

Series 1

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# STRUCTURAL TRANSFORMATION IN DEVELOPING COUNTRIES: CROSS REGIONAL ANALYSIS

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## **Structural transformation in developing countries: Cross regional analysis**

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## Introduction

Structural transformation is defined as the transition of an economy from low productivity and labour-intensive economic activities to higher productivity and skill intensive activities. The driving force behind structural transformation is the change of productivity in the modern sector, which is dominated by manufacturing and services. It is also characterized by the movement of the workforce from labour-intensive activities to skill-intensive ones. The movement of labour is severely affected by the existence of opportunities in skill-intensive sectors because, even if these opportunities exist, labour might only move to a new sector if it is properly trained to be absorbed by the sector. The existing labour force would therefore require requisite training before moving to the new sector.

Another scenario could be that the existing skill of labour force was used inefficiently. The labour force was already trained for skill-intensive activities but was engaged in sectors where their skill was not fully utilised. Given the opportunities in the new sector, the labour force would move without any additional training. This scenario may be considered a case of inappropriate allocation of human resources. In both cases, the productivity of labour force would change and result in changes to the structure of the economy.

**The growth and development of a modern sector depends on both the institutional environment and availability of appropriate human resources. The relationship between them is bidirectional and mutually re-enforcing. The growth of the modern sector would result in structural change.**

One aspect of structural change is labour and the other is the opportunities in a modern sector. The new opportunities are created by industrial policies

of a nation. The growth and development of a modern sector depends on both the institutional environment and availability of appropriate human resources. The relationship between them is bidirectional and mutually re-enforcing. The growth of the modern sector would result in structural change. Hence, it can be argued that the causal relationship between labour productivity and structural transformation is bidirectional and is quantifiable. As mentioned earlier, industrial policies also play an important role in structural change. The relationship between institutional environment and structural change is not quantifiable though it can be identified by content analysis.

It is clear from the above discussion that an analysis of changes in productivity is of utmost importance to understand the causes of structural transformation. Although total factor productivity might be a better instrument to analyse structural change, analysis in this study would be based on single-factor productivity (labour) due to lack of data on other factors. The Groningen Growth and Development Centre of Groningen University maintains a sector-wide database on gross value added in national currency and total employment for selected countries. This study intends to use the same data and a ratio of value added to total employment in a particular sector as a measure of labour productivity. Subsequently, labour productivity would be decomposed into two components, namely change in productivity due to structural change and intra-sectoral productivity growth. Such analysis would help in quantifying the association between labour productivity and structural transformation.

Empirical evidence also suggests that structural change can take place without much change in labour productivity. The pattern of structural change observed in many African countries is a case in point. In that scenario, changes in economic structure are driven largely by the export of natural resource-based products. A study by Vries et. al. (2013) analysed structural transformation in 11 Sub-Saharan African

countries and its implications for productivity growth during the past 50 years. They found that the expansion of manufacturing activities during the early post-independence period led to a growth-enhancing reallocation of resources but the process of structural change was stalled in the mid-1970s and 1980s. However, when growth rebounded in the 1990s, workers mainly relocated to services industries rather than manufacturing. This study analyses the reasons for stagnant or declining productivity in “modern” sectors on “the” African” continent.

### Structural Change and Urbanization Dynamics

Urbanization is one of the most significant global trends in the 21st Century. More than 50 per cent of the world population now lives in urban areas, while about 5 billion people or 60 per cent of the world’s population will live in urban areas by 2030. Approximately 90 per cent of the world’s urban population growth between now and 2030 will take place in developing countries. Hence, cities are the focus of significant global challenges.

Urbanization is known to be a vehicle for national economic and social transformation. Planned urbanization is expected to bring about rapid economic progress and prosperity, with industrialization as its end result. Therefore, planned urbanization will lead to higher productivity and, eventually, rising living standards and better quality of life. Cities are known to be centres of change and innovation, mainly because the concentration of people, resources and activities are expected to favour innovation.

However, research has shown that there are a number of countries that are highly urbanized without having seen a large shift of economic activity towards manufacturing and services. These countries, as will be discussed later, in this study were identified to be natural resource exporters and do not conform to the standard model of urbanization (Gollin, Jedwab and Vallarta, 2013). For example, in 2010, Asia and sub-Saharan Africa were both at the same level of urbanization; the former has the fastest-growing nations in South Korea and China, while the latter has seen



Rapid urbanization. © UN Photo/Kibae Park



The University of Namibia in Windhoek. Campus, lecture hall and the general information Centre, library and computer banks.  
© World Bank/John Hogg

little growth in income per capita over the years. Generally, in developing countries urbanization has taken place in cities of all sizes.

