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## The developer's dilemma: A survey of structural transformation and inequality dynamics

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WIDER Working Paper 2020/35

## **The developer's dilemma**

A survey of structural transformation and inequality dynamics

Armida Alisjahbana,<sup>1</sup> Kyunghoon Kim,<sup>2</sup> Kunal Sen,<sup>3</sup> Andy Sumner,<sup>2</sup> and Arief Yusuf<sup>4</sup>

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**Abstract:** This paper discusses the ‘developer’s dilemma’—a tension emerging from the fact that developing countries are simultaneously seeking structural transformation and broad-based growth to raise incomes of the poor. Simon Kuznets originally hypothesized that structural transformation may have a tendency—in the absence of policy intervention—to put upward pressure on income inequality. However, broad-based economic growth requires steady or even falling income inequality to maximize the growth of incomes at the lower end of the distribution. The purpose of our paper is: (i) to revisit the seminal Kuznets paper in order to understand how Kuznets understood the structural transformation and income inequality relationship precisely; (ii) to discuss the empirical experience of the developing world in terms of structural transformation and, in doing so, to outline a typology of ‘varieties’ of structural transformation; and (iii) to discuss the structural transformation–inequality relationship and how it may differ under different patterns of structural transformation.

**Key words:** income inequality, structural transformation, economic development, Kuznets, Lewis

**JEL classification:** D6, L16

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## 1 Introduction

The ‘developer’s dilemma’ is a tension emerging from the fact that developing countries are pursuing two goals which may generate a tension around income inequality. Developing countries, first, are seeking structural transformation and, second, are seeking broad-based economic growth to raise incomes of the poor. Simon Kuznets (1955) originally hypothesized that structural transformation may have a tendency, in the absence of policy intervention, to put upward pressure on income inequality. However, broad-based economic growth requires steady or even falling income inequality to maximize the growth of incomes at the lower end of the distribution.

In this paper we revisit the Kuznets hypothesis, discuss the empirical experience of the developing world in order to present a typology of ‘varieties’ of structural transformation, and discuss the structural transformation–inequality relationship under different varieties of structural transformation. The paper is structured as follows. Section 2 revisits the seminal Kuznets paper. Section 3 discusses the empirical experience of structural transformation in the developing world since 1960. Section 4 discusses structural transformation and inequality dynamics. Section 5 concludes.

## 2 Structural transformation and inequality dynamics: Kuznets revisited

Simon Kuznets remains one of the most influential scholars in discussions around the relationship between economic development, structural transformation, and inequality dynamics. Kuznets’ contribution is often misrepresented and reduced to his (in)famous curve. It is important to note in any account of Kuznets that many of the conclusions drawn in his work were tentative, a fact that he acknowledged was essential due to data limitations during the time he was writing. Although his statistical ‘pipe-dream’ is closer today than in the 1950s, it is still a long way away.

Kuznets’ (1955) seminal work focused largely on the factor that is abundant to developing countries, namely labour, and, in particular, the sectoral transfer of labour from rural to urban areas. As such, Kuznets’ thinking echoes the work of Arthur Lewis insofar that both scholars posit a dual-economy model of economic development. While Lewis focused on the transfer of labour from the ‘traditional’ or pre-capitalist sector to the ‘modern’ or capitalist sector, Kuznets primarily focused on the rural–urban movement of labour as the primary driver of economic development. Kuznets posited that this shift in employment would occur in tandem with rising income inequality in the early stages of development and, as such, his thinking departs from neoclassical economic theory, which attributes inequality outcomes to the relative scarcity of factors of production.

Kuznets (1955) inferred that inequality would rise in an ‘upswing’ motion during the early stages of economic development, and then later fall in a ‘downswing’. Kuznets based his upswing in inequality during structural transformation on time-series data for the USA, the UK, and two German states as well as point estimates for inequality in India, Puerto Rico, and Ceylon. His ‘downswing’ in inequality was based on an abstract arithmetic model. This paper led to the famous inverted-U which became known as the Kuznets curve, and it is the singular aspect to which his work is often reduced, despite its many caveats and intricacies in the original paper.

Kuznets conjectured that overall inequality is composed of inequality between sectors, urban and the rural, as well as within these sectors themselves. He argued that inequality is higher in the urban sector than in the rural sector and, because the more unequal urban sector tends to expand during

periods of economic growth, this process exerts upward pressure on inequality levels. Hence, the idea of a ‘sectoral shift’ in labour is central to Kuznets and even the shift itself could change income inequality:

[E]ven if the differential in per capita income between the two sectors remains constant and the intra-sector distributions are identical for the two sectors, the mere shift in the proportions of numbers produces slight but significant changes in the distribution for the country as a whole. (Kuznets 1955: 14–15)

Therefore, the Kuznets process of widening inequality with structural transformation (that is, movement of workers away from the rural sector) can be described as composed of two sub-processes: i) between-sector inequality—a movement of the population from a sector characterized by lower mean income to a sector characterized by higher mean income; and ii) within-sector inequality—the movement of the population from a sector with low within-sector inequality to a sector with higher within-sector inequality. If both sub-processes work in the same direction—that is, if the movement of workers is from a sector with both a low mean and low variance in incomes to a sector with a higher mean and high variance in incomes—then structural transformation will unambiguously increase inequality. However, if the movement of workers is from a sector with low mean income but higher variance of income to a sector with a higher mean income but lower variance in income, then it is less obvious that inequality will necessarily increase.

Following Anand and Kanbur (1993a), we provide a diagrammatic exposition of the Kuznets process to make clear the contribution of between-sector (or group) inequality and within-sector (or group) inequality to overall inequality.<sup>1</sup> Let  $I$  be the overall measure of inequality in a given country and let  $x$  be the share of workers in the urban sector. Let the working population of the country be normalized to one. Define between-sector (or group) inequality as the inequality in the income distribution when a fraction  $x$  of the working population receives income  $u_1$  and the remaining fraction,  $1-x$ , receives income  $u_2$  (where between-group inequality is defined as the value of the inequality measure when everyone in the sector receives the mean income of the sector). Following Kuznets, we can assume that the mean income of the urban sector is higher than that of the rural sector—that is,  $u_1 > u_2$ .

It is clear that between-group inequality must be zero at both  $x=0$  and  $x=1$ , and must be positive elsewhere—that is, when all workers are either in the agricultural sector or in the non-agricultural sector, there can be no between-group inequality. However, in the range where  $x$  is higher than 0 but less than 1, inequality will first increase with increasing  $x$ , then fall (as captured in Figure 1). This is because with low  $x$ , there are more workers in the low-income sector (in our example, agriculture) than in the high-income sector, so that between-sector income differences are considerable. However, once a larger proportion of workers are in the high-income sector, between-group inequality starts falling till it reaches zero, when all workers are in the high-income sector.

Now consider the behaviour of within-group inequality. Defining within-group inequality as the difference between overall inequality and between-group inequality, its movement with the increase in  $x$  will depend on the assumptions that one makes on within-group inequality in the urban sector versus the rural sector. If one assumes that there is higher within-group inequality in the urban sector than in the rural sector (as seems to be implied by Kuznets), then the within-

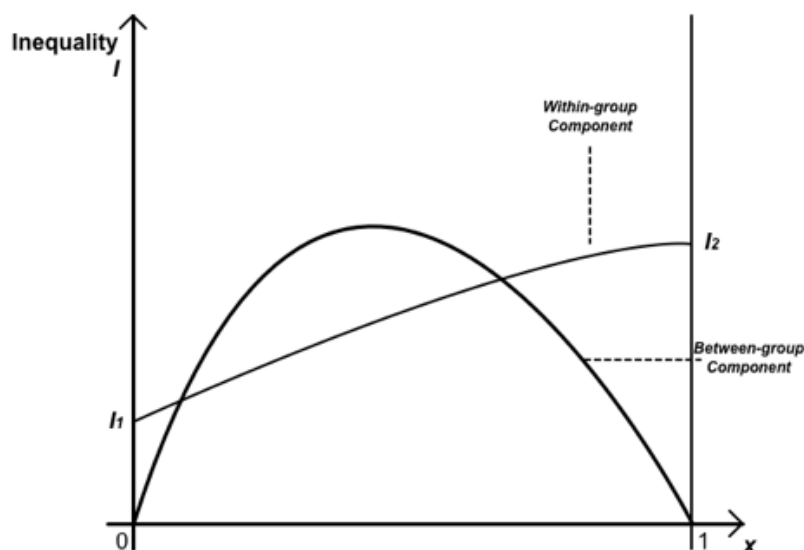
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<sup>1</sup> This exposition depends on the assumption that the inequality measures we are considering are decomposable. Among the inequality measures available in the literature, the variance of log income and mean log deviation (which is Theil’s second index) has such decomposition properties—see Robinson (1976) and Kanbur (2017).

group inequality component of overall inequality will strictly increase as  $x$  increases—that is, within-group inequality will increase with structural transformation (as shown in Figure 1).

The combination of the behaviour of between-group inequality and within-group inequality may lead to the well-known inverted relationship between structural transformation and inequality—in Figure 1, as  $x$  increases, there is an unambiguous increase in inequality; however, once a certain  $x$  is reached, if the between-group component dominates the within-group component, inequality will start declining.

Figure 1: The Kuznets process



Source: adapted from Anand and Kanbur (1993a).

While the above exposition of the Kuznets process highlights the *general* set of factors that lead the inverted-U-shaped relationship between structural transformation and inequality, both the precise shape of the inverted-U curve as well as the point at which inequality starts declining with further structural transformation depends on country-specific factors. For example, Kanbur and Zhuang (2013) flag how urbanization rates differ significantly from country to country and the between-urban–rural and within-urban–rural components of overall inequality can vary considerably too across countries, which further implies a heterogeneity in inequality outcomes as a result of rural–urban structural transformation in different national contexts alone. Kanbur and Zhuang (2013) also note that initial inequality levels, both between and within sectors, will also play a significant role in determining the impact of urbanization on inequality.

One of the most contested aspects of Kuznets’ work is the idea that inequality levels will inevitably fall in the later stages of structural transformation. Kuznets asserted that the early benefits of growth will be captured by those with higher initial levels of capital and education, hence driving up inequality, and as more people exit the ‘underdeveloped’ rural sector, real wages would rise in the lower end of the modern sector and thus inequality would begin to fall. Kuznets suggested that the only way to temper this dynamic inherent in the economic development process was for the share of income of the lower non-agriculture income groups to increase. He further argued that, in democratic countries, urban migrants would become politically organized around the demand for wage increases, hence leading to a redistribution of gains amassed by the rich during periods of economic growth. Thus, inequality would fall as developing countries became more developed. Piketty (2014) is critical of Kuznets’ theorizing on another account. He argues that Kuznets does

not take into account the role of institutional factors in driving, or indeed lessening, inequality, contending thus:

The reasons why inequality declined in rich countries ... do not have much to do with the migration process described by Kuznets ... Inequality dynamics depend primarily on the policies and institutions adopted by governments and societies as a whole. (Piketty 2014: 2, 11)

Kanbur (2017) astutely points out that this critique is somewhat misguided, given that political and institutional factors are openly discussed as counteracting factors to rising inequality in Kuznets (1955). For example, as Kuznets argues:

One group of factors counteracting the cumulative effect of concentration of savings upon upper-income shares is legislative interference and ‘political’ decisions. These may be aimed at limiting the capital accumulation of property directly through inheritance taxes and other explicit capital levies. They may produce similar effects indirectly, [...] All these interventions, even when not directly aimed at limiting the effects of capital accumulation of past savings in the hands of the few, do reflect the view of society on the long-term utility of wide income inequalities. This view is a vital force that would operate in democratic societies even if there were no other counteracting factors... Furthermore, in democratic societies the growing political power of the urban lower-income groups led to a variety of protective and supporting legislation... (Kuznets 1955: 8–9, 16–17)

Kuznets essentially contends that although inequality will worsen during periods of urbanization, the growing political power of the urban lower-income groups would give rise to more legislation supporting redistribution—thus, political forces play an important role in the evening out of inequality at a later stage in economic development and structural transformation.

