not be equal employment opportunity for everyone.

Against this background, the rest of this paper examines Indonesia's experience of structural transformation. How have the characteristics of Indonesia's economy changed? Which sectors have contributed to inclusive structural change? Counter to earlier periods, Indonesia is an example of a developing country whose manufacturing sector is struggling to become an engine of structural transformation. As Figure 1b shows, Indonesia is a middle case that lies between rapid industrialising economies such as China at the one end of the spectrum and non-industrialising economies such as the Philippines at the other. Indonesia's output and employment in the manufacturing sector grew at an impressive speed in the 1980s and the first half of the 1990s. From 1975 to 1995, the share of manufacturing in value added and employment expanded by 16.3 percentage points and 5.0 percentage points, respectively.

However, this pattern of structural transformation was put on halt when the country suffered the Asian financial crisis in the late 1990s. The effects of the crisis on the Indonesian economy were severe: this crisis in Indonesia was the costliest banking crisis in the world since 1970 in terms of the fiscal cost as a percentage of GDP (Laeven and Valencia, 2013), and it took six years for Indonesia to return to the pre-crisis level of GDP at constant prices. In the 1990s, manufacturing companies set their sights on China, which was resilient during the Asian financial crisis and was preparing another big step in opening up its economy by becoming a member of the World Trade Organisation in 2001. After the crisis, the manufacturing employment and output share in Indonesia plateaued for nearly two decades. Nonetheless, the Indonesian economy succeeded in maintaining moderate economic growth during the 2000s driven by some non-manufacturing industrial subsectors and services subsectors. As economic growth has begun to slow down in the 2010s, the role of structural transformation is gaining attention again in Indonesia's policy sphere. The prices of natural commodities, which are important export items for Indonesia, have been declining since the early 2010s, and Indonesia's manufacturing sector is being threatened by lower-income Asian countries that are catching up fast.

The inclusiveness of future structural transformation is also a concern for Indonesia for several reasons. Firstly, the poverty rate has declined significantly as Indonesia has grown into a middle-income country, but the country is still home to substantial numbers of the world's poorest (Sumner, 2016). Moreover, Figure 2 shows that those who have escaped extreme poverty are still insecure. Using the new global poverty line of $1.9 a day poverty line (2011 PPP), the number of poor in Indonesia was 17.8 million (6.8% of the overall population) in 2016; this number more than quadruples to 78.1 million (29.9%) if we use the $3.1 a day poverty line (a line which is the average for Lower Middle-Income Countries). The size of the vulnerable population, or those between the $3.1 a day and $5.5 a day poverty line, is significant at 85.9 million (32.9%). Secondly, Indonesia experienced a rapid increase in inequality during the last decade (Yusuf, Sumner, and Rum, 2014). Indonesia's Gini coefficient was one of the lowest in the region in the early 1990s, but that number has since increased at a much faster rate compared to the Gini coefficients of Indonesia's neighbours (Zhuang, Kanbur, and Maligalig, 2014). Indonesia's Gini coefficient rose by more than seven points in just ten years from 34.1 in 2002 to 41.3 in 2012. It has since stayed around 40, recording 39.4 in 2016 (BPS, 2017). Thirdly, the labour supply will continue to expand. According to the UN's projection, Indonesia's working age population is expected to expand by almost 30 million in the next two decades, and offering employment opportunities for new job seekers will be a major challenge. Even the future of current workers, who may be displaced by more qualified young workers, is a concern for the country.

FIGURE 2 Population structure by income class, Indonesia

The next section takes a deeper look at Indonesia's experience of structural transformation since the 1960s. By analysing the changes in value added and employment structures, the section shows that significant progress has been made. However, some recent characteristics of structural transformation raise concerns.

3. STRUCTURAL TRANSFORMATION IN INDONESIA: 1960–PRESENT

3.1. VALUE ADDED STRUCTURE

During the 1960s, the Indonesian economy relied largely on natural resources. Figure 3a shows that agriculture dominated the economy and occupied around 35% of value added at constant 2005 prices. The mining sector accounted for around 20% of value added during the 1960s and then got a boost during the oil boom of the 1970s. Its share reached a peak at 34.0% in 1973 and it stayed above 30% for most years during the 1970s. Figures 4a and 4b show that the merchandise exports to GDP ratio expanded fast from the early 1970s and the share of fuel in exports stayed above two-thirds for most years until the mid-1980s. The manufacturing sector was still in its infancy with its value added share just below 10% in the 1960s. The value added share of the service sector remained at around 30% in the 1960s and the 1970s.[2]

FIGURE 3 Value added (constant 2005 national prices) structure, Indonesia

The value added share of the agricultural and the mining sectors began to decline from the late 1960s and the late 1970s respectively, as the Indonesian economy began a modern structural transformation. Figure 3b shows that the growth of the manufacturing sector accelerated in the mid-1970s, and the sector's high-growth period lasted for two decades. The value added share of the manufacturing sector increased from 11.6% in 1975 to 20.5% in 1985 and 27.9% in 1995. Despite the mining sector's value added share halving between 1975 and 1995, manufacturing's growth was strong enough to lead to an expansion of the industrial sector's share.

Between the mid-1970s and the mid-1980s, the manufacturing sector grew along with the government's strong protectionist measures and considerable state investments in the heavy industry using revenues from fuel exports. However, this development strategy that was centred on active government intervention became unsustainable with the decline in oil prices from the mid-1980s. International factors, such as an increase in the relative value of Indonesia's debt after the appreciation of the Yen and a rise in global real interest rates, put pressure on Indonesia's current account and fiscal position. As a result of this pressure, the

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[2] The agricultural sector corresponds to ISIC rev. 3.1 Sections A–B or Divisions 01–05. The industrial sector corresponds to ISIC rev. 3.1 Sections C–F or Divisions 10–45. The services sector corresponds to ISIC rev. 3.1 Sections G–P or Divisions 50–97.

Indonesian government took a decisive step to liberalise the economy. The rapid expansion of the manufacturing sector from the mid-1980s is related to a series of economic reform policies the government adopted, including restructuring customs services and lifting foreign investment restrictions (Aswicahyono, Bird, and Hill, 1996; Fane, 1999). The 1985 Plaza Accord had arguably the largest impact in making Indonesia and neighbouring Malaysia and Thailand, dramatically more competitive in terms of labour costs in international terms. It was more a case of Indonesia and other countries being in the right geographical *place* to allow relocation of international capital at the right *time* in history, following the G5 agreement in September 1985 (known as the Plaza Accord), to manufacture a depreciation of the US Dollar against the Japanese Yen and German Deutschemark (DM) to correct trade imbalances. Consequentially, the Yen and DM increased in value relative to the Dollar and at the same time Southeast Asia, having already built infrastructure, human capital, and a financial system in the first era of developmentalism, became an attractive place for FDI to relocate to. Indonesia had major devaluations in 1983 and 1986 and Thailand too in 1984 and 1985. The Malaysian Ringgit also depreciated substantially. The depreciations were against the Dollar and Yen in particular but also against the Korean, Taiwanese and Singapore currencies. All of which lowered the cost of production in Indonesia, Malaysia and Thailand for relocating FDI relative to other sites. Furthermore, the withdrawal of privileges to the Northeast Asian economies in 1988 under the General System of Preferences induced with further force the relocation of capital from Northeast Asia to Southeast Asia.

Figure 4b shows that the manufacturing share in merchandise exports expanded rapidly from the early 1980s until the mid-1990s. Jacob (2005) argues that this surge in manufacturing exports was driven by resource-intensive manufacturing, including food and wood products, and labour-intensive manufacturing, such as garments and textiles. During this period, there was a rise in export-oriented investment from higher-income Asian economies, whose companies sought potential industrial bases with labour, as wages in their home countries increased. These companies were attracted by economic liberalisation policies adopted by the Indonesian government from the mid-1980s (Thee, 1991). That said the importance of exchange rate values vis-à-vis Northeast Asia cannot be underplayed.

FIGURE 4 Trade structure, Indonesia

Figure 3c shows that the service sector's value added share expanded during the 1980s after two decades of little change. The share increased from 30.9% in 1980 to 36.1% in 1990 and remained around this level until the Asian financial crisis. The growth of services was led by the finance, insurance, real estate, and business services (FIRB) sector in this period, whose share more than tripled from 2.0% in 1980 to 7.0% in 1997. The Indonesian government carried out major reforms in the banking industry in 1983 and 1988, and the deregulation invigorated investments in finance-related sectors. The wholesale and retail trade, hotels, and restaurants

(THR) sector also showed impressive growth with its share rising from 12.3% in 1980 to 15.4% in 1997.

At the end of the 1990s, the Asian financial crisis caused an economic meltdown in Indonesia. Economic turmoil, combined with political uncertainty after the end of Soeharto's 32-year long rule, destabilised Indonesia's business environment. Indonesia's net FDI inflow was negative for four consecutive years, while Korea, Malaysia, and Thailand, which were also severely affected by the crisis, did not record even a year of negative net FDI inflow (UNCTAD, 2017). A lack of international capital had a serious impact on Indonesia's manufacturing sector, in which foreign companies played an important role. A dramatic depreciation of Rupiah during the crisis was not sufficient to lead to an immediate recovery of export-oriented domestic companies, since many of them also suffered from a rise in foreign debt. Since the crisis, the manufacturing sector has failed to return to the long-term growth it experienced between the 1970s and the mid-1990s. After reaching a peak of 28.4% in 2001, the value added share of the manufacturing sector declined to 25.4% in 2006 and then flattened out. Along with the continued decline of the mining sector, the industry's share as a whole shrank from 51.1% in 2001 to 44.6% in 2012. The shares of two other industrial subsectors, namely the construction sector and the electricity, gas, and water supply (EGW) sector, expanded during the 2000s, but their initial sizes were too small to stop the declining trend of the industrial sector. Figure 4b shows that the share of manufacturing goods in merchandise exports also declined rapidly following the Asian financial crisis.[3] Combined with a rapid expansion of fuel imports (Figure 4c), Indonesia's trade balance deteriorated during the 2000s.[4]

The downturn of the manufacturing sector's value added share cannot be attributed to only the Asian financial crisis. There were already signs of slowdown in the manufacturing sector prior to the crisis. Szirmai (1994) and Timmer (1999) show that the productivity growth of Indonesia's manufacturing sector accelerated from the mid-1980s, but the pace was not fast enough to meet that of other industrialising economies in Asia. Thee (2006) notes that a number of studies recommended the government deepen and broaden Indonesia's manufacturing base in the mid-1990s to make manufacturing-led structural transformation sustainable. However, the government did not take the necessary steps to support diversification and sophistication of this sector. As a result, Indonesia's manufacturing sector continued to be concentrated in few labour-intensive and resource based segments, in which global competition intensified with the entry of new contestants, such as China. The growth of some capital-intensive manufacturing segments accelerated during the 1990s, but their sustainability was questionable. For example, Aswicahyono, Basri, and Hill (2000) show that the automobile industry continued to be heavily protected even during the country's liberalisation. They argue that the government's strong regulation and protective measures allowed automotive firms to benefit from technological learning but these measures also made the sector highly fragmented. Also, political connections,

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[3] It is worth highlighting that the export share of fuel, ores, and metals expanded during the 2000s with the global commodities boom. This trend is reflected in the rising value added share of the mining sector at current prices, but the value added share at constant prices shows a sustained decline during this period.