Across regions, the distribution of city size is quite similar. For instance, in 2010, there were 257 Asian and 60 African mega cities with more than 750,000 inhabitants.<sup>1</sup> Asia and Africa have approximately the same number of mega cities per capita, which represent around 40 per cent of the population in both continents. Asia is an example of the standard story of urbanization with structural transformation. The successful Asian economies typically went through both Green Revolution and Industrial Revolution, with urbanization following along as economic activity shifted away from agricultural activities. In contrast, Africa offers a perfect example of urbanization without structural transformation. This is because there has been little evidence of a Green Revolution in Africa. Its food yields have remained low. Also, there has been no Industrial

Revolution in Africa. Manufacturing and services were 10 per cent and 26 per cent for Africa but 24 per cent and 35 per cent for Asia, and African labour productivity was 1.7 and 3.5 times lower in industry and services, respectively.

### Urbanization and Employment

Employment creation and structural economic transformation are amongst the two major challenges at the forefront of current African growth and development strategies. At the micro level, employment creation provides opportunities for earnings and underpins increases in household expenditures and secure livelihoods. At the macro level, development occurs through the reallocation of labour toward sectors with the greatest growth potential and the highest productivity. Jobs also facilitate social (such as female wage employment) and political (seeking identity) transformations. However, it is not easy to achieve sustained employment generation.<sup>2</sup>

<sup>1</sup> Gollin, Jedwab and Vallarta, 2013

<sup>2</sup> World Development Report, 2013

African economies today are facing the formidable challenge of creating more and better jobs, not just by sustaining the pace of growth but by making it more inclusive. Emerging economies, such as Brazil, China and India have been more successful than most African countries in this respect, achieving impressive reductions in poverty for more than two decades.

African countries will achieve high and sustained economic growth rates, alongside improved levels of social development, only if productivity changes are based on widespread economic diversification.<sup>3</sup> The achievement of development goals and higher living standards will therefore depend on the ability of countries to foster entrepreneurship and promote innovation, including the spread, adaptation and adoption of pre-existing know-how and techniques, services, processes and ways of working. Unfortunately, much of the economic growth in low-income countries over the last decade has not led to structural changes.

### Poverty and Urbanization

About 70 per cent of the total population in large metropolises live in slum communities. Research revealed that there is a negative correlation between informal employment and GDP per capita; informal growth tends to be growth-reducing in developing countries. Thus, informal workers tend to be less well-off than those who work and live in more formal settings. The formation of cities in developing countries is taking the shape of informality, illegality and slums. Urban inequality has grown due to differentiated wealth concentration in cities. For example, in Africa, statistics show that about 81.7 per cent of Africans live on less than USD 4 per day, with 60.8 per cent falling below the USD 2 per day mark. There is

also the problem of high costs of informal services provision and the absence of a social safety net.

African economies today are facing the formidable challenge of creating more and better jobs, not just by sustaining the pace of growth but by making it more inclusive. Emerging economies, such as Brazil, China and India have been more successful than most African countries in this respect, achieving impressive reductions in poverty for more than two decades. How are they different from Africa? One answer is that they have undergone a more rapid structural transformation; that is, the process by which new, more productive activities arise and resources move from traditional activities to newer ones. A higher proportion of labour thus moved from low-productivity to high-productivity sectors.<sup>4</sup> The countries that manage to pull out of poverty and get richer are those that are able to diversify away from agriculture and other traditional products. As labour and other resources move from agriculture into modern economic activities, overall productivity rises and incomes expand. The speed with which this structural transformation takes place is the key factor that differentiates successful countries from unsuccessful ones.

In Latin America in 1950, about 40 per cent of the population lived in the urban centres; by 1990, it was up to 70 per cent. Today, an estimated 80 per cent of the region's population live in cities, making Latin America the world's most urbanized region. In comparison, the European Union is 74 per cent urbanised while the figure is 50 per cent in the East Asia and Pacific region. By 2050, UN-Habitat predicts Latin America's cities will include 90 per cent of the region's population. This growth came at a cost; it was "traumatic and at times violent because of its speed, marked by the deterioration of the environment and above all, by a deep social inequality".<sup>5</sup> By 2050, 90 per cent of Latin America's population will be in towns and cities while Brazil and the Southern Cone may reach

3 UNECA, 2011

4 African Economic Outlook, 2013

5 UN-Habitat, 2012; 2014

this level by 2020. Inequality and violence are the main problems cited. Latin American cities are the most unequal and often most dangerous places in the world, with social divisions hardwired into the urban fabric. Some 111 million Latin Americans out of a total of 588 million live in shanty towns. Improving such dwellings and their surroundings has contributed to their stability, all the more necessary given the considerable housing shortage.