A number of empirical papers in the 1970s initially supported the Kuznets hypothesis (Ahluwalia 1976a, 1976b; Ahluwalia et al. 1979). However, seminal papers in the 1980s and 1990s (Anand and Kanbur 1984, 1993a, 1993b) questioned the inverted-U. Deininger and Squire (1998) found evidence of the curve in some countries but not in others. The present consensus is that there is no universal law (not least as some governments intervene and disentangling by, for example, using gross inequality data is very difficult). Alvaredo and Gasparini (2013) *do* identify a U-shaped curve using 2005 purchasing power parity (PPP) data, but the upswing of the curve is entirely in sub-Saharan Africa, and the downswing is confined to higher-income countries only. Gallup (2012) found empirical evidence of an anti-Kuznets curve, or rather a non-inverted-U trend in inequality; that is, inequality declines and then rises as countries develop. More recently, differentiating between countries at different stages of structural transformation, Baymul and Sen (2020) find that a labour transition to manufacturing has been income *equalizing*, irrespective of the stage of structural transformation a country is in. In contrast, the labour transition to services is *unequalizing* in structurally developing countries (defined to be countries where agriculture remains the largest employing sector), while it is *equalizing* for structurally developed countries (defined to be countries where manufacturing employs more workers than agriculture). Baymul and Sen (2020) suggest that, in light of this evidence, the Kuznets process may apply more to services-driven structural transformation than manufacturing-driven structural transformation,

Other studies point towards global forces, agricultural liberalization, domestic agrarian structures, technology, and political factors. For example, Galbraith (2011) argues that *global forces* have propelled the changes in national inequality since the 1970s, insofar that he identifies the primary

drivers of the changes in national inequality as world interest rates and commodity prices, as well as between-sector terms of trade. As such, Galbraith (2011) posits that a commodity boom lessens inequality in countries with a dominant agricultural sector as it raises the relative income of farmers. Galbraith proposes that higher rates of interest are detrimental for debtor countries, yet beneficial for creditors, a predicament which increases inequality given that the latter are, generally speaking, richer than the former. Lindert and Williamson (2001) argue that the opening up of economies is a primary driver of national inequality outcomes, for they contend that it is the shift towards the market orientation of agriculture, that is to say domestic to export, that causes inequality to rise, as opposed to the shift from agriculture to manufacturing and services. Lindert and Williamson (2001) suggest that inequality will continue to rise, due to the fact that income in the urban sector outstrips rises in income in the rural sector as agriculture moves to market orientation.

Oyvatt (2016) argues that it is domestic agrarian structures, in particular land inequality, that predominantly determines inequality dynamics in different national contexts. Like Kuznets, he argues that the migration of labour from the rural to the urban sector is fuelled by higher urban incomes, yet this crowding out in the urban sector essentially depresses wages therein. Furthermore, Oyvatt (2016) contends that if land inequality is high then a greater volume of the rural population will migrate even for lower urban wages, given that they do not own land or small plots, thus further driving down urban wages. Empirically, Oyvatt (2016) shows that initial levels of land inequality have a pronounced effect on the interaction between urbanization and overall inequality, as well as intra-urban inequality, and such findings carry the policy implications that either land reforms or subsidies to rural farmers would lead to a reduction in overall inequality.

In contrast to the above, Roine and Waldenström (2014) propose an updated version of the Kuznets curve, which is based on technological developments and does not start with a sectoral shift from agriculture to industry but rather entails the replacement of traditional industry by more technologically intensive industry. The thesis of Roine and Waldenström (2014) is based on the idea that if a given technology renders skilled workers more productive, thereby driving an increase in the relative demand for those workers, the rewards of enhanced productivity will accrue to only the very small proportion of the population who are skilled workers. Hence, in this account, technological advancements are imperative in exacerbating inequality in the developing world.

Finally, Acemoglu and Robinson (2002) propose that it is predominantly political factors that determine the relationship between inequality and development. To illustrate this argument, they outline two alternative non-democratic development paths that do not feature a Kuznets curve per se, and where the levels of political engagement markedly influence inequality outcomes. The first, which they designate an ‘autocratic disaster’, is a high-inequality, low-output form of capitalism. In this model, inequality is high, yet political mobilization is weak because civil society is poorly organized, and so no redistribution takes place to address existing inequality, hence inequality remains at a high level. The second alternative development path discussed by Acemoglu and Robinson (2002) is the ‘East Asian miracle’ of low inequality and high output, where inequality does not increase as this ensures the maintenance of political stability and prevents a democratic regime being forced on ruling elites. In this model, Acemoglu and Robinson (2002) argue that, while the process of industrialization does increase inequality, so too does it lead to the political mobilization of the workers concentrated in factories and urban areas. As such, political elites undertake reforms aimed at redistribution to safeguard their existing control over political life, and the extension of the franchise is typically the best course of action for the ruling class in that it acts as a commitment to future redistribution of economic gains from industrialization, thereby curtailing any prospective civil unrest.

In order to consider the empirical patterns of the Kuznetsian tension, we first need to characterize the patterns of structural transformation in the developing world. We do this in the next section.



### 3 Empirical patterns of structural transformation

#### 3.1 The role of structural transformation

McMillan and Rodrik (2011), by considering sectoral and aggregate labour productivity data between 1990 and 2005, demonstrate that the transfer of labour and other inputs to higher-productivity activities fuels economic development. Their paper additionally notes that, conditional on the precise sectors to which labour is reallocated, structural transformation can either produce growth-enhancing or growth-reducing effects. This point is of substantial importance in terms of validating the hypotheses of the classical school, insofar that it highlights the sectoral movement of labour as a key catalyst in determining the trajectory of economic development. In this view, their paper attributes the growth-enhancing effects of structural transformation in Asia to the fact that labour transferred from lower to higher labour productivity sectors therein. They argue that the opposite was the case in sub-Saharan Africa and Latin America, where labour moved from higher- to lower-productivity sectors, which in turn constrained growth rates. Their paper also suggests that countries reliant on the commodities sectors have a tendency towards growth-reducing structural transformation. Even if these sectors achieve higher levels of productivity, they often struggle to absorb surplus workers from the agricultural sector.

Following on from their study, this section extends the time series and uses more fine-grained regional classifications to understand the different characteristics of structural transformation in the non-western world. This section takes a close look at the varying empirical patterns of structural transformation in high-income East Asia, developing East Asia (excluding China), Latin America, sub-Saharan Africa, China, and India by considering sectoral value-added and employment shares, and sectoral labour productivity of around four decades up to 2010. China and India are analysed separately on the grounds that they have a large population and economy which are comparable to those of major regions. This paper sometimes refers to these two countries as ‘regions’ for convenience.

Before we begin analysing the structural transformation patterns, we present the country composition of each region according to economic structures. In this regard, Baymul and Sen (2020) provide an insightful classification of economies: (i) countries in which manufacturing employment is larger than agricultural employment are called ‘structurally developed’; (ii) countries in which services employment is larger than agricultural employment are called ‘structurally developing’; and (iii) countries in which agricultural employment is the largest are called ‘structurally underdeveloped’. Using this classification and employment data from the Groningen Growth and Development Centre’s (GGDC) 10-Sector Database, we find clear regional variations (Table 1). In 2010, sub-Saharan Africa was mainly composed of ‘structurally underdeveloped’ countries and had no ‘structurally developed’ countries. Latin America and developing East Asia were mainly composed of ‘structurally developing’ countries and had no ‘structurally underdeveloped’ countries. High-income East Asia was composed of only structurally developed countries. India was structurally underdeveloped, and China was structurally developing.

Table 1: Employment composition in 2010 according to countries' stage of structural transformation

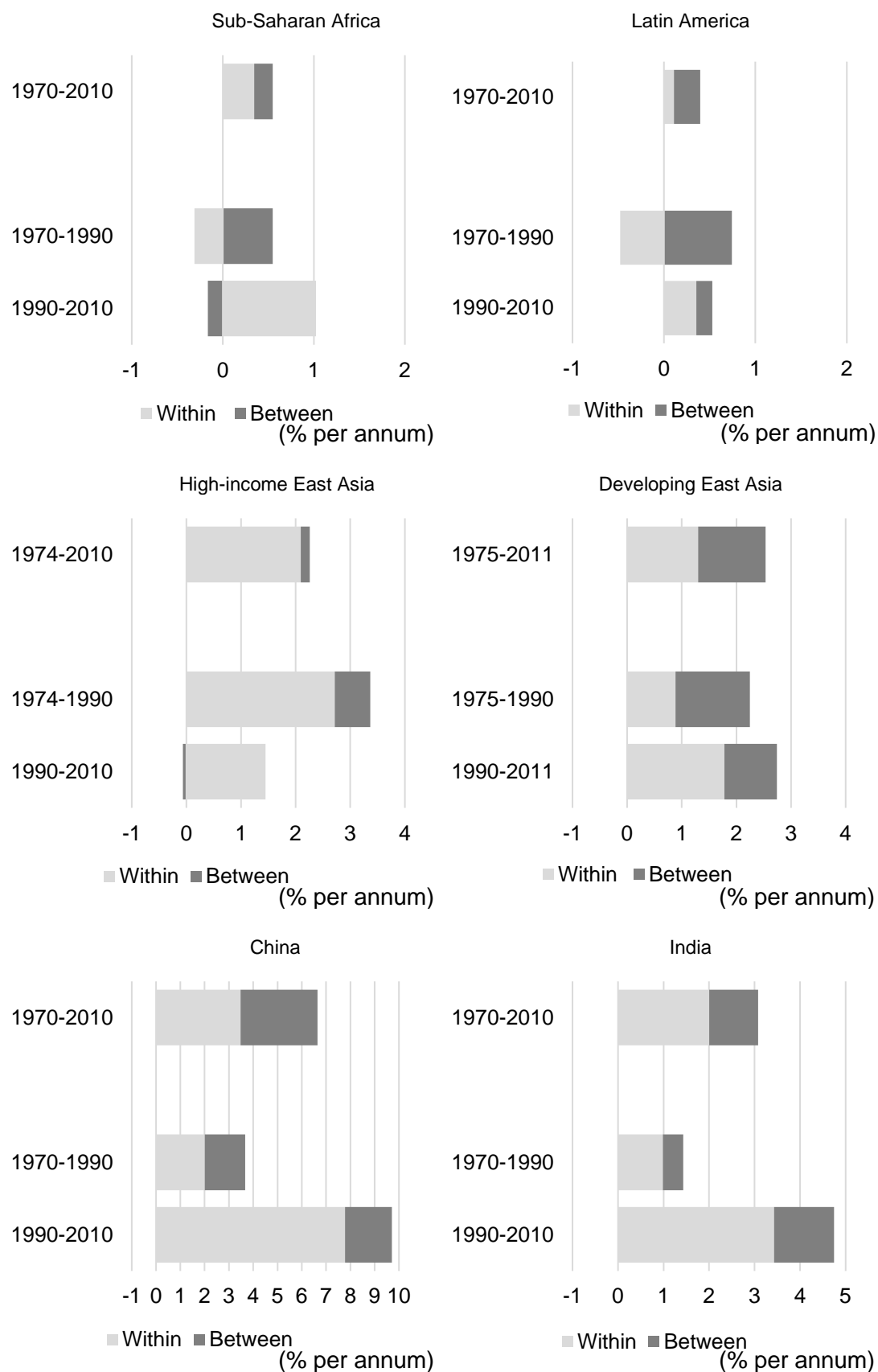
	Structurally underdeveloped	Structurally developing	Structurally developed
India	100	0	0
Sub-Saharan Africa	84	16	0
China	0	100	0
Developing East Asia	0	94	6
Latin America	0	62	38
High-income East Asia	0	0	100

Sources: authors' illustration based on Baymul and Sen (2020) and GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

These different economic structures across the regions are the outcomes of different structural transformation patterns over the decades. The diverse patterns of structural transformation have also resulted in regional differences in labour productivity and economic growth rates. Using the methodology of McMillan and Rodrik (2011), Figure 2 shows the decomposition of average labour productivity growth into the components of structural transformation and within-sector productivity growth between circa 1970 and circa 2010. We also divide the time period into two, before and after 1990, to investigate any notable changes during the recent decades.