[4] An increase in fuel imports was a result of rising domestic demand, declining domestic oil production, and limited progress in the country's refinery capacity expansion.

rather than efficiency, were a major factor in firms' success. Moreover, Jacob and Meister (2005) argue that knowledge spillovers from foreign direct investment had an insignificant effect on productivity in Indonesia's manufacturing sector due to limited domestic absorptive capacity.

The service sector's value added share increased rapidly from 34.8% in 2000 to 43.8% in 2012, following the Asian financial crisis. The transport, storage, and communication (TSC) sector grew particularly rapidly, with its share more than doubling from 4.6% in 2000 to 10.1% in 2012. The sector's explosive growth can partly be attributed to regulatory reform in the telecommunications sector, which attracted large investments, and rising mobile phone and internet penetration in Indonesia. THR also recorded resilient growth with its share reaching 17.1% in 2012. The community, social, and personal services (CSP) sector showed an impressive growth during the 2000s after three decades of continued decline. FIRB's share shrunk by nearly a quarter after the Asian financial crisis but began to recover from the early 2000s. The services-led structural transformation coincided with consumption-driven economic growth. During this period, economically secure population and middle class residing in urban areas expanded, and their ability to increase discretionary spending led to a rapid growth in consumer services (Oberman, Dobbs, Budiman, Thompson, and Rossé, 2012).

If one takes a long-run perspective, we find the following salient features of Indonesia's structural transformation. First, as in many other developing countries, Indonesia's 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 manufacturing and services. Second, the manufacturing sector's share in Indonesia's value added increased rapidly between the mid-1970s and the mid-1990s, though it declined after the Asian financial crisis and remained constant from the mid-2000s. Third, the service sector is now a key contributor to economic growth in Indonesia. The sector's growth was driven by the FIRB sector in the 1980s and 1990s, and by the TSC and the CSP sectors during the 2000s. Also, the THR sector recorded a continuous expansion from the 1980s. As a result, the combined value added share of the two largest service subsectors, THR and TSC, surpassed the share of the manufacturing sector in 2010 from being 9.0 percentage points smaller in 1996 before the Asian financial crisis.

3.2 **EMPLOYMENT STRUCTURE**

As can be seen in Figure 5a, the agricultural sector's employment share showed a continued decline from 65.9% in 1971 to 41.3% in 1997. Despite this significant decline, the sector continued to employ the largest number of workers during this period. The industrial sector's employment share nearly doubled from 10.1% in 1971 to 19.5% in 1997. Figure 5b shows that the manufacturing sector led this increase, as its share increased from 7.9% to 13.1%. The rise in the manufacturing sector's employment share was particularly large during the 1980s. Fujita and James (1997) show that a large increase in employment in the manufacturing sector was due to rapid growth of export-oriented industries after the Indonesian government implemented

economic reform policies in the mid-1980s. This is not to forget the Plaza Accord as noted previously triggered substantial changes in relative exchange rates. In particular, labour-intensive light manufacturing segments recorded impressive growth in output and created a large quantity of jobs. Service employment share also grew rapidly from 24.1% in 1971 to 39.1% in 1997. Figure 5c shows that THR led the increase in service employment, as its share increased from 11.0% in 1971 to 17.7% in 1997.

FIGURE 5 Employment structure, Indonesia

The long-term shift in the composition of sectoral employment was disrupted during the Asian financial crisis and during the crisis' aftermath. The long-term trend of the declining employment share of the agricultural sector halted between 1997 and 2005, as the crisis forced a considerable share of labour back into agriculture. However, the long-term declining trend returned from 2006, and the employment share of the agricultural sector was recorded at 34.4% in 2012. After stagnating for several years after the crisis, the service sector's employment share began to rise again in the mid-2000s, overtook that of the agricultural sector in 2007, and reached 45.3% in 2012. From the mid-2000s, CSP led the growth of service employment, as its share increased from 2.2% in 2005 to 6.1% in 2012. THR also continued its long-term increasing trend, and its employment share reached 21.6% in 2012. It is worth highlighting that TSC's employment share, which was one of the fastest growing sectors in terms of value added, has declined since the mid-2000s.

During the Asian financial crisis, a large number of workers in the industrial sector lost jobs, and the layoffs were particularly severe in manufacturing. In 1998, the number of workers in the manufacturing sector shrank by almost 1.5 million from the previous year. The industrial sector's employment share declined by 2.8 percentage points, which was nearly nine times larger than the changes in the service share. The employment share of the industrial sector recovered from 16.7% in 1998, but its pace was much slower than that of the service sector. Until 2012, the industrial sector's share remained below the 1997 level. Most of the increase in the industrial sector's employment during the 2000s was due to the construction industry, while the share in the manufacturing sector remained around 12%. Concerns on this issue will be discussed further in Section 4.

3.3 **PRODUCTIVITY GROWTH**

A country's labour productivity can grow through two channels. The first of those channels is structural transformation, through which labour moves from low to high productivity sectors. This channel is an important source of economic growth in low-income economies, which tend to have large productivity gaps between sectors. The second channel is productivity growth within sectors. McMillan, Rodrik, and Verduzco-Gallo (2014) argue that the within-sector

productivity growth was the dominant engine of overall productivity improvement in Asia, Africa, and Latin America between 1990 and 2005. Though the gap between the within-sector productivity growth of different regions was noteworthy, the study finds that the major component explaining the differences in productivity performance was the effect of structural transformation. In Asia, the labour movement from low to high productivity sectors encouraged economic growth. However, in Africa and Latin America, labour moved in the opposite direction, meaning that structural change reduced economic growth.

This section decomposes Indonesia's productivity growth between 1973 and 2012 using the methodology of McMillan, Rodrik, and Verduzco-Gallo (2014). Based on the analysis of structural transformation in Sections 3.1 and 3.2, the entire period is divided into three growth subperiods. The first subperiod is from 1973 to 1986, during which Indonesia recorded rapid yet volatile economic growth, with the oil boom and the government carrying out import substitution policies and large state investments. The second subperiod is from 1986 to 1996, when the government began economic deregulation, devalued the exchange rate and foreign investment expanded rapidly. Economic growth accelerated during this subperiod, and Indonesia was regarded one of the Asian miracle economies until it faced its crisis. The last subperiod was from 1999 to 2012, when the Indonesian economy recovered from the crisis and recorded steady growth. 1999 was when overall productivity was recorded at the lowest level after the crisis, and 2012 has the most recent available data. The key characteristics of these three subperiods are shown in Table 1.

TABLE 1 Key characteristics of subperiods

Figure 6 shows that structural transformation made a significant contribution to Indonesia's labour productivity growth since the early 1970s. Over nearly four decades, from 1973, Indonesia's labour productivity grew by 2.5% per annum, with structural transformation and within-sector growth contributing 55.7% and 44.3% respectively. During 1973–1986, nearly all of the labour productivity growth was due to structural transformation. This subperiod saw an initiation of the rapid shift of labour from low to higher-productivity sectors. The contribution of within-sector productivity growth was almost negligible. During 1986–1996, Indonesia's economic growth accelerated with value added growing 7.7% per annum. This growth meant that value added at constant prices doubled in a decade. Labour productivity growth was also very high, at 4.8% per annum, as labour continued to shift to non-traditional sectors, and these sectors saw a rapid productivity improvement. The key difference from the previous subperiod was the change in contribution of within-sector productivity growth from 0.06 percentage points (2.9% of total labour productivity growth) to 3.1 percentage points (65.0%). Nonetheless, the structural change continued to act as bedrock of productivity growth. During 1999–2012, Indonesia saw its productivity grow at 3.1% per annum. Again, both sectoral productivity growth and structural transformation made positive contributions to

overall productivity growth, with the share of structural transformation component in the total labour productivity growth declining from 35.0% to 29.8%.

FIGURE 6 Decomposition of labour productivity growth, Indonesia

Figure 7 shows the transition of economic sectors' employment shares and relative productivity and reveals key sectors that have contributed positively to labour productivity growth since 1973. If a sector has a productivity level equal to the economy-wide average in a given year, it has a value of zero on the horizontal axis. Figure 7a shows that the labour share of the agricultural sector has declined considerably. Since this sector has had the lowest level of productivity throughout time, its employment contraction provided a basis for growth-enhancing structural transformation in Indonesia. All four industrial subsectors that have always recorded productivity higher than the economy-wide average have undergone a long-term trend of increasing employment share. Service subsectors show a mixed picture. All service subsectors have also recorded long-term employment expansion. However, only FIRB's productivity has continuously stayed above the economy-wide average, though other service subsectors recorded productivity higher than the agricultural sector. These trends suggest that while labour movement from the agricultural sector to the service sector contributed positively to labour productivity growth, each unit of employment expansion in services has contributed less to the overall productivity growth than that in the industrial sector. Also, there is the possibility that labour has moved from higher productivity subsectors to service subsectors with below-average productivity, such as THR and governmental sectors.

FIGURE 7 Employment share and relative productivity, Indonesia

By taking a close look at the transitional path of employment share and relative productivity in the three subperiods, we uncover the following important points. Firstly, the negligible contribution of within-sector labour productivity growth during 1973–1986 was due to the mining sector. The oil boom brought dramatic changes to the Indonesian economy with the mining sector's value added in current prices increasing by 22.4% per annum, and employment by 9.8% per annum. However, the growth of value added in constant prices was limited at 1.2% on average, and the large differential between this number and employment growth led to a rapid decline in sectoral productivity, as is shown in Figure 7b. The labour productivity of mining declined by two-thirds during this period, and as a result, within-sector growth's contribution to overall productivity growth was small, despite a noticeable productivity growth in other sectors. A similar growth pattern was evident in the mining sector in the last period, during which there was a global commodities boom. However, the productivity growth of other sectors was strong enough to compensate for the productivity

losses in the mining sector and contribute significantly to the overall productivity growth, as reflected in the large share of the within-sector component in Figure 6.

Secondly, the manufacturing sector was an important contributor to both within-sector productivity growth and structural transformation during the first two subperiods. The manufacturing sector's employment share and relative productivity both increased, as shown by the sector's data points moving up and to the right in Figure 7b. While the construction and FIRB sectors also moved in the same direction across both periods, the path was much clearer for manufacturing. However, this development pattern of the manufacturing sector stalled after the Asian financial crisis. Figure 8 charts the same data points for the manufacturing sector, but with different scales for clearer presentation. Figure 8 shows the positive comovement of the employment share and relative productivity has halted since the end of the 1990s.