Despite efforts in the past ten years to redistribute wealth, 122 million city residents still live in poverty. The informal economy, with the associated lack of welfare coverage, hits young people and women particularly hard. As of 2014, 260 million people live in the region's 198 large cities (populations of more than 200,000 people) and generate 60 per cent of Latin America's GDP.<sup>6</sup> This is more than 1.5 times the contribution expected from large cities in Western Europe. Brazil and Mexico, the region's urban leaders, are home to 81 of the region's large cities. These two countries are projected to contribute 35 per cent of Latin America's overall growth by 2025. By 2025, 315 million people will live in Latin America's large cities where the per-capita GDP is estimated to reach USD 23,000—more than that of Portugal in 2007.

Growing cities will have to revamp public infrastructure expenditure to increase citizens' living standards but these transformations also offer a unique opportunity for city leaders to shape an emerging global dialogue on urban development. Latin America's working-age population is projected to expand until it peaks in the 2040s at around 470 million potential workers. These young, urban workers are critical for creating wealth and raising regional living standards but policies must be in place to provide access to quality education and opportunities to enter the formal workforce through channels that maximize their know-how and ability to unleash new generators of economic development.

While structural change can be defined as an alteration in the relative importance of economic sectors, the interrelated processes of structural change that accompany economic development are jointly referred to as economic transformation.

### Industrialization in the Developing World: A Selected Review

In analysing the remote and current industrialization challenges in the developing world, the section that follows provides a selected review of what the academic literature tells us about the Asian, Latin American and African industrial conditions. Attempts at industrialization by all regions of the world harks back to the success first of Great Britain, followed by Western Europe and thereafter North America during the 19th and early 20th Centuries (Oyelaran-Oyeyinka, 2014). The literature on the experiences of these countries seems to agree that, although the early-industrializing countries started out at different stages of growth, they followed a more or less similar format of change that led to their transformation. Marked by the shift from a subsistence/agrarian economy towards more industrialized/mechanized modes of production, hallmarks of industrialisation include technological advance, widespread investments into industrial infrastructure and a dynamic movement of labour from agriculture into manufacturing (Romer, "1952;" Lewis, "1978;" Rapley, "1987;" Todaro, "1989).

Agreement exists on the fact that a dynamic process of industrialization is fundamental to overall economic development of countries, given that it promotes growth-enhancing structural change, which is the gradual movement of labour and other resources from agriculture to manufacturing, as accompanied by productivity increases. Manufacturing is construed as critical in most such expositions because of the empirical correlation between the degree of industrialization and the per capita income in countries (Szirmai, 2012). Given that productivity

<sup>6</sup> McKinsey Global Institute, 2011

is higher in the case of manufacturing than agriculture, transfer of resources into manufacturing should normally provide a basis for higher rates of productivity-induced growth structures.

## Nature and Sources of Structural Transformation

### *The Convergence of Urbanization and Structural Change*

Structural transformation is defined as the shift of an economy's structure from low-productivity, labour-intensive activities to higher productivity, capital and skill intensive activities.<sup>7</sup> It is a long-term shift in the fundamental institutions of an economy and this explain the pathways of economic growth and development.<sup>8</sup> In technical terms, four essential and interrelated processes define structural transformation in any economy: a declining share of agriculture in GDP and employment; rural-to-urban migration underpinned by rural and urban development; the rise of a modern industrial and service economy and a demographic transition from high rates of births and deaths (common in underdeveloped and rural areas) to low rates of births and deaths - associated with better health standards in developed and urban areas (Oyeleran-Oyeyinka, 2015; Timmer, 2012; Africa Focus Bulletin, 2013). In summary, it can be defined as the reallocation of economic activity across three broad sectors (agriculture, manufacturing and services) that accompany the process of modern economic growth (Herrendorf, Rogerson and Valentinyi, 2013).