We find that there are significant differences in the regions' labour productivity growth rates between circa 1970 and circa 2010. The growth rate was the highest in China (6.6 per cent), followed by India (3.1 per cent), developing East Asia (2.5 per cent), and high-income East Asia (2.3 per cent). The growth rate was much lower in sub-Saharan Africa (0.5 per cent) and Latin America (0.4 per cent). We find that structural transformation played a relatively small role in sub-Saharan Africa, Latin America, and high-income East Asia, and its role weakened over time. As high-income East Asia is mainly composed of structurally developed countries, this pattern is somewhat expected. Despite this pattern, relatively strong economic growth was achieved in high-income East Asia considering its stage of development due to strong improvement in within-sector productivity. However, the case of sub-Saharan Africa is of particular concern as weak structural transformation prevented this economy from taking off. Between 1990 and 2010, the contribution of structural transformation to labour productivity growth was even negative in this region. In Latin America, many middle-income economies struggled to attain high-income country status due to weak structural transformation especially after 1990. In comparison, we find that structural transformation played an important role in the economic development of developing East Asia, China, and India, albeit to varying degrees. For China and India, the contribution of structural transformation, in absolute terms, was larger in the latter period, enabling these two countries to record impressive economic growth.

Figure 2: Decomposition of labour productivity growth, c.1970–c.2010



Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

### 3.2 Varieties of structural transformation

With this regional variation in the role of structural transformation in mind, this subsection conducts a detailed analysis of the diverse structural transformation patterns. This subsection investigates some important differences and similarities in the trends of value added and employment composition between regions and classifies their diverse experience. In each case, five-year moving averages of value-added (in 2005 constant prices) and employment shares are used in order to smooth out annual fluctuations and find meaningful trends. The shares mentioned in the text are also five-year moving averages, unless otherwise stated. In order to show the changes in value-added shares and employment shares in proportion to each other, the x-axis and y-axis have the same minimum and maximum scale values in each of the sectoral graphs in Figure 3, except in the graph on the mining sector as it needs to display very small employment shares. The aggregates are built thus (based on GGDC 10-Sector database availability):

- Sub-Saharan Africa: Botswana, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Senegal, South Africa, Tanzania.
- Developing East Asia (excluding China): Indonesia, Malaysia, Philippines, Thailand.
- Latin America: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru, Venezuela.
- High-income East Asia: Hong Kong, Japan, Singapore, South Korea, Taiwan.

Considering that agriculture is often the sector with the lowest labour productivity, changes in this sector's shares can be an important proxy for assessing the magnitude of structural transformation (Figure 3 (i)). We find that high-income East Asia and Latin America experienced the 'later stage of de-agriculturalization' between 1980 and 2010. By 1980, Latin America and high-income East Asia already had a small agricultural value-added share below 10 per cent. The value-added share in Latin America stayed at 5–6 per cent during the following three decades and the share in high-income East Asia declined slightly from 3.9 per cent in 1980 to 1.8 per cent in 2010. During this period, both regions saw a notable decline in the agricultural employment share. The employment share in Latin America declined from 33.4 per cent in 1980 to 16.3 per cent in 2010 and the share in high-income East Asia from 17.5 per cent to 5.3 per cent.

In comparison, other parts of Asia displayed much larger declines in the shares of agricultural value added and employment as they experienced the 'earlier stage of de-agriculturalization'. China and India experienced particularly large declines in both agricultural shares. China's agricultural value-added share declined substantially from 44.2 per cent in 1980 to 10.3 per cent in 2010 and the employment share from 71.9 per cent to 39.6 per cent. In India, the value-added share shrunk from 39.4 per cent in 1980 to 17.2 per cent in 2010 and the employment share from 72.1 per cent to 55.1 per cent. Despite these large changes, India's agricultural shares were similar to those of sub-Saharan Africa in 2010 since its shares in 1980 were very large.

Unlike other regions, sub-Saharan Africa did not show a clear sign of de-agriculturalization between 1980 and 2010. Sub-Saharan Africa's agricultural value added grew faster than the overall economy, leading to a small increase in its share. The agricultural employment share was smaller in 2010 than in 1980 but the size of decline during this period was minuscule compared to other regions. In sub-Saharan Africa, the employment share declined by just 1.7 percentage points (pp) per decade (compare: China: 10.8 pp; developing East Asia: 7.2 pp; Latin America: 5.7 pp; South Asia: 5.7 pp; high-income East Asia: 4.1 pp). In sum, we find that all the regions, except sub-Saharan Africa, experienced notable de-agriculturalization between 1980 and 2010.

The rest of this subsection investigates which economic sectors drove economic and employment growth in the developing world. The aim is to explore which sectors ‘filled in the gap’ left by the shrinking agricultural sector. First, we analyse the patterns of the manufacturing sector (Figure 3 (ii)). In Asia, the manufacturing sector was an important driver of structural transformation if we look at the long-term trend between 1980 and 2010, yet its role changed over time if we focus on subperiods. While all four Asian regions displayed a similar pattern during the 1980s, their pattern showed great diversity during the 2000s as they experienced different types of industrialization.

By focusing on the changes in manufacturing value-added and employment shares, we categorize countries’ *industrialization* patterns between 1990 and 2010 into five types (see Figure 4). We name these varieties of industrialization as follows: ‘primary industrialization’, ‘upgrading industrialization’, ‘advanced industrialization’, ‘stalled industrialization’, and ‘secular de-industrialization’. The categorization has been constructed based on the recent *direction of changes* in the manufacturing shares and not on the absolute *levels* of those shares. Therefore, a country with a lower manufacturing share may be categorized as going through industrialization, whereas a country with a higher manufacturing share may be categorized as experiencing de-industrialization.

We find four Asian regions in quadrant I in Figure 4, meaning that they all experienced concurrent expansion of manufacturing value-added and employment shares, or ‘upgrading industrialization’ during the 1980s. While China continued to experience ‘upgrading industrialization’ during the 2000s, the patterns in three other Asian regions changed. During the 2000s, high-income East Asia experienced ‘advanced industrialization’, with a large decline in the employment share but without a significant decline in the value-added share (quadrant IV in Figure 4). Therefore, this region maintained a large manufacturing value-added share, which averaged 23.9 per cent between 2000 and 2010. Developing East Asia experienced ‘stalled industrialization’ with no significant change in both shares (close to the origin in Figure 4), and India experienced labour-centred industrialization or ‘primary industrialization’ with an increase in the employment share but a decline in the value-added share (quadrant II in Figure 4).

In comparison, the manufacturing sector played less of a central role in the structural transformation of other regions. Focusing on the changes in value-added and employment shares, we find that sub-Saharan Africa went through a similar pattern to India during the 2000s and therefore ‘primary industrialization’. However, if we also consider the actual shares and not just the patterns, then it is more appropriate to conclude that industrialization has not yet taken off in sub-Saharan Africa (Figure 3 (ii)). Between 1980 and 2010, sub-Saharan Africa’s manufacturing employment share never exceeded 7 per cent despite the recent expansion, and the manufacturing value-added share in 2010 was just 13.5 per cent, which was the smallest share during the period under study. Lastly, we find that Latin America experienced a concurrent decline in both value-added and employment shares or ‘secular de-industrialization’ during the 2000s (quadrant III in Figure 4).

The trends in the mining sector were also diverse across the regions. At an aggregate level, this sector is usually capital intensive and therefore accounted for a small share of employment of around 1 per cent in most economies in 2010, while the value-added share was more varied. Figure 3 (iii) shows that the mining sectors’ value-added and employment shares did not change significantly in Latin America, India, and high-income East Asia between 1980 and 2010, although the level of dependence on the sector varied across these regions. China also did not see a large change in its mining value-added share but did experience a relatively large decline, compared to other regions, in the mining employment share, although the change was only less than a half percentage point. Value added in developing East Asia and sub-Saharan Africa was consistently more dependent on the mining sector despite the recent shrinking of the sector’s shares. In the case of developing East Asia, the mining employment share did not change much, while the mining

value-added share halved from 17.4 per cent in 1980 to 8.2 per cent in 2010. In sub-Saharan Africa, the share of mining in both value added and employment shrunk markedly, from 27.7 per cent in 1980 to 13.5 per cent in 2010, and from 1.3 per cent in 1980 to 0.6 per cent in 2010, respectively. In sum, the mining sector played a limited role in structural transformation in all the regions as the value-added and employment shares were either small and remained relatively constant or were large and shrunk.

Next, we analyse the utilities and construction sector (Figure 3 (iv)). This sector was an important job-creating industry for China and India between 1980 and 2010. During this period, this sector's employment share increased from 2.2 per cent to 7.3 per cent in China and from 1.5 per cent to 7.0 per cent in India. These notable increases in the employment shares were accompanied by some increases in the value-added share in both countries. Developing East Asia also experienced a notable increase in the employment share of the utilities and construction sector from 3.2 per cent to 5.7 per cent, but unlike China and India, the value-added share did not show a clear long-term trend. In contrast, the utilities and construction sector's shares did not show a significant change in Latin America and sub-Saharan Africa between 1980 and 2010. This sector's value-added and employment shares stayed particularly small in sub-Saharan Africa during this period. If we take a closer look, we find a short period of gentle recovery of both shares in these two regions during the second half of the 2000s, but it is yet inconclusive whether this was the beginning of a new long-term trend. In high-income East Asia, utilities and construction continued to be a large employer in the economy, with the employment share staying relatively stable and averaging 9.4 per cent between 1980 and 2010. However, the value-added share of this sector shrunk significantly from 14.8 per cent to 8.9 per cent.

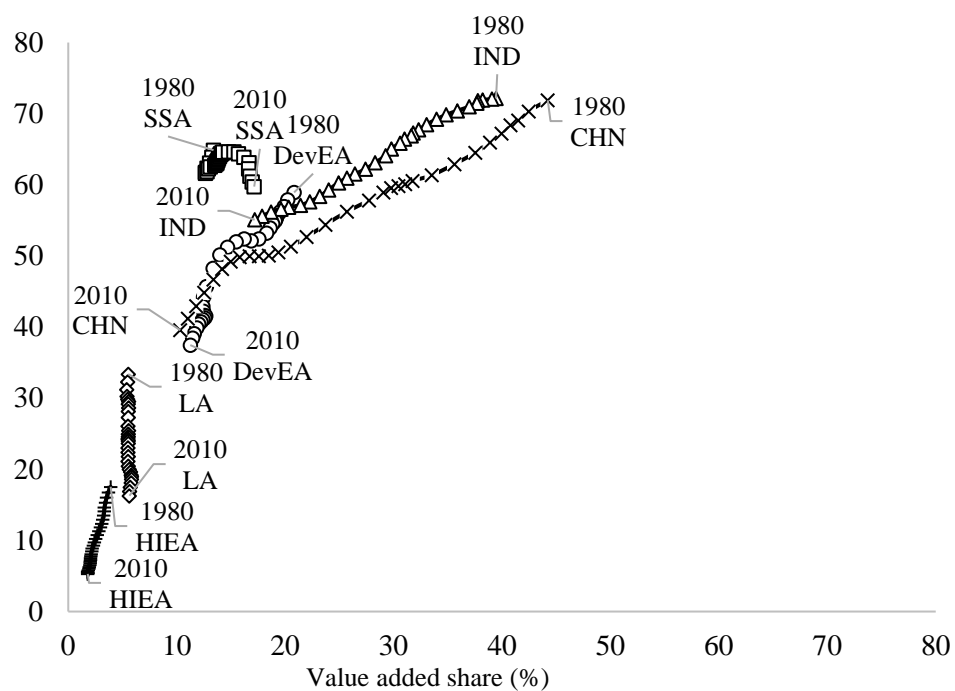
Non-business services played an important role in structural transformation of all the regions. Figure 3 (v) shows that non-business services experienced a concurrent and notable expansion of the value-added and employment shares in all the regions between 1980 and 2010. The expansion of the employment share was particularly large in high-income East Asia, Latin America, developing East Asia, and China. As a result, non-business services accounted for around a half of total employment in high-income East Asia and Latin America and around a third of total employment in developing East Asia and China. While there were limited changes in non-business services' value-added shares in high-income East Asia and Latin America, there were large increases in the value-added shares in developing East Asia and China, although these increases were smaller than the changes in the employment shares. In contrast, while the non-business services value-added and employment shares also both expanded notably in India and sub-Saharan Africa, the changes in the employment share were smaller than changes in the value-added share.

Finally, business services also played an important role in the structural transformation of all the regions (Figure 3 (vi)). For high-income East Asia, there was a simultaneous expansion of value-added and employment shares between 1980 and 2010. In Latin America, the employment share continuously expanded during this period, while the value-added shares were similar in 1980 and 2010 after some fluctuations. The patterns in four other regions are similar. The expansion of the business services' value-added share was significant in sub-Saharan Africa, India, China, and developing East Asia. In contrast, their business services' employment shares and their changes were much smaller. The expansion of the business services' value-added share was particularly large in sub-Saharan Africa and India, with the share exceeding 11 per cent in 2010, which was higher than China (8.1 per cent) and developing East Asia (8.0 per cent).