Finally, concerns about the recent structural transformations go beyond manufacturing. The number of sectors that experienced a rise in relative productivity, as well as a rise in employment share, has decreased from five in 1973–1986 and four in 1986–1996 to zero in 1999–2012. Even if we take absolute productivity growth, the trend is no less worrying. The number of sectors that experienced a rise in absolute productivity, as well as a rise in employment share, was recorded as seven in 1973–1986 and eight in 1986–1996 and decreased to three in 1999–2012. These three sectors were THR and CSP, service subsectors with productivity lower than the economy-wide average productivity in 2012, and construction, the subsector with the lowest productivity within the industrial sector.

FIGURE 8 Employment share and relative productivity of manufacturing sector, Indonesia

The following section takes a look at concerns with the recent patterns and characteristics of Indonesia's structural transformation highlighted in this section. The section also discusses how different sectors have contributed to inclusive structural transformation in Indonesia by focusing on the jobs created.

4. INCLUSIVENESS OF STRUCTURAL TRANSFORMATION IN INDONESIA: SINCE THE ASIAN FINANCIAL CRISIS

4.1 DEVELOPER'S DILEMMA

The defining feature of structural transformation, whether industry- or service-led, is the declining agricultural share in value added and employment. Furthermore, the process of economic development has been characterised by a reduction in the gap between agriculture's share of employment and that of value added, which represents an increase in labour

productivity in the sector. Examples of this trend can be seen in Japan and Indonesia since 1880, as discussed by Timmer (2015) and depicted in Figure 9. Agricultural employment and value added shares of Indonesia in 2010 were similar to those in Japan during the 1950s. From this perspective, there is still significant potential for structural transformation to drive economic development in Indonesia.

FIGURE 9 GDP and employment share of agricultural sector, Japan and Indonesia

From the viewpoint of structural transformation, McMillan, Rodrik, and Verduzco-Gallo (2014) state that the labour productivity gap between agricultural and non-agricultural sectors first increases, then falls as the economy grows. Using India, Peru, and France as examples, they show the ratio between agricultural and non-agricultural productivity declined from around 80% to around 30% in India, the poorest country, and increased from around 30% to above 80% in France, the richest country, between the early 1960s and the mid-2000s. The productivity ratio for Peru, with an income level between India and France, remained at around 20–30% during this period. Raising agricultural productivity would facilitate structural economic change without hurting food security, which is vital in poverty reduction. Moreover, reducing the gap between agricultural and non-agricultural productivity is central in closing income gaps between rural and urban populations. Productivity improvements within the agricultural sector driven by structural transformation are likely to be sustainable as the sector's long-term productivity growth requires a rise in demand from the non-agricultural economy, as well as shedding labour from farms. However, Timmer (2015) finds that late developing economies have become increasingly incapable of integrating agricultural labour into non-agricultural sectors. This lack of integration has led to a slower decline in agricultural labour share. Therefore, productivity convergences between agricultural and non-agricultural sectors have begun when these countries were at a higher level of income compared to that of earlier developers.

There is currently a considerable productivity shortfall in Indonesia's agricultural sector. Coelli and Rao (2005) compare the total factor productivity growth of 93 countries between 1980 and 2000 and rank Indonesia 86th. Fuglie (2004) finds that total factor productivity growth in Indonesia's agricultural sector accelerated in the late 1960s and the 1970s during the green revolution period, started to slow in the 1980s, and stagnated in the 1990s. Moreover, productivity convergence between agricultural and non-agricultural sectors has been slow in Indonesia. As a result, Indonesia's experience is similar to that of Peru, which had a dual economic structure for a prolonged period. Figure 10 shows that the productivity of the agricultural sector has remained at around 20% of that of the non-agricultural sector since the early 1970s.

FIGURE 10 Economy-wide productivity and ratio between agricultural productivity and non-agricultural productivity, Indonesia

As the previous section has discussed, there have been signs of structural transformation slowing in Indonesia since the Asian financial crisis and the manufacturing sector losing its status as driver of structural change. In terms of openness and contemporary economic development, Palma (2005) and UNCTAD (2003) lay claims to being the first to note a 'premature deindustrialisation' in the developing world. In a similar vein, Kaldor (1966) as early as the 1950s discussed 'premature maturity' with reference to the UK economy. More recently Rodrik (2016) outlines the 'premature deindustrialisation' hypothesis of developing countries and draws attention to the inverse U-shaped curve in manufacturing's share in value added and employment against GDP per capita. The downturn of the curve marks deindustrialisation. Rodrik observes that, prior to 1990, this trend was largely associated with advanced economies as they gradually became post-industrial societies. However, Rodrik also argues that deindustrialisation has been visible in developing countries in recent decades. The inverse-U shape has shifted downward and leftward because late industrialisers are running out of industrial opportunities sooner and at a lower GDP per capita than early industrialisers. In short, with few exceptions, developing countries are turning into service economies without full industrialisation. A number of studies confirm this phenomenon in Africa, where most countries have begun to deindustrialise at a very low income level while experiencing a premature expansion of services with low productivity (Fox, Thomas, and Haines, 2017; Mijiyawa, 2017; Page, 2015). Rodrik notes the importance of manufacturing in its potency for economic growth, productivity, labour absorption, and trade echoing Nicholas Kaldor as well as Arthur Lewis and many of the pioneers of development economics of the 1940s and 1950s. The causes of the shifting curve, he hypothesises, are related to trade liberalisation, which has opened manufacturing sectors while developing countries have continued to have little competitive advantage. Furthermore, the fall in the relative price of manufactures in advanced countries may have pushed down prices in developing countries' manufacturing as these countries liberalised their economies.

How does Indonesia's experience compare with successful industrialisers? Figure 11 plots the manufacturing sector's value added and employment shares against GDP per capita for Indonesia and those of three higher income countries in Asia. Figure 11a shows that the relationship between per capita income and manufacturing's employment share in Korea and Malaysia display a clear inverted U-shape with the employment share starting to decline at GDP (PPP) per capita above $10,000 or exp(9.21). While the employment share of China's manufacturing sector has not yet shown a clear downward trend, it reached its peak when China's GDP per capita was close to $10,000. While the three countries share a commonality in this aspect, there is a significant gap between their peak employment shares. In Indonesia's case, not only was the pace of employment creation less dynamic during its industrialisation phase, but also the rising trend stopped when Indonesia's income was at around $4,000, or exp(8.29). Moreover, Indonesia's peak manufacturing employment share was the lowest in this

group of countries and was less than half of Korea's. Figure 11b shows the relationship between per capita income and manufacturing's value added share in constant prices. The graph shows that Korea and China's industrialisation phase is ongoing. It is particularly surprising that the manufacturing share of Korea's real value added has continued to rise even after Korea's income has caught up to that of many advanced economies. On the other hand, the data for Malaysia and Indonesia indicate that the two countries have already reached their peak manufacturing value added share. The two countries' peak share was similar, but the income level of Indonesia upon reaching its peak was less than a third of that of Malaysia upon reaching its peak.

These patterns indicate that Indonesia's manufacturing sector growth, in terms of both value added and employment, has begun to slow at a much earlier stage of development compared to the best performers in the region. These patterns may be sign of Indonesia entering the initial phase of premature deindustrialisation, as defined by Rodrik (2016). However, it is still inconclusive whether this feature is permanent, since manufacturing sector's shares have stagnated rather than decline for the most part since 2000.

FIGURE 11 GDP per capita and employment share and value added share of manufacturing sector, selected Asian countries

On top of productivity growth slowdown (Section 3.3) and stagnation of employment and value added shares of the manufacturing sector, a period of 'jobless growth' has intensified scepticism on the sector's ability to drive inclusive structural transformation. Before the Asian crisis, the manufacturing sector was the primary driver of Indonesia's employment creation. However, the employment absorption capacity of Indonesia's manufacturing sector changed significantly following the crisis. Between 1999 and 2006, manufacturing value added in constant prices increased by 23.1%, while manufacturing employment increased by just 0.5%.[5] Aswicahyono, Hill, and Narjoko (2013) showed that the elasticity of employment growth with respect to output growth of the manufacturing sector fell from 0.53 in 1990–1996 to 0.18 in 2000–2008. As a result, the manufacturing sector's implied output elasticity fell from above the economy-wide average to below average.

One hypothesis on what caused the manufacturing sector to grow without creating further employment points to the evolving characteristics of Indonesia's labour market during democratisation. Before the crisis (during the Soeharto era), labour unions were co-opted into the state, and the minimum wage was not strongly enforced. After the crisis, pro-labour pressures spread, along with democratisation. The minimum wage increased by over 90% between 1999 and 2002, and the growth of unit labour costs in manufacturing also accelerated during this period (Aswicahyono, Hill, and Narjoko, 2010). Del Carpio, Nguyen, Pabon, and

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[5] During this period, the value added and employment of the total economy grew 30.3% and 6.3% respectively.

Wang (2015) find that the real minimum wage was negatively correlated with the number of paid workers and positively correlated with average wages between 1993 and 2006 in Indonesia's manufacturing sector.

Yusuf, Komarulzaman, Purnagunawan, and Resosudarmo (2013) examine the jobless growth phenomenon in the manufacturing sector by analysing plant-level data. They find that jobless growth was found in almost all subsectors of the manufacturing sector and occurred most notably in the unskilled labour intensive manufacturing sector and less so in the resource-based sector. Their study finds that employment grew rapidly, while the capital utilisation rate remained fairly constant in manufacturing during the pre-crisis period. However, a completely different circumstance emerged during the post-crisis period (1999–2005), as the capital utilisation rate recovered quickly, and employment stagnated along with the acceleration of real wage growth. 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. Therefore, the sector experienced an increase in capital intensity or capital-labour ratio. Aswicahyono, Brooks, and Manning (2011) find that the employment creation capacity of export-oriented light industries was weakened after the Asian financial crisis, as manufacturing export composition has shifted toward more capital-intensive goods. They find that this shift in Indonesia was premature in comparison to that of industrialising countries in East Asia.

That said, there are some other hypotheses on the deterioration of the manufacturing sector's performance. It could simply be a lasting negative effect of the crisis on the sector-specific investment climate, including public austerity effects or that the crisis encouraged the adoption of labour-saving technologies or that there is a 'survival effect', meaning the crisis eliminated (less efficient) firms that were labour-absorbing to a greater extent than other firms.

The deterioration could also be due to the changes in the economy-wide investment climate, including limited infrastructure development, intensified political uncertainty due to decentralisation, high global commodity prices and the consequent expansion of Indonesia's natural resource exports in the 2000s that led to real exchange rate appreciation that hurt non-commodity tradable industries, the rise of China as the world's factory depressing global manufacturing prices, and Indonesia's trade liberalisation (Aswicahyono, Hill, and Narjoko, 2013; Narjoko, 2014).