### Why Structural Transformation?

Structural transformation is essential as not only a source of higher productivity growth and rising per capita income, but also a mechanism that helps to achieve greater diversity of the economic structure, which creates a country's resilience to vulnerability to poverty and external shocks (UNIDO, 2012). Structural transformation is underpinned in large part by institutions and policies that promote the development, adoption and use of technologies to change what an economy produces and how it does

so. Specialization, productivity and growth trigger processes of agglomeration, further specialization and technological advances.

The rise of new economic powers has generally been driven by the rapid structural transformation of their economies featured by the shift from primary production, such as mining and agriculture to manufacturing; and, in manufacturing, from natural-resource-based- to more sophisticated, skill- and technology-intensive activities. With urbanization, labour-intensive manufacturing activities grow faster than primary activities, generating new jobs, income and demand. Capital accumulation leads to a more sophisticated manufacturing structure and the economy gradually moves to skill- and technology-intensive sectors (UNIDO 2010).

While structural change can be defined as an alteration in the relative importance of economic sectors, the interrelated processes of structural change that accompany economic development are jointly referred to as economic transformation. These transformation patterns can be observed in newly industrializing countries in Asia and Latin America, yet also relate to the experiences of European countries during the 19th and early 20th Centuries. During the transformation period the economic structure changes significantly, while industrialization triggers a rapid increase in the share of manufacturing in the economy and a concomitant decline in agriculture's share.

Furthermore, the share of the total labour force employed in the agricultural sector falls, while that of other economic sectors rises. However, that does not imply an absolute decline in the number of labourers employed in the agricultural sector, as the share of agricultural employment in the total labour force could decline relatively slowly compared with the drop in the agricultural sector's GDP share in the economy. Within this process, the centre of the country's economy shifts from rural areas to cities, and the degree of urbanization significantly increases (Stern et al. 2005).

<sup>7</sup> United Nations Industrial Development Organization – UNIDO, 2012

<sup>8</sup> Etchemendy 2009; McMillan, Rodrik and Verduzco-Gallo, 2013



Therefore, transformation involves the modernization of a country's economy, society and institutions. Economic transformation has fundamental impacts on human life and sociologists emphasize the important role of changing values, norms, beliefs and customs in the transformation from a traditional to a modern society. Kuznets describes the necessary adjustments in society and institutions during transformation as a "controlled revolution" (Kuznets 1973: p. 252). Shifts in production structure lead to changes in incentive structures, educational requirements and the relative positions of different groups in the society. Urbanization leads to shifts in family formation, gender relations and personal status. Changes in transport and communication services open up less favoured areas and connect factor and commodity markets. The management of these fundamental changes requires legal and institutional innovations in which the state and other institutions play key roles (Breisinger and Diao, 2008).

By definition, rich countries produce more output per worker than poor countries. But they also produce different, presumably more challenging, products. Therefore, the process of development involves moving from simple poor-country goods to more complex rich-country goods. This process is often called structural transformation. Part of this transformation is related to changing factor endowments as physical, human and institutional capital is accumulated (Hausmann and Klinger, 2006; Rodrik, 2012).

According to Rodrik (2013), two traditions exist side-by-side within growth economics. The first has its origin in development economics and it is based on the dual economy approach which was initially developed by Lewis (1954) and Ranis and Fei (1961). The second tradition has its origin in macroeconomics and stems from the neoclassical growth model of Solow (1956).

The first tradition (dual economy) draws a sharp distinction between the traditional and modern sectors of the economy, typically characterized

as agriculture and industry, respectively. The neoclassical model (second tradition) differs in its view and presumes that different types of economic activity are structurally similar enough to be aggregated into a single representative sector. Dual economy models are built on structural heterogeneity. They assume there are different economic logics at work in traditional and modern parts of the economy so these two cannot be lumped together. Accumulation, innovation and productivity growth all take place in the modern sector – often in unexplained ways – while the traditional sector remains technologically backward and stagnant. Economy-wide growth therefore depends in large part on the rate at which resources – principally labour – can migrate from the traditional to the modern sectors. In neoclassical models, by contrast, growth depends on the incentives to save and accumulate physical and human capital, and in subsequent variants that endogenize technological change, innovate by developing new products and processes (Rodrik, 2013).