Figure 3: Sectoral value-added (constant price) and employment shares, 1980–2010

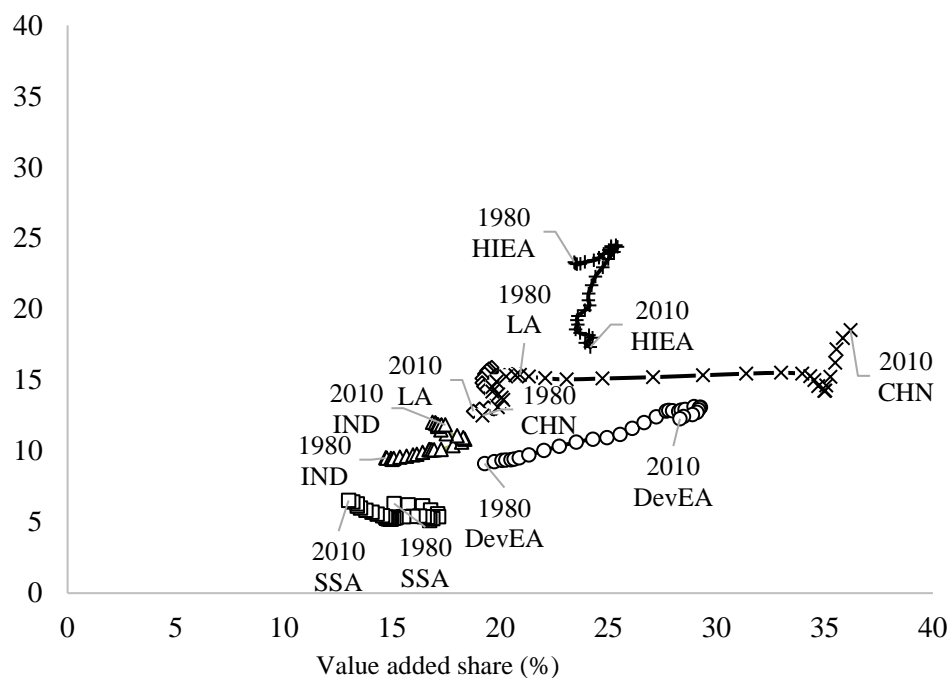
(i) Agriculture

Employment share (%)



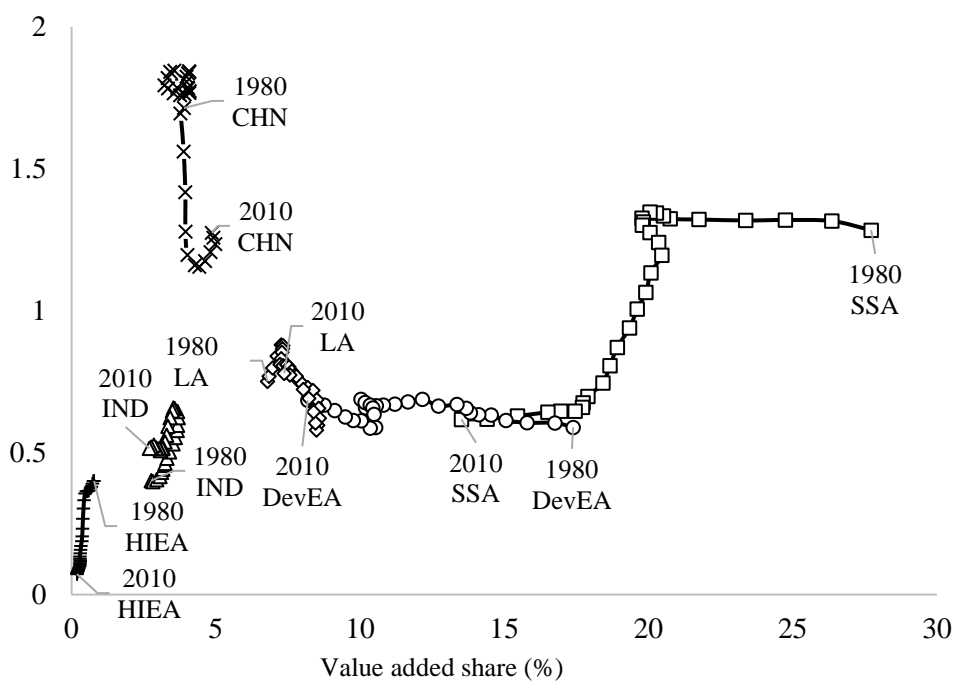
(ii) Manufacturing

Employment share (%)



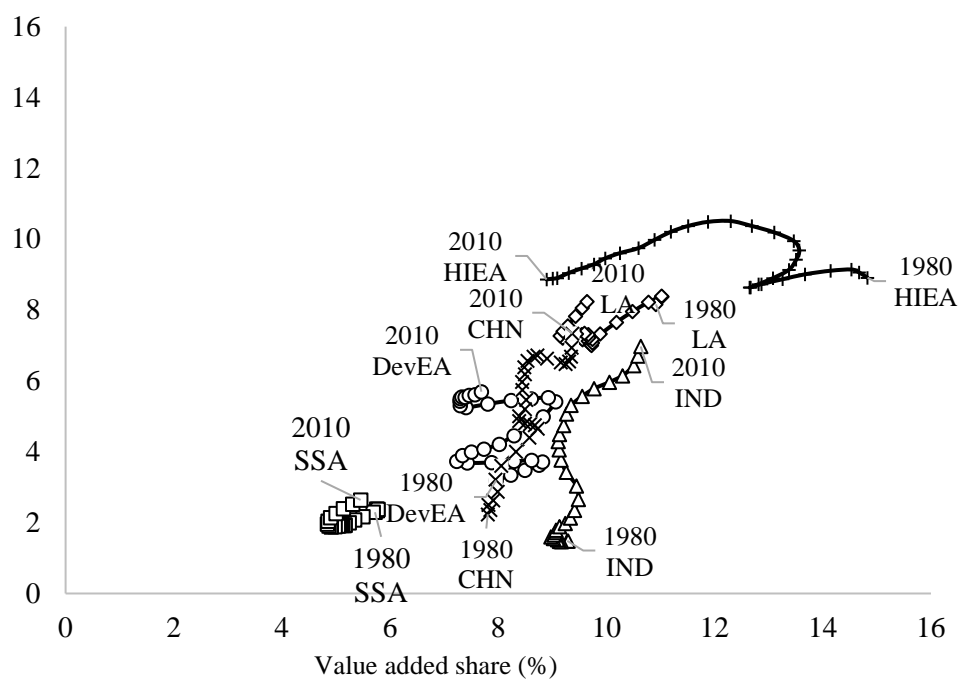
### (iii) Mining

Employment share (%)



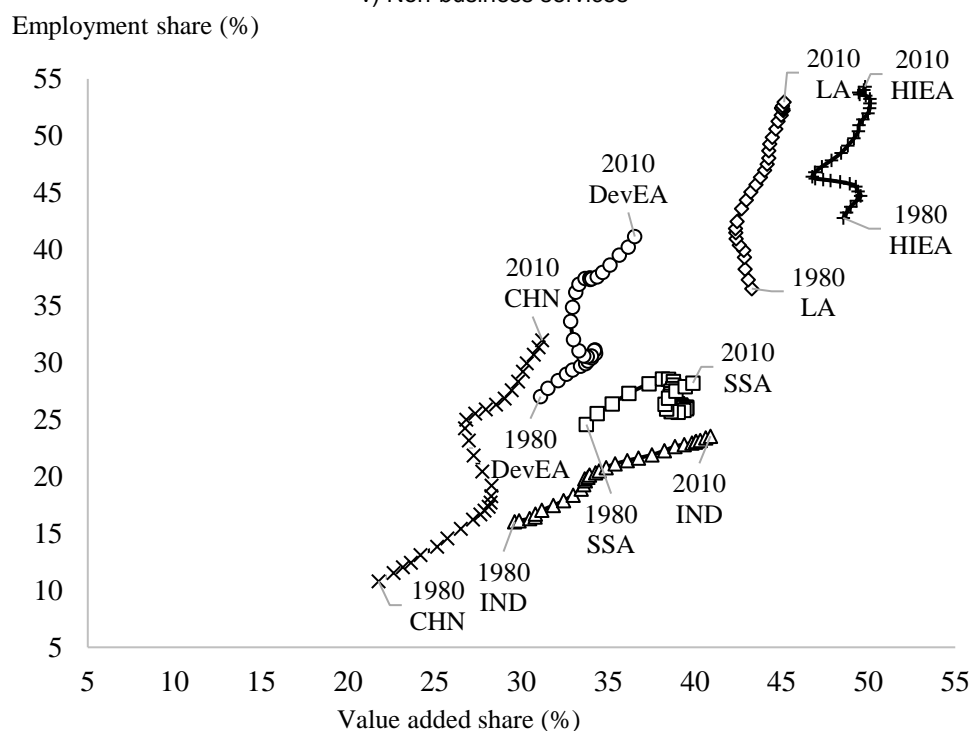
### (iv) Utilities & construction

Employment share (%)