Due to the above-mentioned concerns with the recent development of the manufacturing sector, the service sector has gained attention as the engine of inclusive structural transformation in Indonesia. As shown in the previous section, the service sector's share in value added and employment has expanded significantly since the early 2000s. Also, the service-led structural transformation was conducive to poverty reduction. Suryahadi, Hadiwidjaja, and Sumarto (2012) find that the service sector has experienced the highest growth elasticity of poverty and has played a key role in reducing poverty in Indonesia. In 1984–2008, 80% of rural poverty reduction and 86% of urban poverty reduction is attributed to value added growth in the service sector. The contribution of the service sector increased

from 77% in the pre-crisis period (1984–1996) to 86% (2002–2008) of rural poverty reduction, and from 84% to 96% of urban poverty reduction.

However, there are also concerns with service-led economic development. As highlighted in Section 3.3, the level and growth of productivity in the service subsectors that have created jobs on a large scale such as THR and CSP are low (Figure 7c). Therefore, structural transformation led by these sectors would struggle to produce dynamic economic growth that earlier industrialisers, as well as Indonesia before the crisis, have experienced. This inability to produce growth has important implications on poverty reduction since it is not just labour absorptive capacity, but also economic growth, that matters. Suryahadi, Hadiwidjaja, and Sumarto (2012) found that there was no significant change in Indonesia's growth elasticity of poverty after the Asian financial crisis, which means that the slowdown of poverty reduction was likely caused by lower economic growth. On the other hand, service sectors with high productivity tend to have weaker labour absorptive capacity. For example, TSC's value added in constant prices recorded a remarkable growth of 12.5% per annum from 2008 to 2012, whereas its employment declined by 4.4% per annum.

The future pattern of structural transformation will affect Indonesia's productivity, employment, poverty, and inequality. We argue that it is important for policymakers take into account the consequences of different paths of structural transformation. In this regard, we argue that policymakers should also focus on the characteristics of jobs, and not just the number of jobs, in order to analyse the inclusiveness of the transformation. In the following subsection, we discuss Indonesia's structural transformation following the Asian financial crisis in greater depth by shifting our focus to job quality and beneficiaries of job creation.

4.2 CHARACTERISTICS OF JOBS

On top of the developer's dilemma regarding job creation and productivity enhancement, there are other concerns related to structural transformation. One of the most common worries regarding the recent structural transformation in developing countries is the expansion of informal employment. The informal sectors have low productivity, and their workers' job security and social safety net tend to be weak, if present at all. As a result, changes in the level of informality also influence the inclusiveness of structural transformation. Another common concern relates to the effects of structural transformation on less-educated workers. If economic growth is driven by high productivity sectors that require only a small number of high-skilled labourers, the benefits of structural transformation will be concentrated in a small section of the population. Therefore, whether sectoral growth is broad based or narrow based affects the inclusiveness of structural transformation. This section takes a look at these two issues by analysing the characteristics of the jobs that were created during the post-crisis structural transformation in Indonesia.

Indonesia's statistics office (BPS) provides data on the employment status of workers. As the definitions of formal and informal jobs vary, this section uses the simplified

classification of formal and informal employment adopted in the World Bank (2010). In 2014, there were more informal workers (53.8% of total employment) than formal workers (46.2%) in Indonesia. In the industrial and service sectors, informal workers accounted for 32.6% and 37.8% of the workforce, respectively. In contrast, in the agricultural sector, informal workers accounted for 88.2%. From the mid-2000s, an increase in employment in non-agricultural sectors with much higher formal worker shares led to a rise in the formal worker share in the overall economy. However, there was no significant changes in the formal employment share within non-agricultural sectors during the 2000s. The formal employment shares showed a decline within the industrial sector from 80.6% in 2000 to 61.1% in 2010 and no significant change within the service sector, hovering at around 55% throughout the 2000s. The within formal employment shares in these two sectors only began to pick up in the early 2010s. In 2014, the EGW had the highest within-sector formal employment share (92.1%) followed by the FIRB (88.2%) and CSP (78.3%). The lowest shares in the same year were found in the agricultural (11.8%) and construction (45.2%) sectors.

Figure 12 shows the changes in the number of formal workers as a percentage of total employment in the economy. These changes are disaggregated into the effects of changes in the formal employment share within the sectors (within-sector changes) and changes in the total employment share of the sector (structural transformation). We define a sector that experienced an increase in the total employment share *and* an increase in the within-sector formal employment share as having contributed to sustainable structural change.

Comparing the two periods 2000–2004 and 2010–2014, we find that services as a whole, and its THR sector, contributed to sustainable structural change (Figure 12). FIRB and CSP, services subsectors with high within-sector formal employment shares, saw a significant increase in their total employment shares. The within-sector formal employment share of TSC increased from 39.0% in 2000–2004 to 46.8% in 2010–2014. Three industrial subsectors, namely mining, manufacturing, and EGW, contributed to sustainable structural change. However, the industrial sector as a whole failed to contribute to sustainable structural transformation as its within-sector formal employment share declined. This failure occurred because construction's within-sector formal employment share declined significantly from 58.1% in 2000–2004 to 45.8% in 2010–2014.

FIGURE 12 Decomposition of changes in formal employment shares between 2000–2004 and 2010–2014, Indonesia

Next, we review how broadly structural change has benefited workers by looking at the education levels of workers. Indonesia has shown significant progress in education provision since 2000. The proportion of the population (aged 15 and over) that had completed senior secondary education or above increased from 21.1% in 2000 to 32.6% in 2014, and the proportion that had received no schooling or incomplete primary schooling declined from 29.0%

to 19.1%. Similar improvement occurred in the education attainment level of workers. This improvement happened in parallel with a general rise in school participation rates and enrolment ratios at all levels. These results can partly be attributed to the government's continued investment in education as it abides to Article 31 of the Constitution amended in 2002, which states that the government has to allocate at least 20% of the national budget to education.

At the same time, 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 represented 55.9%, 51.1%, and 37.2% of the workforce in agriculture, industry, and services, respectively. By subsectors, the within-sector share of less-educated workers was largest in construction (60.9%), followed by agriculture (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 – older generations in the workforce tend to have education below that level and are likely to be vulnerable during the structural transformation.

Figure 13 shows the changes in less-educated workers as a percentage of total employment in the economy. These changes are disaggregated into the effects of changes in the less-educated employment share within the sectors (within-sector changes) and changes in the total employment share of the sector (structural transformation). We define a sector that experienced an increase in the total employment share *and* a simultaneous increase in the within-sector less-educated employment share as having contributed to broad-based structural change.

Comparing the two periods 2000–2004 and 2010–2014, we find that only one subsector, FIRB, contributed to broad-based structural change. Figure 13 shows that in the industrial and service sectors, the effects of a rise in the total employment share and the effects of a decline in the within-sector less-educated employment share nearly cancelled each other out. The agricultural sector saw a large decline in the employment share and the within-sector less-educated employment share.

FIGURE 13 Decomposition of changes in shares of less-educated workers between 2000–2004 and 2010–2014, Indonesia

In summary, this section has shown that most non-agricultural subsectors and the service sector as a whole have contributed to sustainable structural transformation since the early 2000s. While the informal sector remains large, the concern about the services-led structural transformation leading to an expansion of the informal economy does not seem to be significant in the case of Indonesia. However, the opportunities created in the job market were limited for the lower-educated workers. The labour reallocation between sectors had a negative 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, has declined rapidly since the early 2000s. It is natural that the employment share of less-educated workers within most sectors is declining with the rising education level of the total population. Nonetheless, limited job opportunities have made the decline of less-educated people's share much larger in employment than that in the total population. Relatedly, Allen (2016) highlights that the access to up-skilling and re-skilling opportunities is limited for workers with lower education levels in Indonesia.

5. CONCLUSION

Is structural change led growth immiserising or inclusive? This paper reviewed many facets of Indonesia's structural transformation including changes in value added, trade, employment, productivity, formal jobs, and opportunities for less-educated workers across economic sectors. The diverse characteristics of Indonesia's economic sectors indicate that the path towards achieving inclusive structural transformation is complex, especially because the labour-intensive manufacturing sector has lost its status as a growth engine in Indonesia. The manufacturing sector once provided a large number of jobs and generated rapid absolute and relative productivity growth. In the recent decades, services have led both output and employment growth. However, services subsectors with strong labour absorptive capacity have below-average productivity, and therefore growth-enhancing structural transformation led by these subsectors in their current form is expected to be less dynamic compared to that before the 1990s. This paper also showed that economic sectors have different levels of contribution to sustainable and broad-based structural transformation. For example, it showed that the level of job security and opportunities for the less-educated population differ widely across sectors. To understand the channels through which economic growth affect poverty and inequality, a further research is needed on the effects of structural transformation on potential vulnerable groups including small and medium enterprises, subcontractors, employees on short-term contract, and female workers.

While the policymakers in Indonesia are well aware of the many reforms that are necessary for supporting long-term economic growth including infrastructure development and improvement of education quality, the progress in these areas has been gradual due to financial and institutional challenges. Developing the economic sectors that policymakers perceive to have the most favourable characteristics has also been difficult due to limited government capability and the constraints of global rules. While suggesting the appropriate role of the government in sectoral development is beyond the scope of this paper, we argue that policymakers need to understand and actively deal with the consequences of structural transformation, and these consequences in turn depend on the characteristics of leading sectors and lagging sectors. To manage the consequences, Indonesia's economic policies and social policies need to be coherent and complementary. How the policymakers manage the consequences will be a key factor that will decide whether structural transformation-led economic growth will be inclusive or immiserising.