In large part, most countries have been able to sustain a rapid transition out of poverty because of increase in productivity in its agricultural sector. This process points to successful structural transformation, where agriculture through higher productivity provides food, labour and even savings to the process of urbanization and industrialization. Clearly, a vibrant agriculture raises labour productivity in the rural economy, pulls up wages and gradually eliminates the worst dimensions of absolute poverty. However, the process lead to a gradual decline in the relative importance of agriculture to the overall economy, as the industrial and service sectors grow even more rapidly, partly through stimulus from a modernizing agriculture and migration of rural workers to urban jobs.<sup>9</sup>

In developed industrial economies, structural transformation proceeds in such a way that agriculture as an economic activity has no

<sup>9</sup> Timmer, 2007; Timmer and Akkus, 2008



Vegetable market in Bangkok street, Thailand. © Shutterstock/Rasti Sedlak

distinguishing characteristics from other sectors, at least in terms of the productivity of labour and capital.<sup>10</sup> Furthermore, the gap in labour productivity between agricultural and non-agricultural workers approaches zero when incomes are high enough and the two sectors have been integrated by well-functioning labour and capital markets.

Increase in productivity of an economy will help to achieve and sustain higher standards of living. The processes required to achieve this includes utilization of improved technologies, investment in higher educational and skill levels for the labour force, lower transactions costs to connect and integrate economic activities and more efficient allocation of resources. The process of implementing these mechanisms over time leads to economic development. When successful, and sustained for decades, it leads to the structural transformation of that economy (Timmer, 2007; Timmer and Akkus, 2008).

Structural transformation divides the economy into sectors such as rural versus urban, agricultural versus industry and services—for the purpose of understanding how to raise productivity levels. Unless the non-agricultural economy is growing, there is little long-run hope for agriculture. At the same time, the historical record is clear on the important role that agriculture itself plays in stimulating the non-agricultural economy.<sup>11</sup>

### Structural Change by Region

Studies have established that countries and regions vary in their structural transformation experiences.<sup>12</sup> A recent cross-sectional study on sampled advanced economies, emerging market economies and low-income countries, indicate that country fundamentals explain a significant proportion of the cross-sectional variation in the real value added shares of each sector.<sup>13</sup> They found that natural resource dominance was associated with lower structural change while

<sup>11</sup> Timmer, 2007

<sup>12</sup> McMillan, 2012; Timmer, 2012; Rodrik, 2012

<sup>13</sup> Dabla-Norris, Thomas, Garcia-Verdu and Chen, 2013

<sup>10</sup> Timmer and Akkus, 2008

there are large and systematic differences in the gap between actual and predicted shares within countries, groups and regions. Hence, sectoral shifts are not mechanical processes; their speed and extent reflect the willingness and ability of labour and capital to move toward higher-productivity sectors, all of which are strongly influenced by the policy and institutional environment.

Therefore, this section presents a literature review on structural transformation experiences of the countries and regions of interest to this study. Furthermore, the comparative perspectives of their experiences are identified and discussed.

### 1.3.1 Africa

In Africa, structural transformation will materialize only when there is a concomitant investment in skill development, particularly in areas that have kept the continent behind other developing regions. In this regard, Africa needs to harness its natural resources to build skills for its youthful population in order to achieve its development objectives and secure a place in the global value chain. Developing skills has a lot of benefits. It will unleash the dynamism of Africa's untapped entrepreneurship potential, creating opportunities for increased job and wealth creation. An enlightened population is important to Africa's global engagement in trade and commerce. Structural transformation also presupposes a transformed relationship between state and citizens. Except for the brief period in many African countries following de-colonization, the experience of political governance has been largely negative, fraught with corruption and nepotism, human rights violations, military or one-party dictatorships and poor stewardship of the economy (African Focus Bulletin, 2013; Timmer, 2012).

African countries have been growing at a relatively fast rate since the beginning of the new millennium, which in turn has led to improvements in several areas such as trade, mobilization of government revenue, infrastructure development and the provision of social services. Within the period 2001-2008, Africa became one of the

fastest-growing regions in the world economy, and this increase in growth performance has been widespread across countries (African Economic Outlook, 2013).