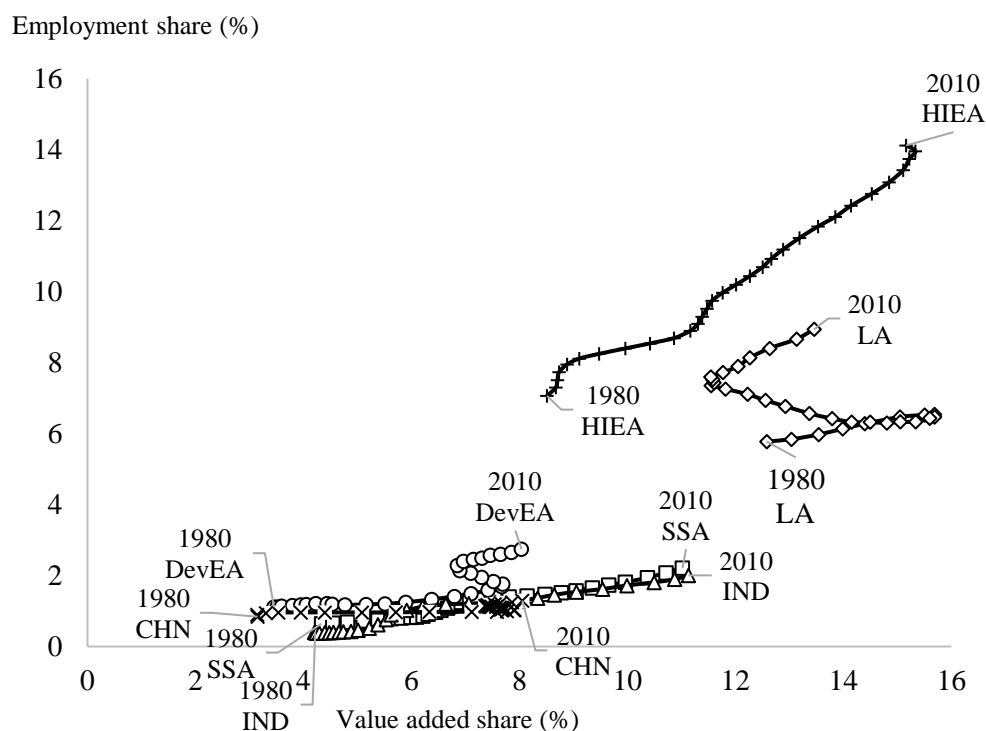




v) Non-business services



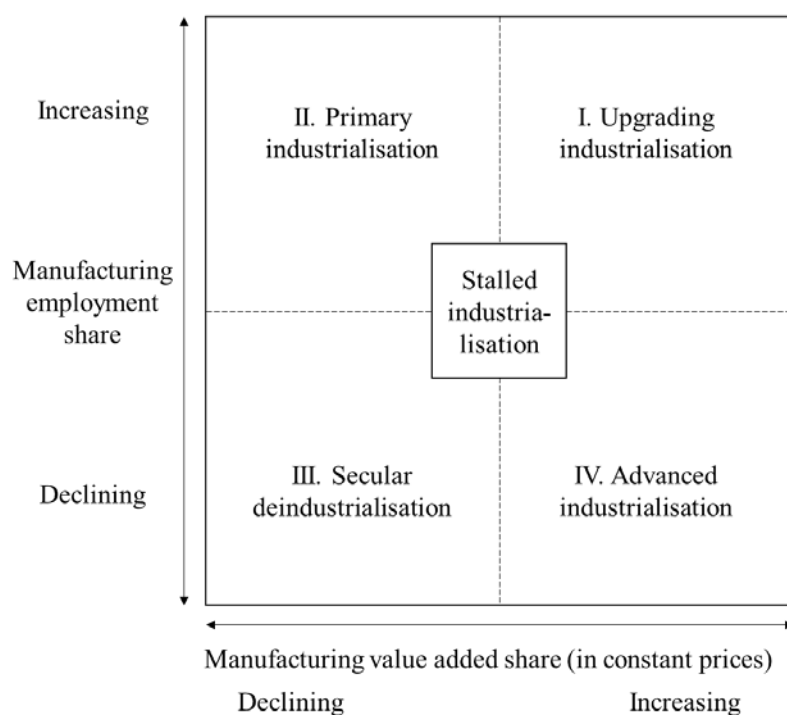
(vi) Business services



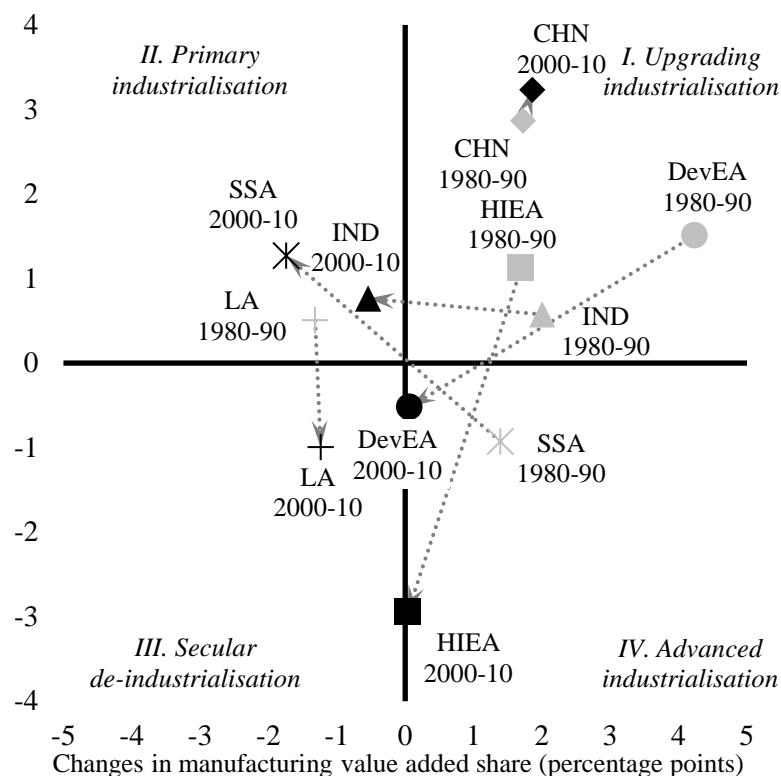
Notes: (i) Business services: financial intermediation, renting, business activities; Non-business services: (a) wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods, hotels and restaurants; (b) transport, storage, communications; (c) public administration, defence, education, health, social work; and (d) other community, social and personal service activities, activities of private households. (ii) CHN: China; DevEA: Developing East Asia; HIEA: High-income East Asia; IND: India, LA: Latin America; SSA: Sub-Saharan Africa. (iii) Value-added and employment shares are five-year moving averages.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

Figure 4: Varieties of industrialization



Changes in manufacturing employment share (percentage points)



Note: (i) CHN: China; DevEA: Developing East Asia; HIEA: High-income East Asia; IND: India; LA: Latin America; SSA: Sub-Saharan Africa. (ii) Five-year moving averages of value-added and employment shares were used to calculate the changes.

Sources: Kim and Sumner (2019); authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

### 3.3 The dynamism of structural transformation

Next, this section analyses sectoral average labour productivities which provide important information on the dynamism of structural transformation. McMillan and Rodrik (2011: 60) state that labour productivity differences between the agricultural and non-agricultural sectors typically 'behave[s] non-monotonically during economic growth'. In their study, this economic logic is demonstrated using a U-shaped curve that has the ratio of agricultural to non-agricultural labour productivity on the y-axis against economy-wide labour productivity levels on the x-axis. At the very early stage of development, there is a small productivity gap between sectors as there exists weak modern economy. Then, as economic development proceeds, relative labour productivity of the agricultural sector first declines or the productivity gap between the agricultural and non-agricultural sectors widens with investments in modern sectors. This is shown by the downward sloping part of the U-curve. During this period, labour starts to shift from agriculture to modern sectors. Then, after the economy reaches a certain level of development, the productivity gap stops widening and starts to shrink or sectoral productivities begin to converge. This is represented by the turning point and the beginning of the upward sloping section of the U-curve. This pattern appears as the labour movement between sectors becomes a major driver of economic development while there exists a large productivity gap between sectors. At a later stage of development, structural transformation continues in advanced countries, often with workers moving from industries to services. Yet the contribution of structural transformation to labour productivity growth is now more limited due to smaller inter-sectoral productivity differences, shown as the high ratios of agricultural to non-agricultural labour productivity towards the end of the upward sloping part of the U-curve. At this stage, within-sector labour productivity growth becomes a key factor which determines the overall labour productivity growth.

In this subsection, we analyse how relative labour productivity has changed across the regions.

Figure 5 plots the ratio of agricultural labour productivity to non-agricultural labour productivity of the six regions under study. The curves for four Asian regions seem to represent the different sections of the U-curve which McMillan and Rodrik (2011) discuss. India displays a clear increase in the productivity gap, represented by its curve sloping downwards. The ratio almost halved from 28.8 per cent in 1975 to 15.9 per cent in 2010, during which labour productivity more than trebled. China also displays a clear downward trend with the changes, in terms of the ratio and overall labour productivity, being even larger than those of India. The ratio peaked at 35.6 per cent in 1984 and declined to as low as 16.8 per cent in 2003. Between 2003 and 2010, the ratio did not show a significant change, with an average of 17.5 per cent suggesting that China was likely at the turning point of the U-curve. Between 1975 and 2010, China's labour productivity increased by more than a factor of 11. The trend for developing East Asia shows a small version of the U-shaped curve by itself suggesting that this region went through the turning point and entered the upward sloping part of the U-curve over the recent decades. Developing East Asia's ratio experienced a sharp decline from 19.9 per cent in 1987 to 14.9 per cent in 1992 and then the ratio started rising and recorded 21.7 per cent in 2010. While developing East Asia's labour productivity experienced healthy growth by increasing by a factor of 2.4 between 1975 and 2010, Figure 5 shows that it was caught up by China's labour productivity in 2009. High-income East Asia's ratio showed a clear upward trend between 1975 and 2010. The ratio recorded 18.5 per cent, the lowest level, in 1980 and from then on the ratio increased rapidly and recorded 32.9 per cent in 2010. This pattern indicates a convergence of agricultural and non-agricultural labour productivity. Between 1975 and 2010, high-income East Asia's overall labour productivity more than doubled.

Figure 5: Overall labour productivity and agricultural–non-agricultural relative labour productivity, 1975–2010



Note: CHN: China; DevEA: Developing East Asia; HIEA: High-income East Asia; IND: India; LA: Latin America; SSA: Sub-Saharan Africa.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

In comparison, the patterns in Latin America and sub-Saharan Africa suggest that these two regions did not move along a similar path to Asia or the traditional development path based on dual-economy models between 1975 and 2010. There was a rapid convergence in labour productivities of the agricultural and non-agricultural sectors from the early 1980s in Latin America and from the early 2000s in sub-Saharan Africa. While it may be too early to conclude that the increase in the ratio is a permanent feature in sub-Saharan Africa, the upward trend appears to be clearer for Latin America. In contrast to high-income East Asia, the productivity ratio of Latin America and sub-Saharan Africa increased at earlier stages of development and without much improvement in their economy-wide labour productivity. This pattern indicates that productivity convergence began without these two regions having fully enjoyed the benefits of structural transformation.

Next, we investigate the dynamism of structural transformation through the viewpoint of relative sectoral productivity of modern sectors. In Figure 6, the y-axis shows the natural logarithm of the ratio of sectoral labour productivity to economy-wide labour productivity, and 0 indicates that sectoral labour productivity was the same as economy-wide labour productivity of the region in a given year.

Figure 6 (i) shows that the manufacturing sector's labour productivity was continuously higher than economy-wide (or overall) labour productivity in all the regions. Therefore, a shift of labour from agriculture to manufacturing would have contributed to growth-enhancing structural transformation. As we discussed in the previous subsection, India, developing East Asia, and particularly China experienced an increase in the manufacturing employment share between 1980 and 2010 although the patterns during the 2000s were different to each other. In contrast, the manufacturing employment share did not change much in sub-Saharan Africa during the three decades. In Latin America and high-income East Asia, the employment share declined significantly

but we find some notable differences between these two regions. The manufacturing employment share began to shrink at a much higher level in high-income East Asia compared to Latin America. Also, relative labour productivity of the manufacturing sector grew significantly in high-income East Asia whereas it increased only slightly in Latin America. The small increase in manufacturing's relative labour productivity in Latin America was the result of a large fall in the overall labour productivity rather than healthy manufacturing development. In fact, the absolute level of manufacturing labour productivity declined by 0.6 per cent in Latin America while that in high-income East Asia increased by 170 per cent between 1980 and 2010. These patterns highlight the different performance under 'advanced industrialization', in the case of high-income East Asia, and 'secular de-industrialization', in the case of Latin America.

The mining sector's labour productivity was also consistently higher than economy-wide labour productivity in all the regions. Despite high labour productivity, the potential of this sector being the engine of growth-enhancing structural transformation is limited due to its small labour absorptive capacity. Furthermore, Figure 6 (ii) shows that in regions where the mining employment shares were relatively large, such as China and sub-Saharan Africa, the shares actually declined between 1980 and 2010.