1a Higher income countries
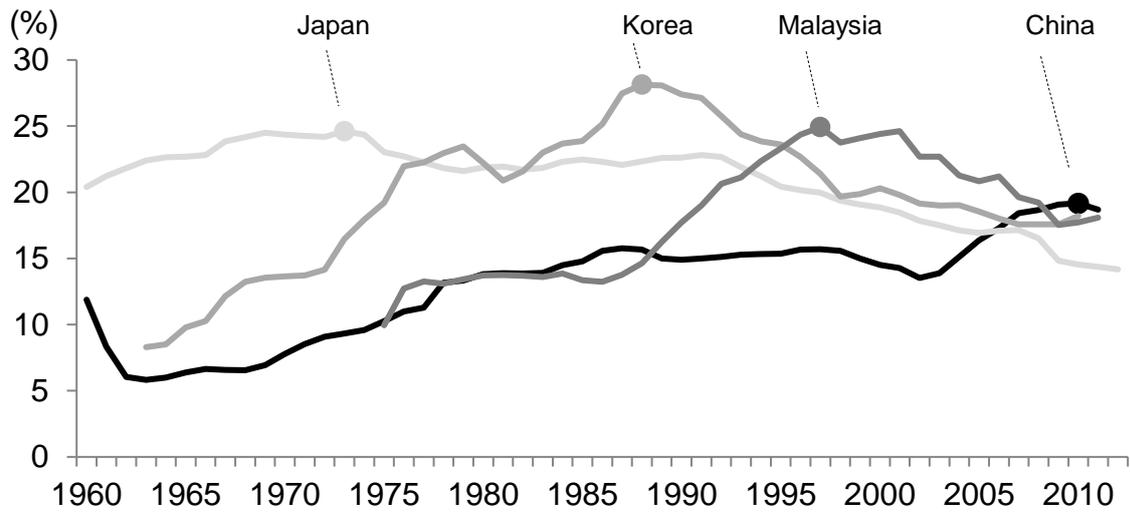

1b Lower income countries
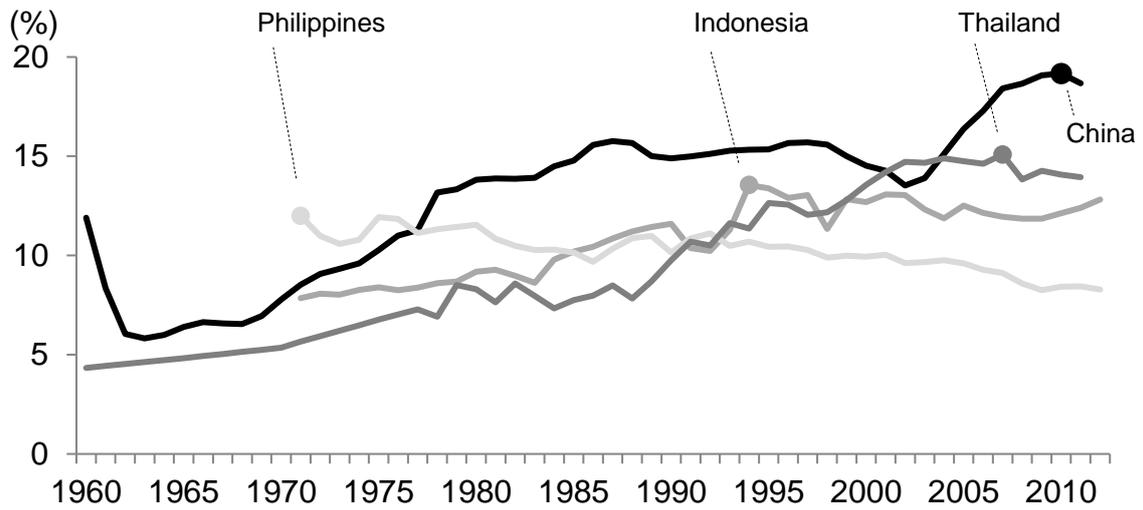
FIGURE 1 Employment share of manufacturing sector, selected Asian countries

Note: The dots indicate when each country reached the highest manufacturing employment share.

Source: GGDC 10-Sector Database.
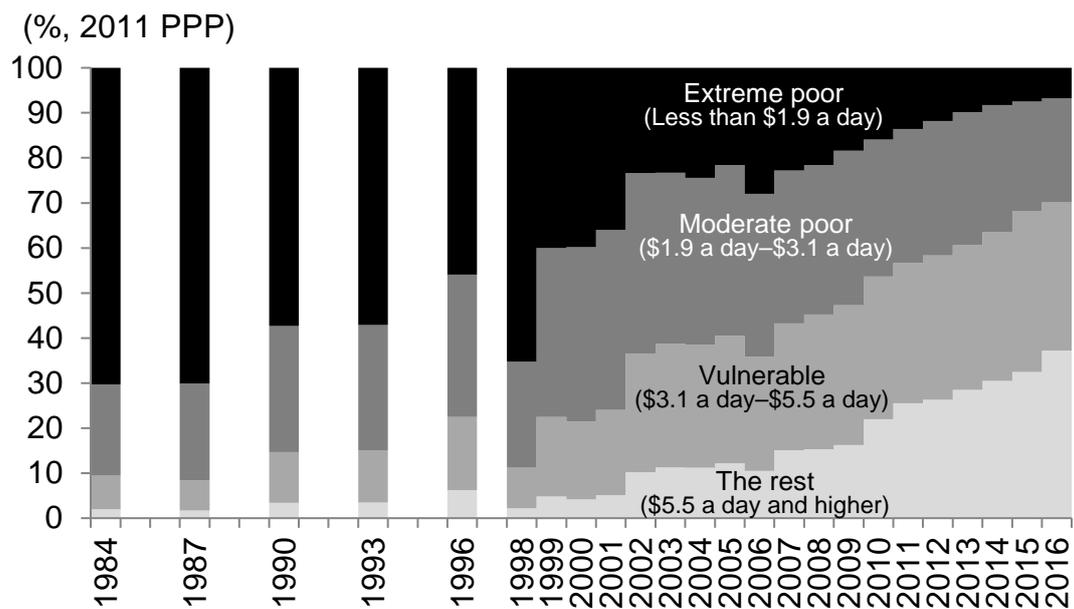
**FIGURE 2** Population structure by income class, Indonesia

Note: For the rationale behind these thresholds, see World Bank (2018, p. 52).

Source: PovacalNet.

3a Broad sectors

(% of value added)
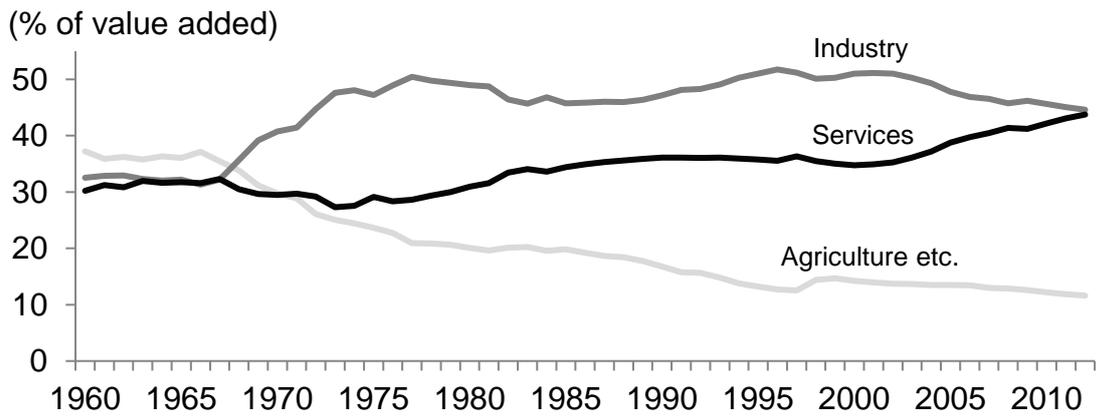
3b Industry: subsectors
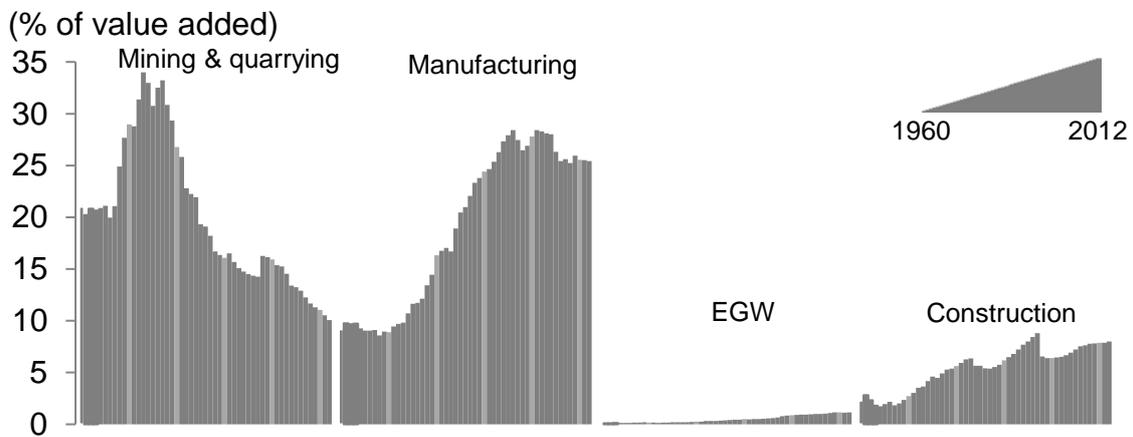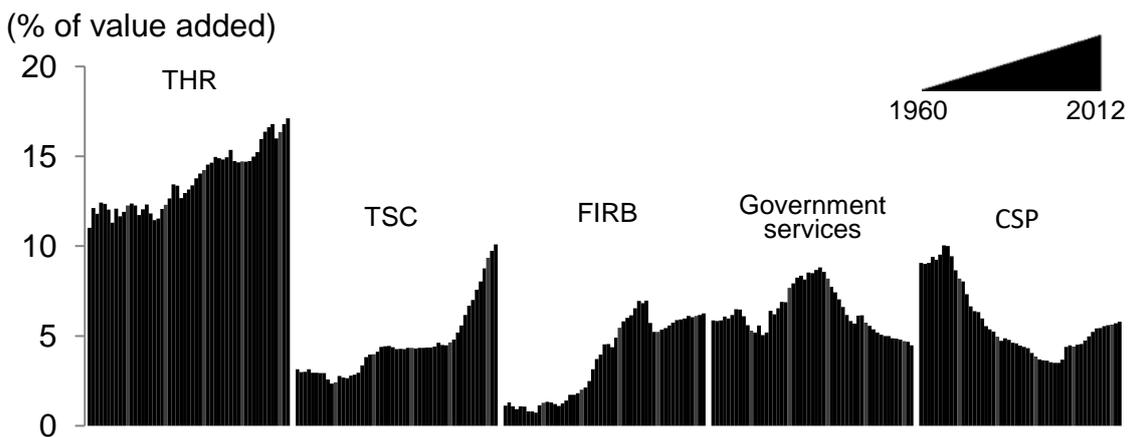
(% of value added)

3c Service: subsectors

(% of value added)

FIGURE 3 Value added (constant 2005 national prices) structure, Indonesia

Note: EGW = electricity, gas, water supply; THR = wholesale and retail trade, hotels, restaurants; TSC = transport, storage, communication; FIRB = finance, insurance, real estate, business services; CSP = community, social, personal services. Agriculture includes hunting, forestry, and fishing.

Source: GGDC 10-Sector Database.