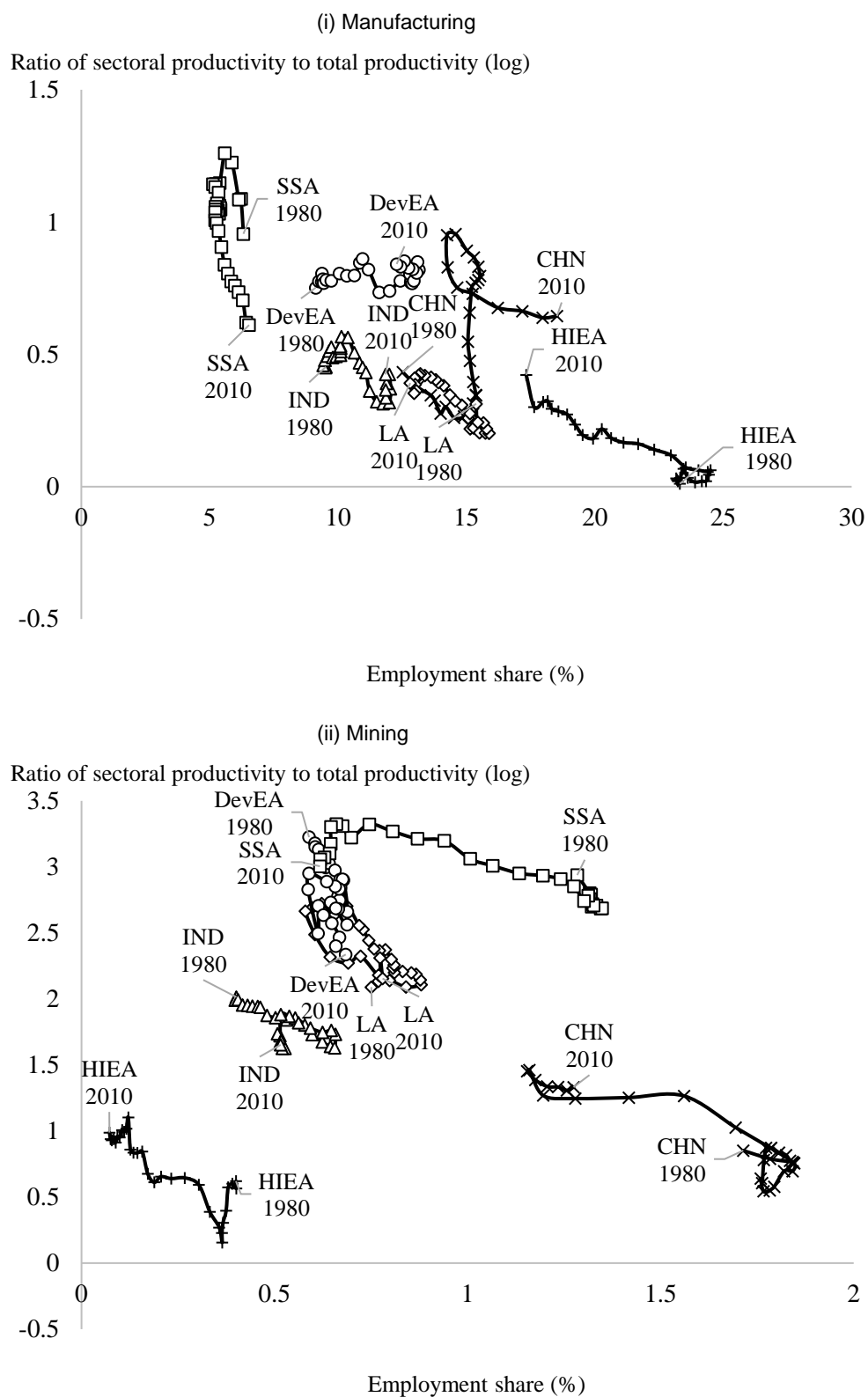
Labour productivity of utilities and construction was also high in all the regions. Except in high-income East Asia during the second half of the 2000s, sectoral labour productivity exceeded economy-wide labour productivity in all the regions. Figure 6 (iii) shows that this sector played a substantial role in employment generation and therefore growth-enhancing structural transformation in India and China, and to a lesser extent in developing East Asia. In contrast, this sector played a limited role in the structural transformation of high-income East Asia, Latin America, and sub-Saharan Africa, while it continued to be an important employer in high-income East Asia.

Next, we analyse labour productivity of services. Non-business services display labour productivity that is higher than economy-wide labour productivity at an earlier stage of development, such as in India and sub-Saharan Africa between 1980 and 2010 and also in developing East Asia up to 1994 and China up to 2005 (Figure 6 (iv)). Therefore, the shift of labour into this sector may play a positive role in poor countries if the workers are entering non-business services from sectors, such as agriculture, with lower labour productivity. However, as economic development progresses, labour productivity of non-business services seems to become lower than overall labour productivity. This pattern was apparent in Latin America and high-income East Asia for most of the period between 1980 and 2010 and in developing East Asia and China in the recent decade. Therefore, structural transformation that depends on non-business services will produce weak economic performance not only because there is a small productivity gap between non-business services and agriculture but also because there is likelihood of labour shifting from high-productivity modern sectors into non-business services, in which case structural transformation will be growth-reducing. As Figures 3 and 6 show, the expansion of modern sectors in Latin America was concentrated in non-business services.

Lastly, we take a look at the business services sector (Figure 6 (v)). This sector's labour productivity was higher than economy-wide labour productivity in all the regions between 1980 and 2010. In China, India, sub-Saharan Africa, and developing East Asia, sectoral labour productivity of business services was particularly high. While these regions experienced an expansion of labour share in business services between 1980 and 2010, this sector has not yet played a pivotal role in structural transformation as the share remains small, not bigger than 3 per cent, in these regions. In comparison, Latin America and especially high-income East Asia experienced a notable

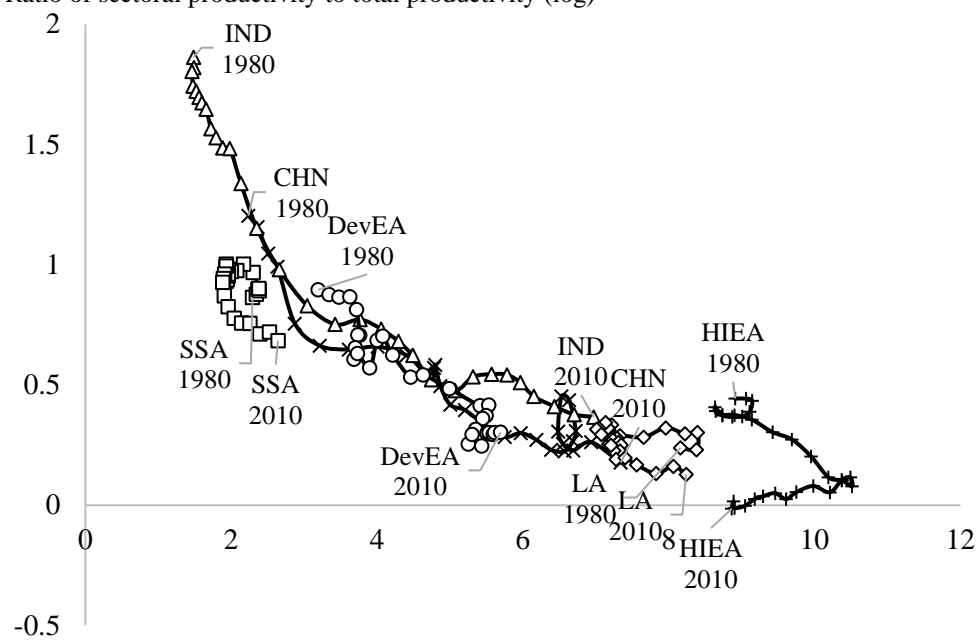
expansion in the employment share of business services, suggesting that this sector played an important role in growth-enhancing structural transformation.

Figure 6: Employment shares and relative labour productivity, 1980–2010



(iii) Utilities & construction

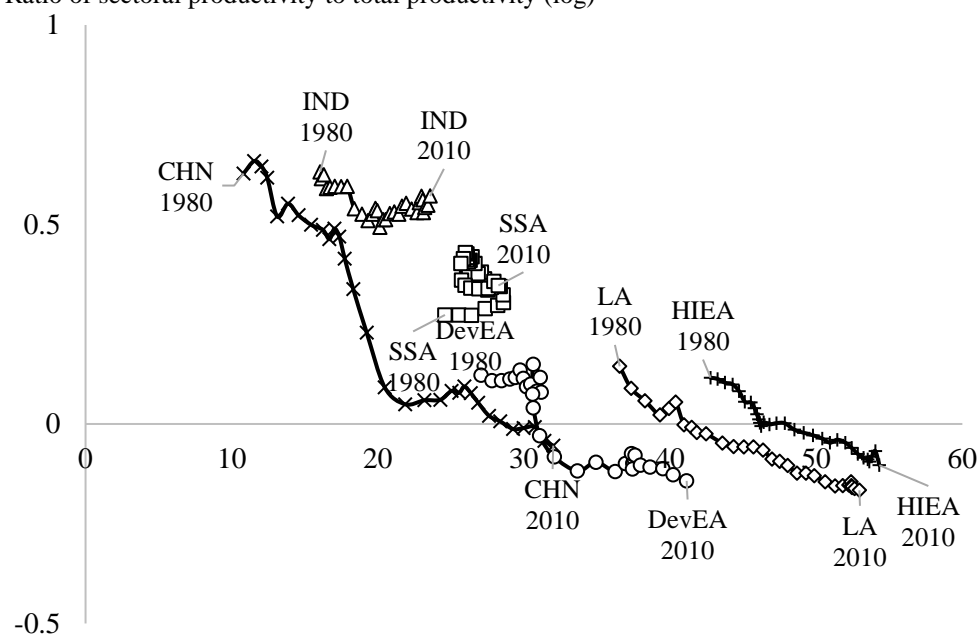
Ratio of sectoral productivity to total productivity (log)



Employment share (%)

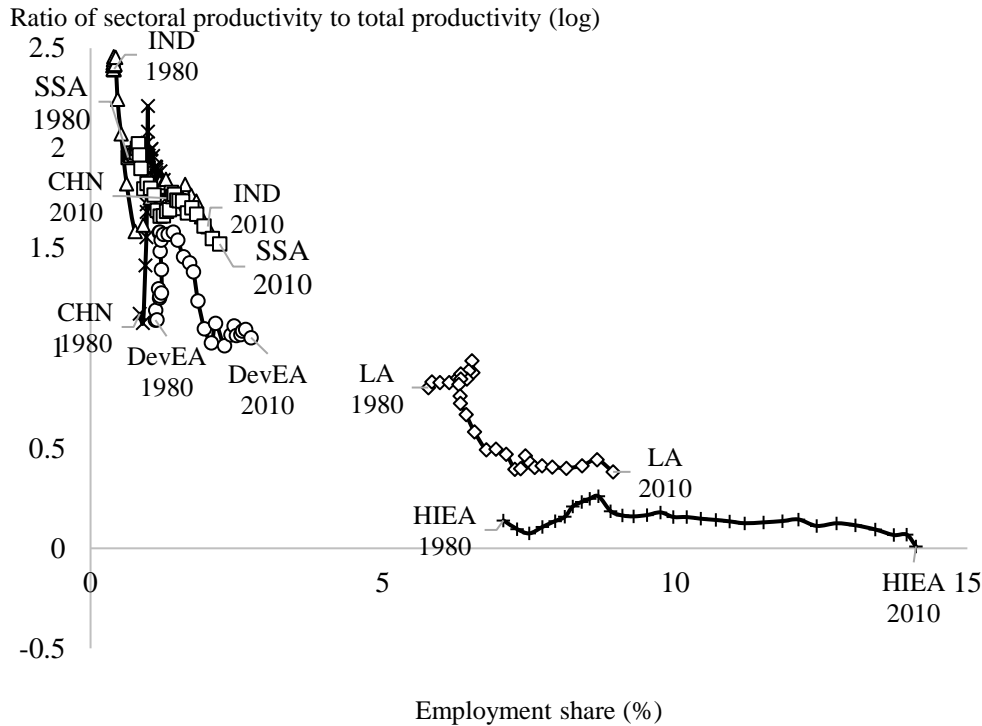
(iv) Non-business services

Ratio of sectoral productivity to total productivity (log)



Employment share (%)

(v) Business services



Notes: (i) Business services: financial intermediation, renting, business activities; Non-business services: (a) wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods, hotels and restaurants, (b) transport, storage, communications, (c) public administration, defence, education, health, social work, and (d) other community, social and personal service activities, activities of private households. (ii) CHN: China; DevEA: Developing East Asia; HIEA: High-income East Asia; IND: India, LA: Latin America; SSA: Sub-Saharan Africa. (iii) Employment shares are five-year moving averages.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

In sum, using the characteristics of structural transformation between 1980 and 2010 described in this section, we can categorize the six regions into three groups: (i) struggling transformer: sub-Saharan Africa; (ii) catching-up transformers: developing East Asia, China, and India and; (iii) mature transformers: Latin America and high-income East Asia. There are many similarities among the regions in each group but there are also some important differences.

Sub-Saharan Africa can be classified as a 'struggling transformer' as it experienced limited structural transformation and small productivity improvement in modern sectors. There were only slight changes in the value-added and employment shares of the agricultural sector and the adjustments within the modern sector were limited. Also, relative sectoral labour productivity of modern sectors recorded small changes during this period. While economic performance during this period was disappointing, high relative labour productivity of modern sectors indicates that the potential of growth-enhancing structural transformation is substantial in this region.

In the case of 'catching-up transformers' (China, India, and developing East Asia), both value-added and employment shares of the agricultural sector declined significantly. In these regions, the manufacturing, utilities and construction, and business services sectors consistently had labour productivity that was higher than economy-wide labour productivity and their employment shares expanded between 1980 and 2010. While there are some differences between these three regions and across time in terms of the magnitude of changes, we can conclude that a notable employment expansion of high-productivity sectors translated into a large contribution of structural



transformation to labour productivity growth in these three economies. Considering these sectors' relatively high labour productivity during the most recent years, these sectors can continue to play an important role in growth-enhancing structural transformation. This is especially so for business services, in which the employment share has not yet expanded very much. However, there are also some notable differences between the three regions. During the 2000s, the manufacturing sector played a different role in structural transformation as China experienced 'upgrading industrialization', India experienced 'primary industrialization', and developing East Asia experienced 'stalled industrialization'. Non-business services have also shown similarities and differences. This sector's employment share expanded in all three regions, but its relative labour productivity became lower than economy-wide labour productivity in developing East Asia and China during the recent period. As the sector's labour productivity remains relatively high in India, this sector may be able to play a positive role in growth-enhancing structural transformation for some time. If these diverse patterns in manufacturing and non-business services continue for a longer period in the future, it may be inappropriate to include these three regions in the same group.

The two regions with higher income, namely high-income East Asia and Latin America, experienced a rapid decline of the agricultural employment share while recording a small agricultural value-added share. By 2010, the value-added and employment shares of the agricultural sector were much smaller compared to other regions. The different development outcomes between these two regions are striking despite this similarity. The employment shares in lower-productivity non-business services and higher-productivity business services expanded in both 'mature transformers'. However, the non-business services sector was the main driver in the changes in employment composition in Latin America, whereas both business and non-business services played an important role in high-income East Asia. The contribution of business services to the changes in services sector employment share between 1980 and 2010 was 37.9 per cent in high-income East Asia, which was much higher than 16.1 per cent in Latin America. These patterns show that tertiarization was more growth-enhancing in high-income East Asia than in Latin America. Also, we find some similarities and differences in the two regions' manufacturing performance. The manufacturing employment share shrunk in both regions between 1980 and 2010 and the size of decline was actually much larger in high-income East Asia. However, the manufacturing sector's relative labour productivity increased significantly in high-income East Asia whereas it did not change very much in Latin America. These patterns show the key difference between the 'advanced industrialization' of high-income East Asia and 'secular de-industrialization' of Latin America. In sum, the pattern of structural transformation started to mature in Latin America before getting rich, and its recent stage of structural performance was less growth friendly and sustainable compared to that of high-income East Asia. We next turn to the inequality dynamics of different types of structural transformation.

#### **4 The Kuznetsian tension: the inequality dynamics of structural transformation**

To recap, our analysis so far of the empirical regional experience of structural transformation shows very different trends in shares of sectoral value added and employment and relative labour productivity in East Asia excluding China, China, Latin America, India, and sub-Saharan Africa.

What are the implications of the different regional experiences with structural transformation for the relationship between structural transformation and inequality dynamics? Figures 7 and 8 show the relationship between manufacturing shares of employment and income inequality. Starting with sub-Saharan Africa, the weak experience with structural transformation, especially in

manufacturing, and the relatively low movement of workers from agriculture to non-agriculture suggests that the Kuznetsian tension between structural transformation and inequality may not be evident as much as it is for the other regions.

Latin America witnessed de-industrialization, and, at the same time, there was a sustained increase in employment share of services. In this case, it is less evident how the tertiarization of Latin America may have impacted on inequality, and it would depend in part on which component of the services sector grew the fastest in the period 1980–2010. As Baymul and Sen (2020) argue, business services may have more of an inequality-enhancing effect than non-business services.

Developing East Asia (excluding China) has witnessed what may be termed as ‘benign’ structural transformation as the rapid increase in economy-wide productivity was accompanied by a notable increase in the share of manufacturing employment. This may have led to a positive Kuznetsian dynamic of rapid structural transformation accompanied by job creation.

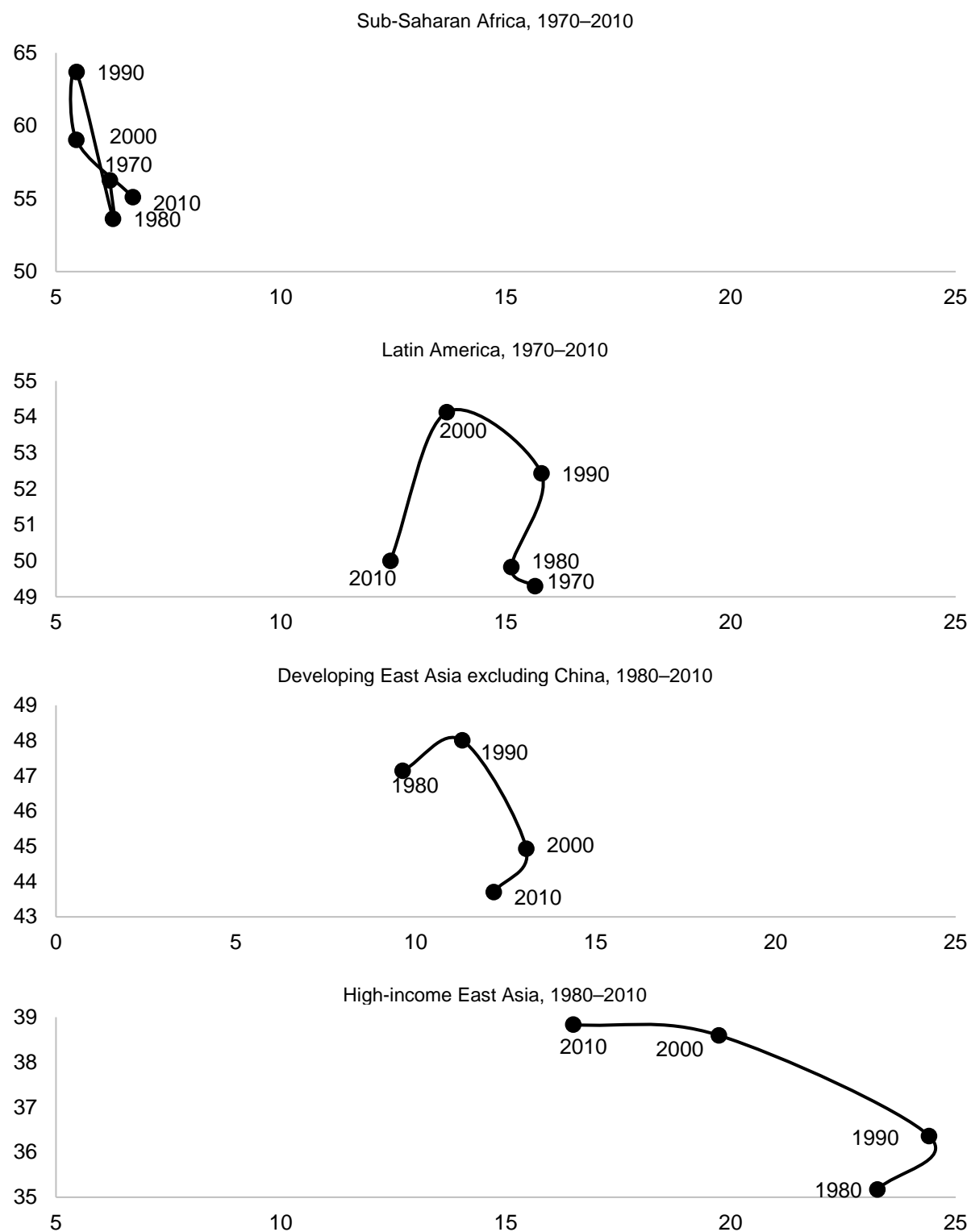
Finally, we note that in both China and India from about the mid-1980s there was a rise in the employment shares in manufacturing, which then began to flatten around 2005. We also see a rapid rise in non-business services’ share of employment over the same period and a rise in the gross Gini.

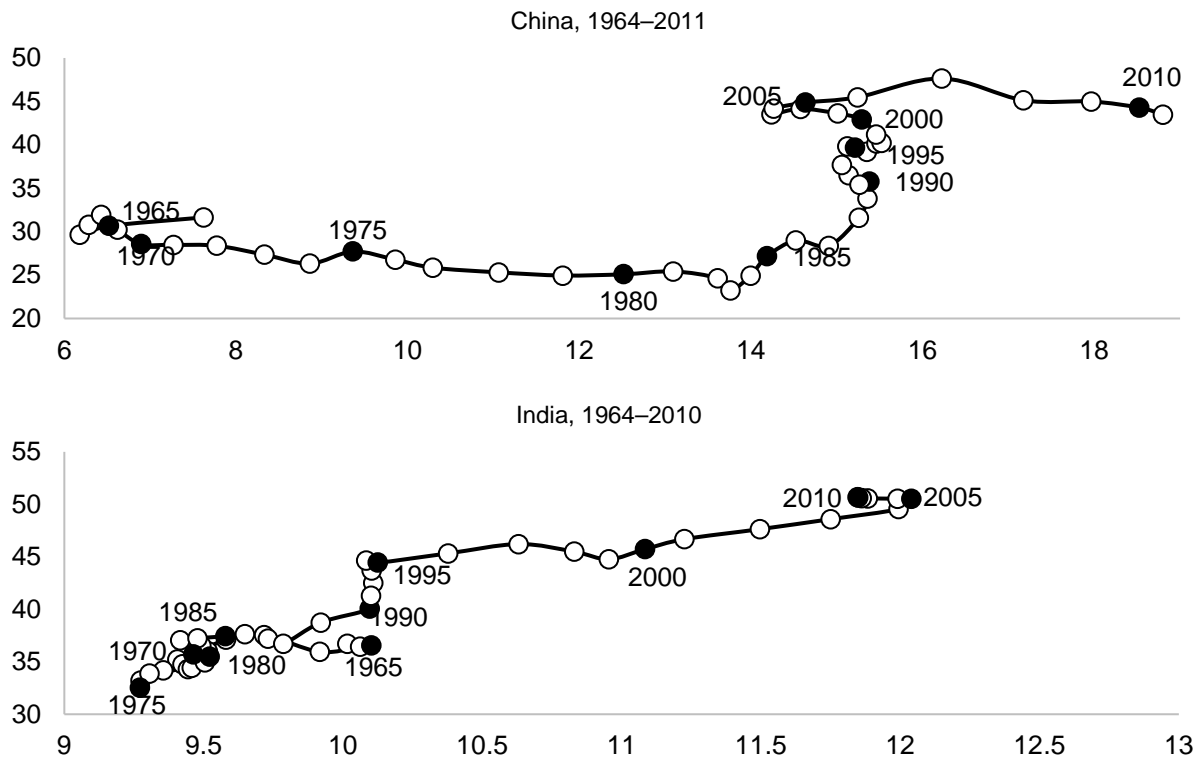
We can summarize the various iterations of the structural transformation–inequality relationship or the Kuznetsian tension in a 2 x 2 matrix (see Figure 9), where the trend in income inequality is on the vertical side (i.e. stable or declining inequality) and the strength of growth-enhancing structural transformation (i.e. weak or strong) is on the horizontal. This produces four quadrants as follows:

- Weak growth-enhancing structural transformation with increasing inequality (top-left quadrant in Figure 9)
- Weak growth-enhancing-structural transformation with stable or declining inequality (bottom-left quadrant)
- Strong growth-enhancing structural transformation with increasing inequality (top-right quadrant)
- Strong growth-enhancing structural transformation with stable or declining inequality (bottom-right quadrant).

Each quadrant tells a different story about the structural transformation–inequality relationship or the Kuznetsian tension, and these can be mapped to the regional experiences noted above (with potential for movements over time between quadrants). For example, we can say India and China have experienced a strong Kuznets tension as inequality has risen with strong growth-enhancing structural transformation. We can say developing East Asia (excluding China) has experienced a weak and benign Kuznets tension as it has experienced stable inequality with strong growth-enhancing structural transformation. In contrast, both Latin America and sub-Saharan Africa have experienced an ambiguous Kuznetsian tension in that inequality has been stable but growth-enhancing structural transformation has been weak. Finally, we can say that high-income East Asia fits in the weak and adverse Kuznetsian tension quadrant of rising inequality accompanied by weak growth-enhancing structural transformation. This quadrant could even be thought of as a ‘anti-Kuznetsian’ tension at high income (as mentioned earlier).