4a Broad sectors

(% of GDP)
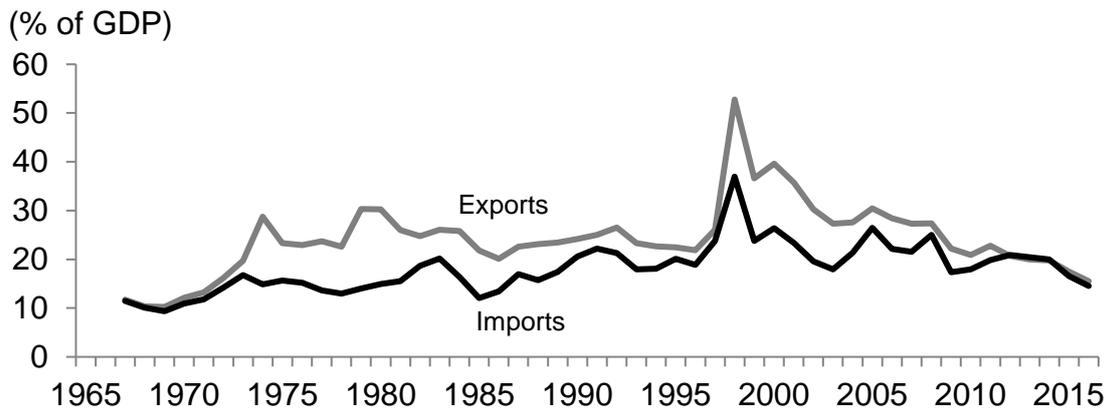
4b Export composition

(% of exports)
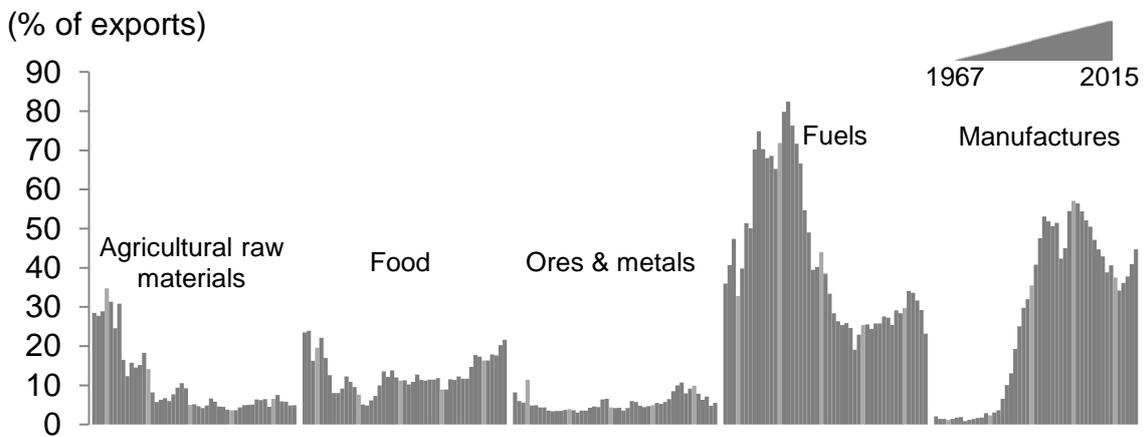
4c Import composition

(% of imports)
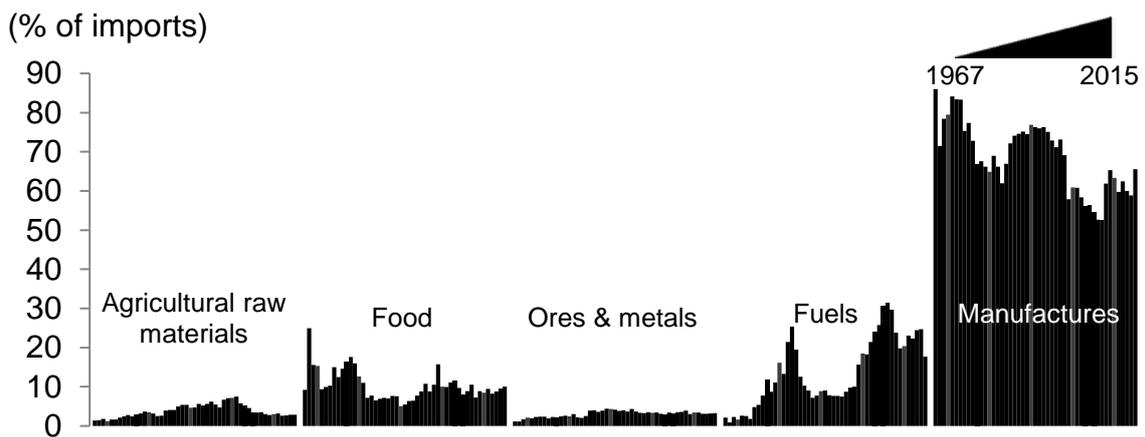
FIGURE 4 Trade structure, Indonesia

Source: World Bank World Development Indicators.

5a Broad sectors

(% of employment)
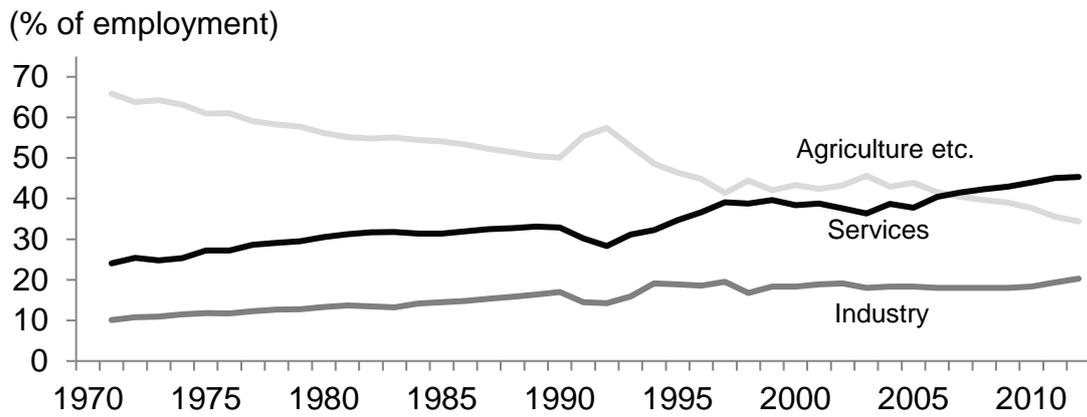
5b Industry: subsectors
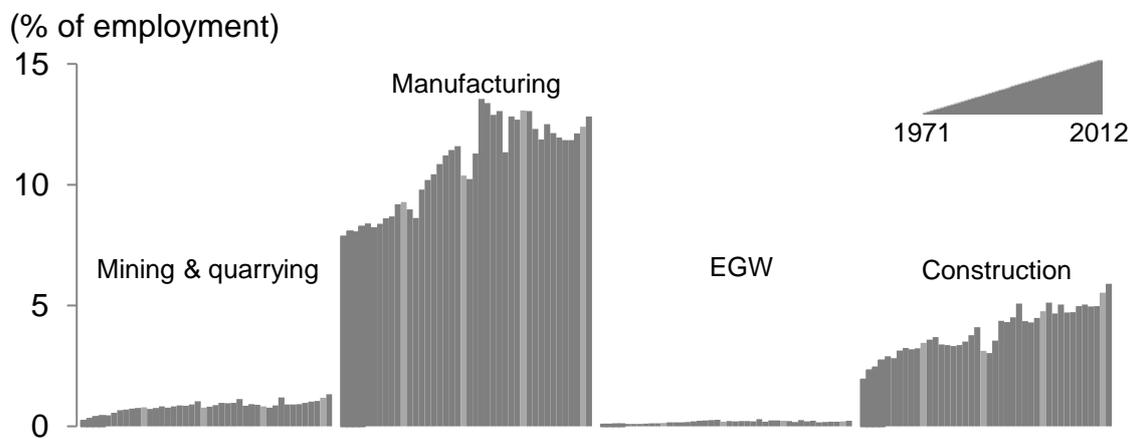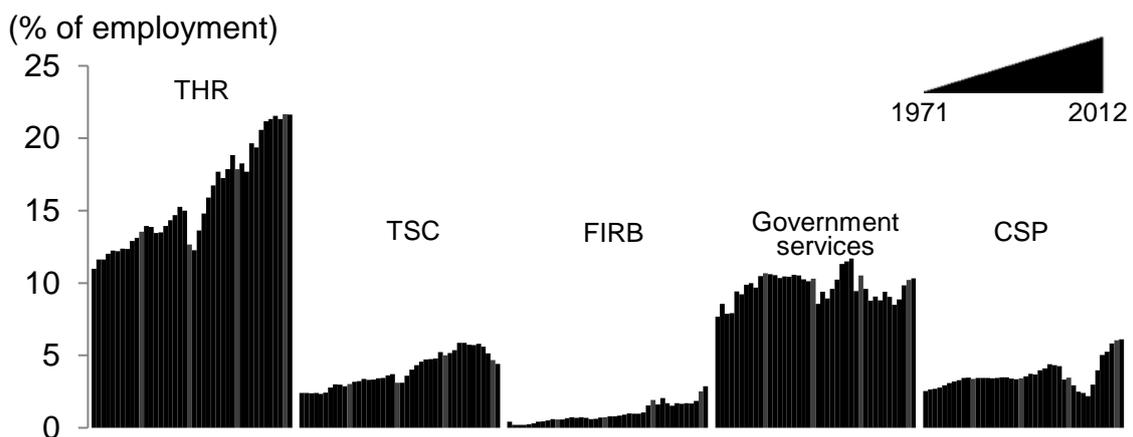
(% of employment)

5c Services: subsectors

(% of employment)

FIGURE 5 Employment structure, Indonesia

Note: EGW = electricity, gas, water supply; THR = wholesale and retail trade, hotels, restaurants; TSC = transport, storage, communication; FIRB = finance, insurance, real estate, business services; CSP = community, social, personal services. Agriculture includes hunting, forestry, and fishing.

Source: GGDC 10-Sector Database.

Period	Years	Average annual GDP growth (%)	Average annual labour productivity growth (%)	Average annual changes in agricultural sector's employment share (percentage points)
1	1973–1986	5.77	2.04	-0.84
2	1986–1996	7.72	4.81	-0.85
3	1999–2012	4.98	3.12	-0.59
All (including 1996–1999)	1973–2012	5.21	2.52	-0.77

TABLE 1 Key characteristics of subperiods, Indonesia

Source: GGDC 10-Sector Database.
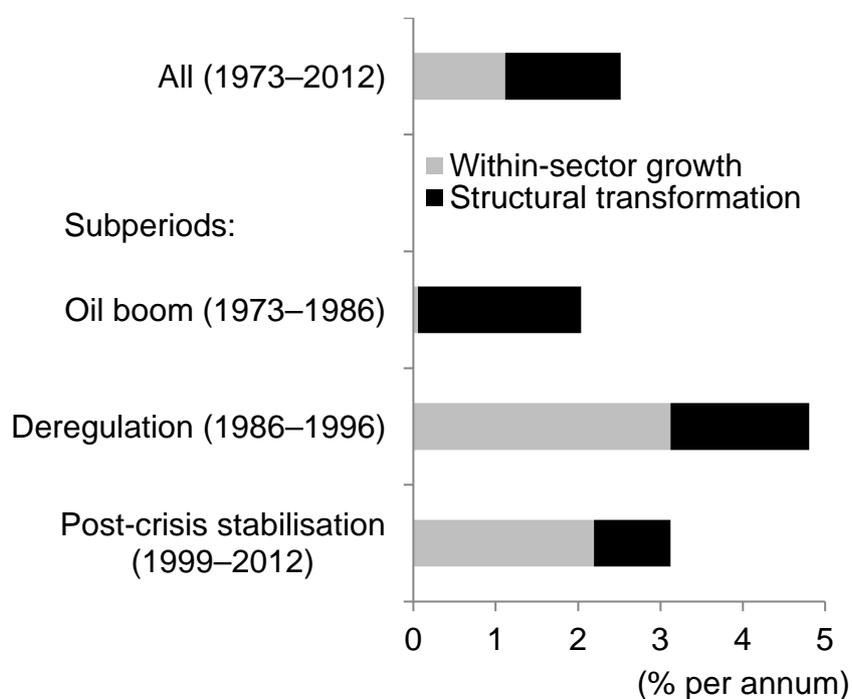
FIGURE 6 Decomposition of labour productivity growth, Indonesia

Source: GGDC 10-Sector Database.