Figure 7: Gross income Gini (y-axis) and manufacturing employment share (x-axis)

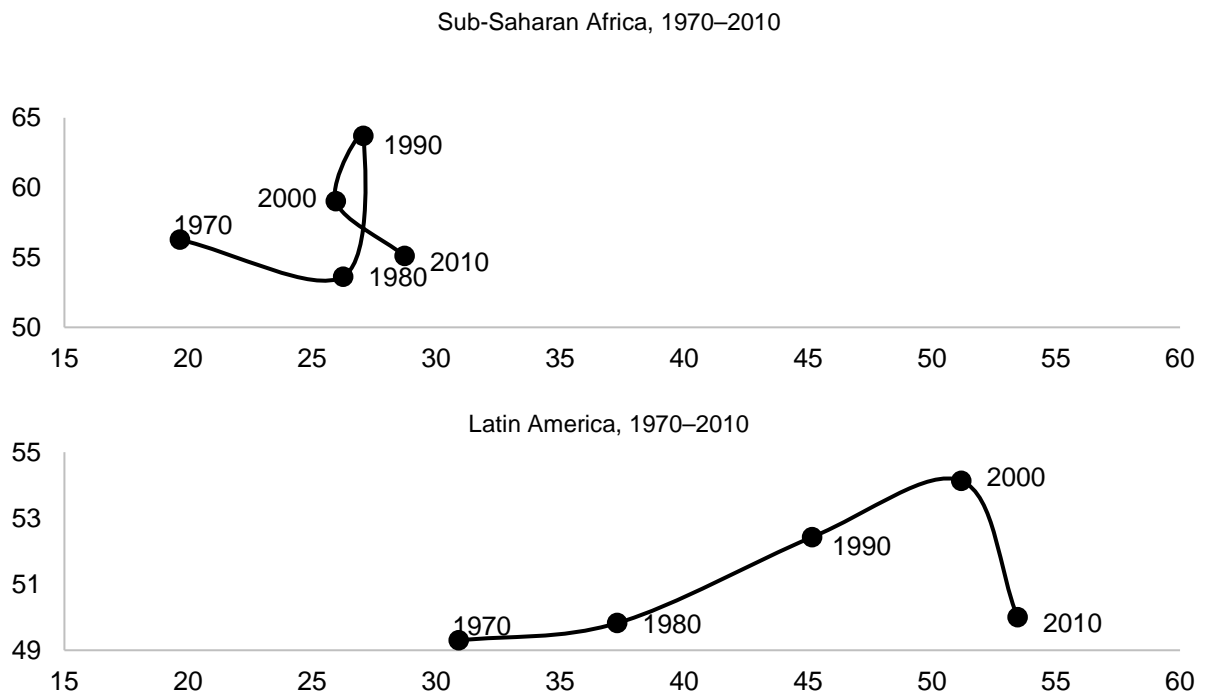


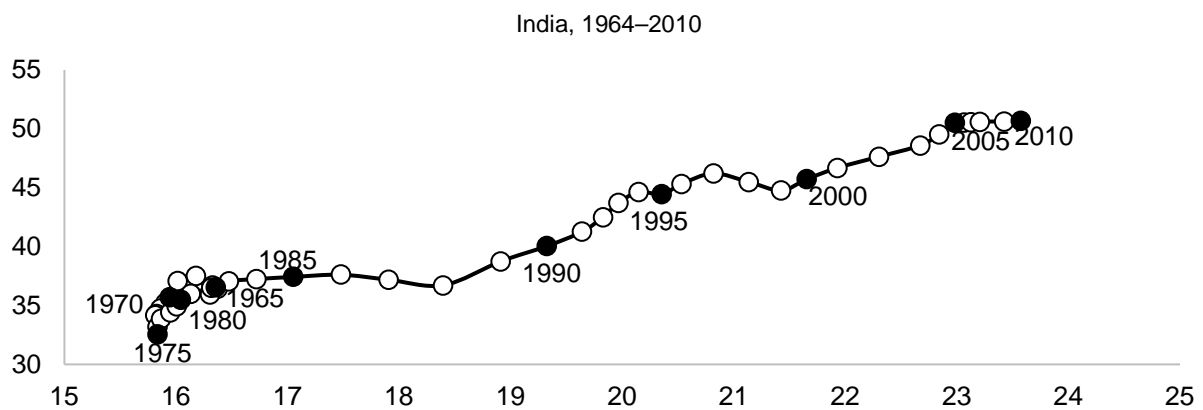
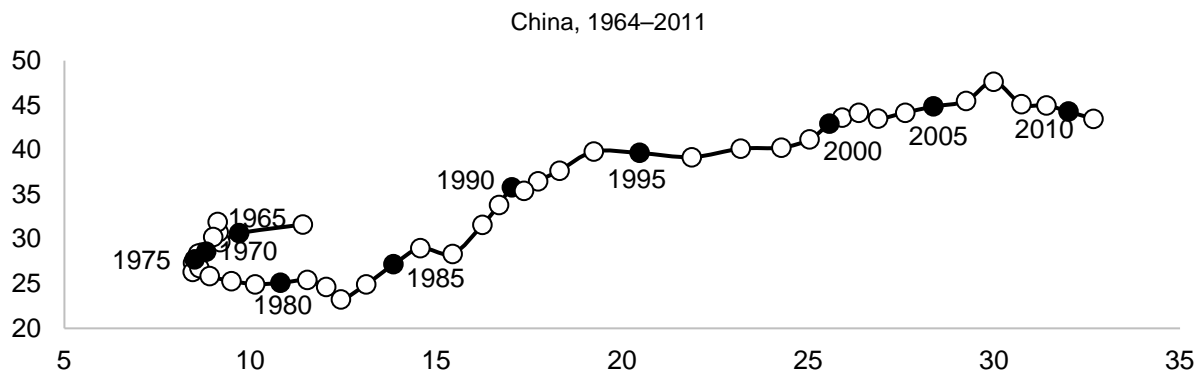
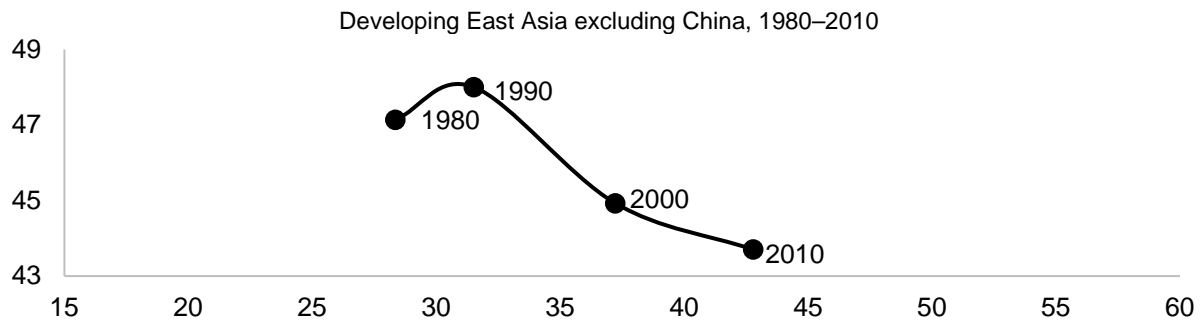


Notes: (i) The Gini coefficients are simple averages. If data were missing for specific years, the data for the closest year were used. (ii) Employment shares are five-year moving averages.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015) and UNU-WIDER's World Income Inequality Database (WIID).

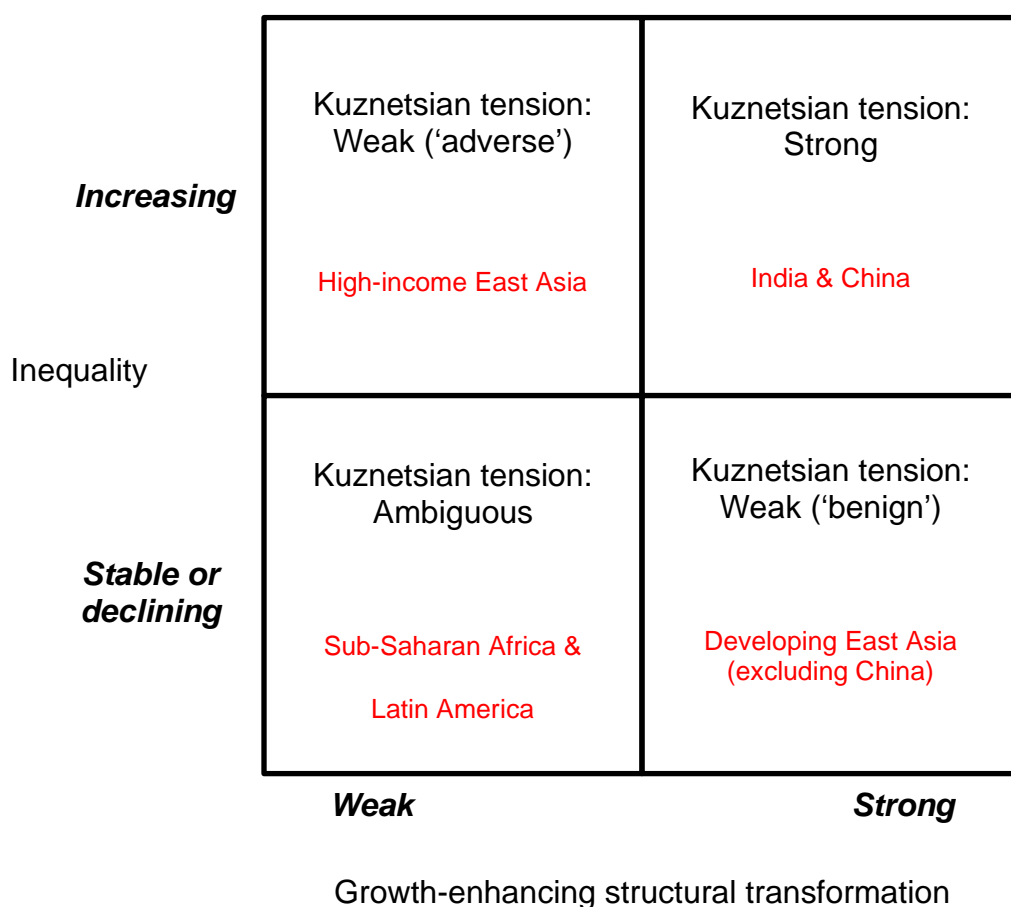
Figure 8: Gross income Gini (y-axis) and non-business services employment share (x-axis)





Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015) and WIID (UNU-WIDER).

Figure 9: The Kuznetsian tension: inequality trend vs growth-enhancing structural transformation



Source: authors' illustration.

## 5 Conclusion

In this paper, we discuss the 'developer's dilemma' and the Kuznetsian tension between structural transformation and income inequality. We revisited the seminal paper of Kuznets (1955), noting that Kuznets provided a wider conceptual framework on understanding the relationship between structural transformation and inequality dynamics than has often been acknowledged in the literature.

We then analysed the empirical patterns of structural transformation in high-income East Asia, Latin America, developing East Asia (excluding China), China, India, and sub-Saharan Africa. We find that there is significant heterogeneity in the experiences of the four regions with respect to structural transformation. We propose a 'varieties of structural transformation' typology to capture this heterogeneity.

Considering the trends of sectoral value-added and employment shares and relative productivity, we categorized six regions into three groups: 'struggling' (sub-Saharan Africa), 'catching-up' (developing East Asia, China, India), and 'mature' (high-income East Asia, Latin America) transformers. While there were important similarities between regions within the same group, there

were also some differences that explain the gap in the overall economic performance. More specifically, we find that all regions with the exception of sub-Saharan Africa witnessed a large decline in agricultural employment share (and in the case of India, agricultural value added as well) in the 1980–2010 period. With respect to manufacturing, China experienced an increase in employment and value-added shares, while in the case of India, manufacturing employment share increased; however, manufacturing value-added share declined from the late 1990s, after an initial increase. Developing East Asia’s manufacturing value-added and employment shares expanded rapidly during the 1980s but stalled over the recent decade. Latin America and sub-Saharan Africa experienced de-industrialization for a long period between 1980 and 2010. With respect to services, there was a significant increase in employment shares in high-income East Asia and Latin America, with the services value-added shares already high by the 1980s. Despite this similarity of two regions, a large productivity growth gap appeared because high-productivity business services played a more important role in the employment structural transformation of high-income East Asia. Developing East Asia and China experienced a notable increase in both the non-business services value-added and employment shares. In comparison, India and sub-Saharan Africa saw a more gradual increase in the non-business services employment share. The business services share expanded significantly in developing East Asia, China, and India in terms of value added but not in terms of employment.

Finally, we considered the inequality dynamics of structural transformation noting different types of Kuznetsian tensions in each region. We developed a matrix of the possible iterations of the structural transformation–inequality relationship or the Kuznetsian tension based on the trend in income inequality and the strength of growth-enhancing structural transformation.

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