7a Agriculture
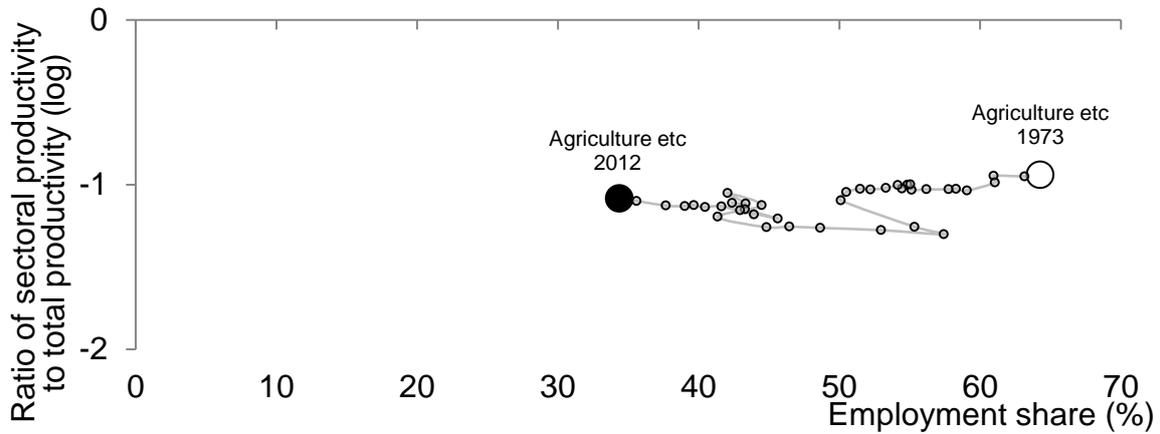
7b Industry: subsectors
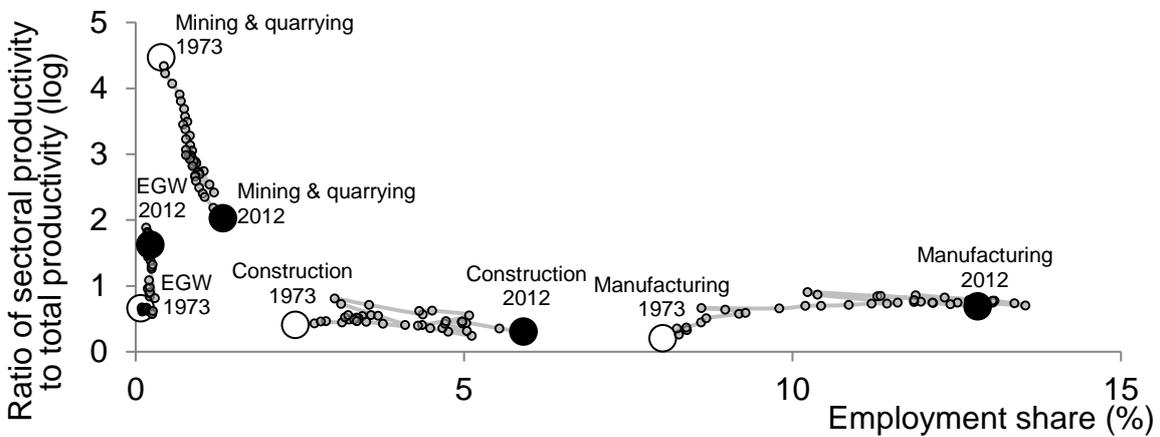
**7c** Services: subsectors
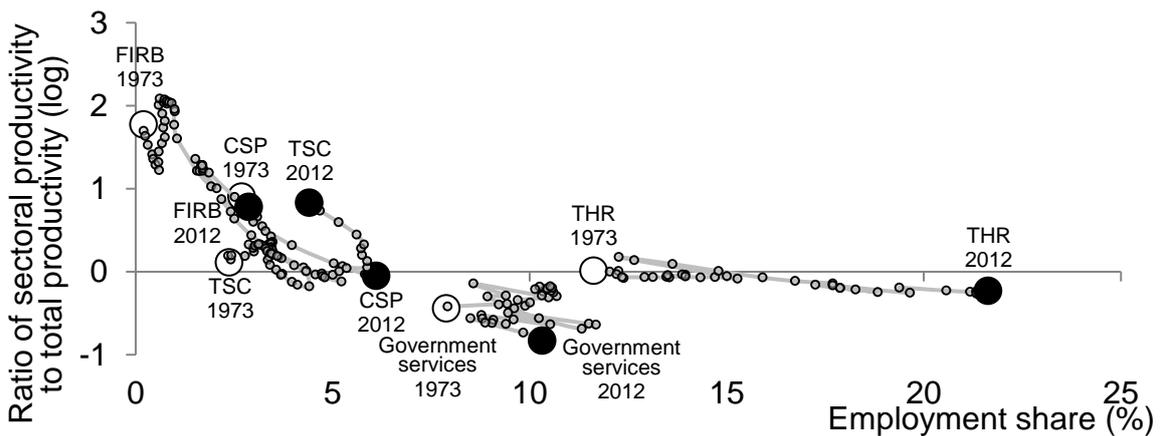
FIGURE 7 Employment share and relative productivity, Indonesia

Note: EGW = electricity, gas, water supply; THR = wholesale and retail trade, hotels, restaurants; TSC = transport, storage, communication; FIRB = finance, insurance, real estate, business services; CSP = community, social, personal services. Agriculture includes hunting, forestry, and fishing.

Source: GGDC 10-Sector Database.
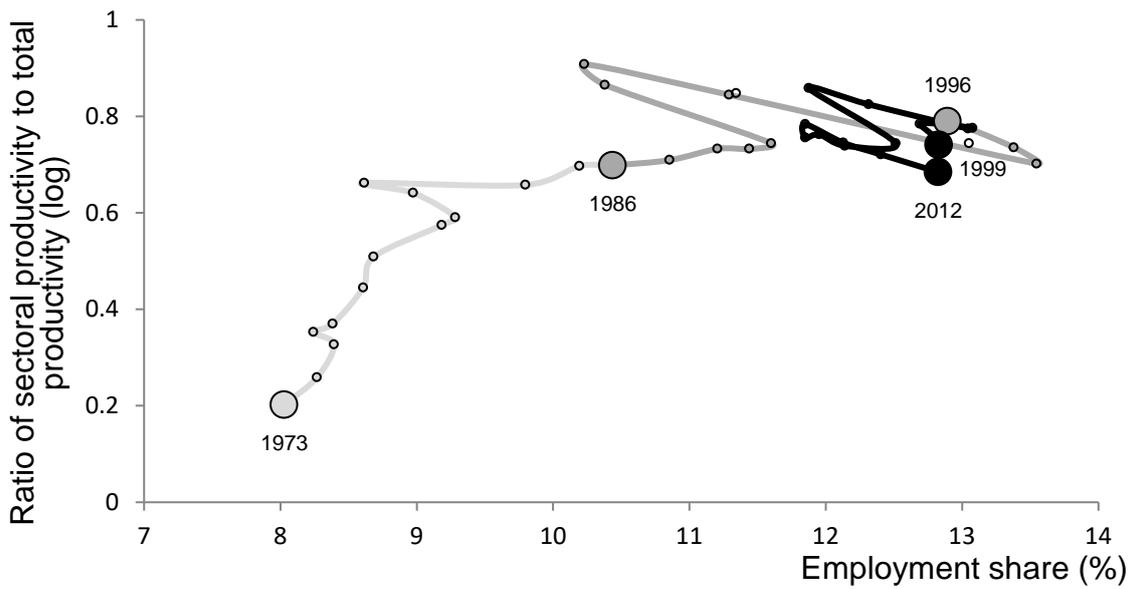
FIGURE 8 Employment share and relative productivity of manufacturing sector, Indonesia

Source: GGDC 10-Sector Database.
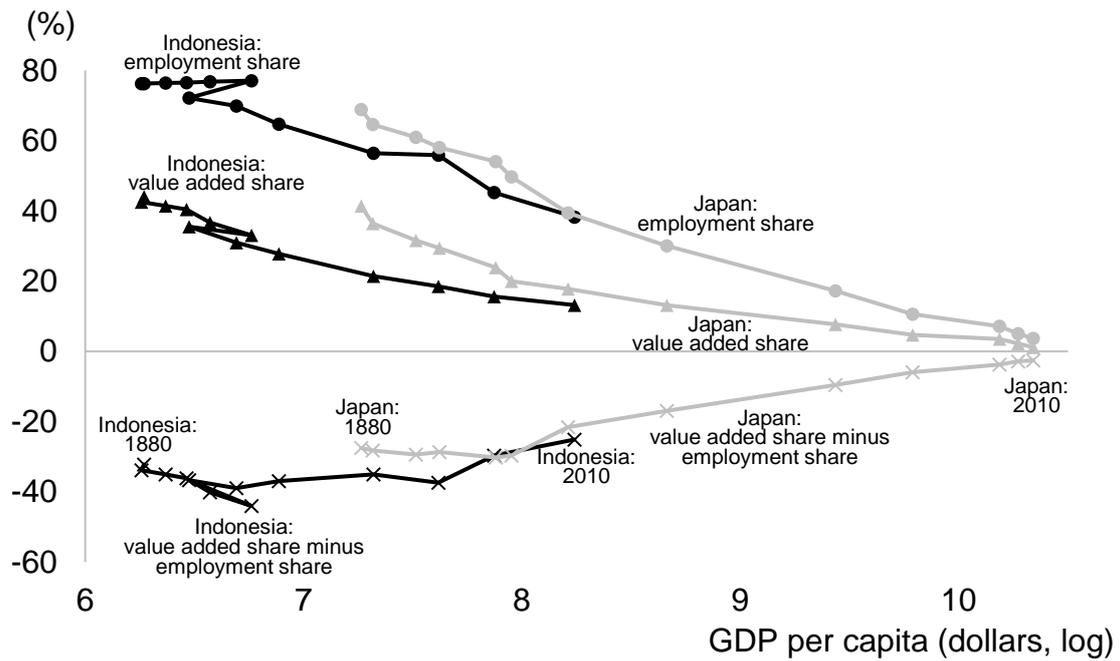
FIGURE 9 GDP and employment share of agricultural sector, Japan and Indonesia

Source: Timmer (2015).

FIGURE 10 Economy-wide productivity and ratio between agricultural productivity and non-agricultural productivity, Indonesia

Source: GGDC 10-Sector Database.

11a Employment
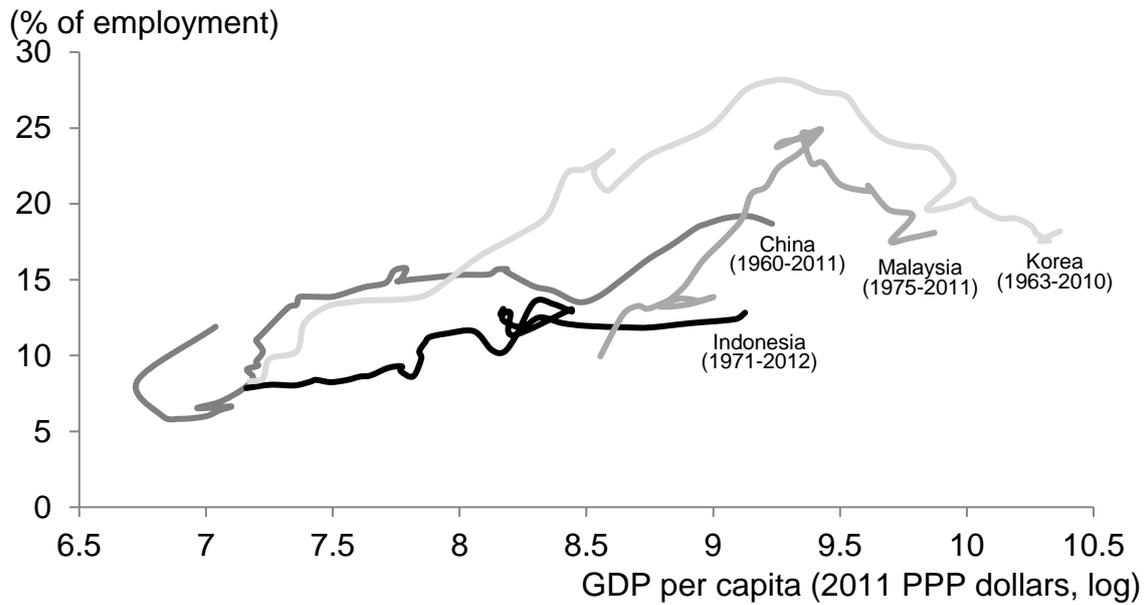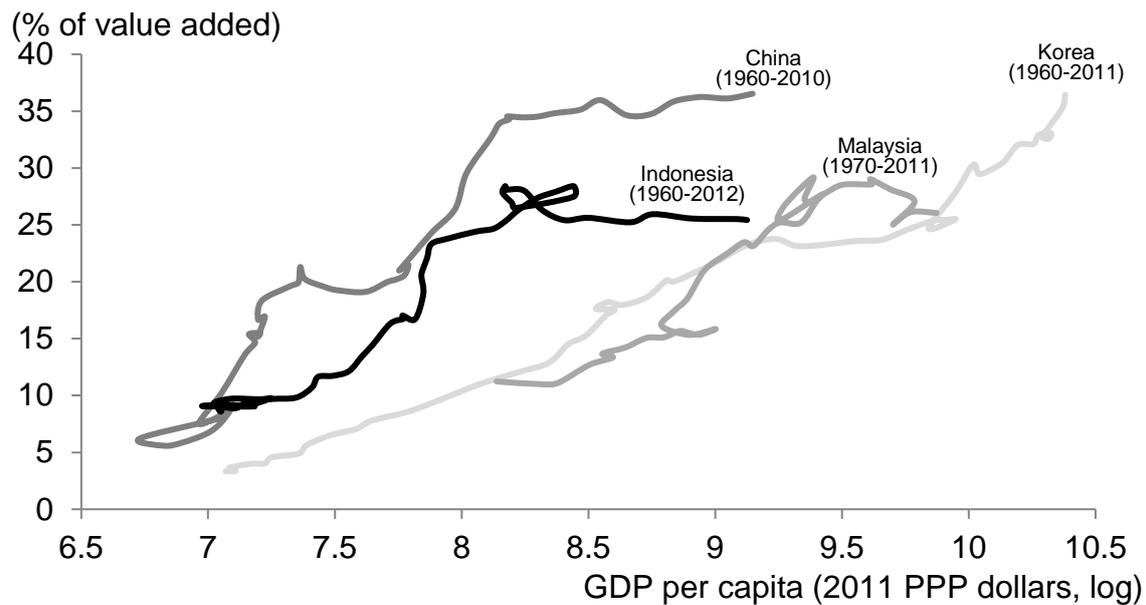
(% of employment)

China
(1960-2011)

Malaysia
(1975-2011)

Korea
(1963-2010)

Indonesia
(1971-2012)

GDP per capita (2011 PPP dollars, log)

11b Value added (constant 2005 national prices)

(% of value added)

China
(1960-2010)

Korea
(1960-2011)

Malaysia
(1970-2011)

Indonesia
(1960-2012)

GDP per capita (2011 PPP dollars, log)

FIGURE 11 GDP per capita and employment share and value added share of manufacturing sector, selected Asian countries

*Source*: GGDC 10-Sector Database; Penn World Table.
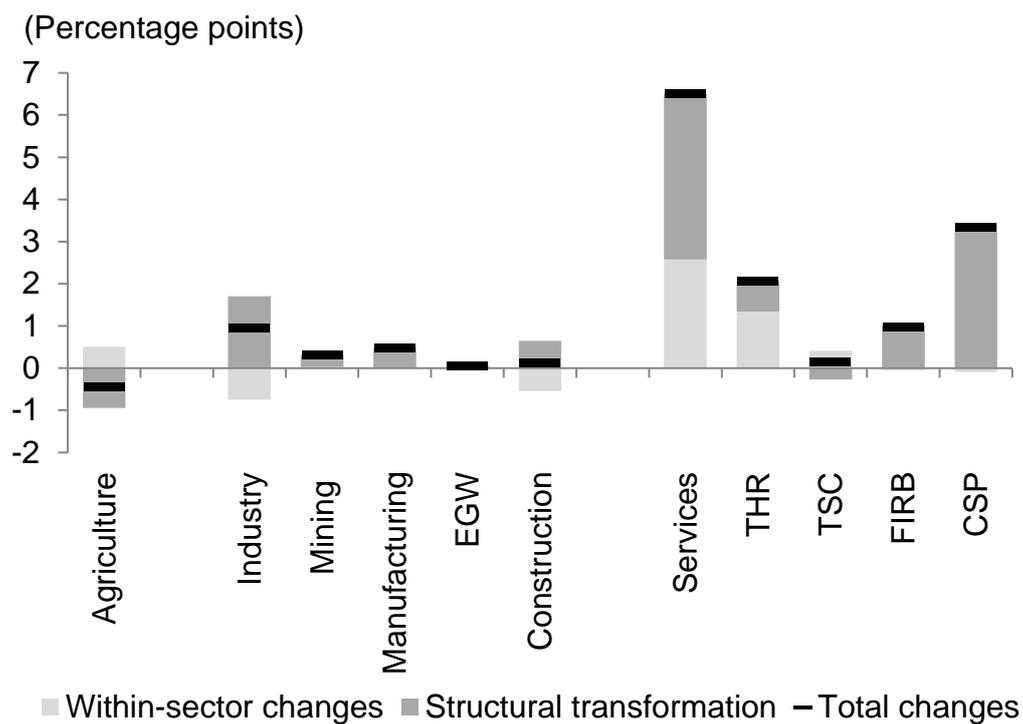
(Percentage points)

■ Within-sector changes ■ Structural transformation — Total changes

FIGURE 12 Decomposition of changes in formal employment shares between 2000–2004 and 2010–2014, Indonesia

Note: EGW = electricity, gas, water supply; THR = wholesale and retail trade, hotels, restaurants; TSC = transport, storage, communication; FIRB = finance, insurance, real estate, business services; CSP = community, social, personal services. Agriculture includes hunting, forestry, and fishing.

Source: Statistics Indonesia.
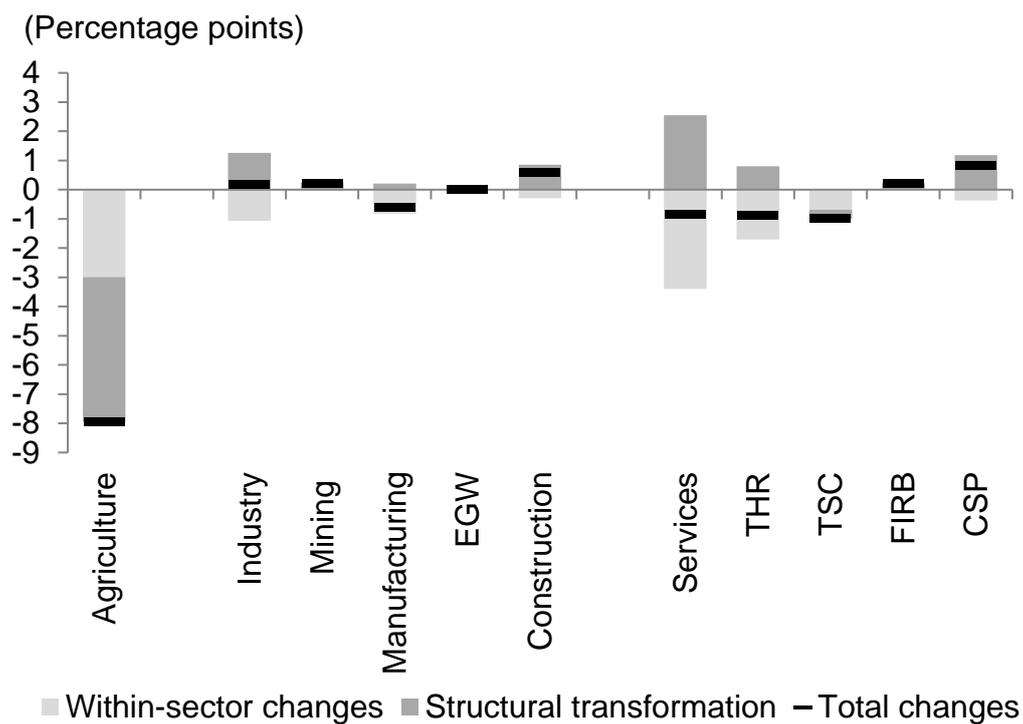
FIGURE 13 Decomposition of changes in shares of less-educated workers between 2000–2004 and 2010–2014, Indonesia

Source: Statistics Indonesia.

Note: EGW = electricity, gas, water supply; THR = wholesale and retail trade, hotels, restaurants; TSC = transport, storage, communication; FIRB = finance, insurance, real estate, business services; CSP = community, social, personal services. Agriculture includes hunting, forestry, and fishing.

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