Historically, many Sub-Saharan countries adopted a package of policies aimed at either stimulation of economic growth or stabilization and adjustment in return for multilateral and bilateral loans. During the two decades of Structural Adjustment Policies in Africa, several studies raised questions related to the appropriateness and efficacy of measures such as trade liberalisation and their lasting impact on the African industrial development (Stein, 1992; Stewart et al., 1992; Lall, 1995). On the contrary to the poor industrial performance in African countries, we do know that economic growth, driven by various industrial development strategies, has been considerable in several developing countries over the past decades. The Asian Tigers, namely, Taiwan, Hong Kong, South Korea and Singapore, as well as China, have set considerable standards of dynamic growth, showing that catching up with the traditionally viewed industrial leaders is possible.<sup>14</sup> Other Newly Industrializing Economies (NIEs) such as Indonesia, Malaysia, Thailand and the Philippines (to a lesser degree) have also emerged as "a second-generation of Asian Tigers".<sup>15</sup>

We will now summarize the state of African industry. These economies are dominated by low-productivity agriculture and petty service activities. However, there is a clear rise of certain consumer-based industrial activities and services, albeit at the expense of manufacturing. Others include mining, the exploitation of crude oil and services which are, however, limited to petty trading and basic commercial ones.

Second, the share of manufacturing value-added in total GDP in Africa has been, on average, low. Examples of these are Sierra Leone, Nigeria, Mali, Djibouti, Rwanda and Ethiopia. In Nigeria, between

<sup>14</sup> Amsden, 1989; Bei, 2011; Stiglitz, 1996; Vogel, 1991; Wade, 2004; World Bank, 1993

<sup>15</sup> OECD, 2013, p. 21

1990-1994, the share of manufacturing value-added (MVA) in total GDP fluctuated between 5 per cent and 7 per cent while, between 2000-2004, it declined and it fluctuated between 4 per cent and 3 per cent.<sup>16</sup> Examples of countries that experienced decline in the share of MVA in total GDP within the period of 1990-1994 and 2000-2004 were South Africa, Mauritius, Cameroon, Zambia, Zimbabwe, Cote d'Ivoire and Kenya. South Africa recorded 24 per cent MVA in 1990 and 19 per cent in 2004, while Zambia reported 36 per cent MVA in 1990 but declined to 11 per cent in 2004 and Kenya reported 12 per cent in 1990, but dropped to 11 per cent in 2004. Botswana, Ghana, Burundi, Rwanda, South Africa and Tanzania experienced a stagnant share of 6, 10, 12, 7, 19 and 9 per cent MVA in total GDP between 2000-2004 respectively (World Bank, 2015). Countries such as Ethiopia, Kenya, South Africa, Swaziland, Madagascar, Lesotho and Mauritius had an increase in the relative share of manufactures in total value-added. This has generally been associated with the expansion of garments exports based on special preferences associated with the now-expired Agreement on Textiles and Clothing (African Union, 2010; Chemengich, 2010).

Third, primary commodity exports accounted for approximately 14 per cent of Africa's merchandise exports during the period 2002-2012. During this period, the region's total merchandise exports (in value terms) grew at an average annual rate of 14 per cent, rising from USD 100 billion to USD 400 billion. Much of this impressive performance was driven by the region's natural resources, underpinned by the commodity price boom of 2003-08. Oil, metal, and other mineral exports increased from USD 56 billion in 2002 to USD 288 billion in 2012, and oil exports alone accounted for over half of goods' exports in 2012. Together, these commodities have contributed more than two-thirds of the total export growth during this period. While high commodity prices have helped the region in recent years, the heavy reliance on resource-based exports also makes the region highly

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vulnerable to shocks in commodity prices, as was observed during 2009 (World Bank, 2013).

Though the region experienced notable economic growth over the last decade, the current pattern of growth is neither inclusive nor sustainable (African Economic Outlook, 2013). The reason in large part could be the dependence by African countries on natural resources as drivers of economic growth which neither provides widespread employment nor inclusive wealth creation.

Again, most of these commodities are non-renewable and are being depleted at a rapid rate, because of high consumption levels. This poses a threat to future growth and sustainability. Another reason is that the region's agricultural per capita output and productivity remains low compared to the global average. This has led to a dreadful effect on food security and social stability in the region (World Food Programme - WFP, 2010). The African Development Bank estimates that Africa's per capita agricultural output is about 56 per cent of the global average, while 30 per cent of the region's total population is estimated to have been undernourished in 2010.<sup>17</sup> The third reason is that Africa's current pattern of growth has been accompanied by deindustrialization.

<sup>16</sup> World Bank, 2015

<sup>17</sup> Food and Agriculture Organization of the United Nations (FAO), 2010; World Food Programme (WFP), 2010



Dignity factory workers producing shirts for overseas clients, in Accra, Ghana. © World Bank/Dominic Chavez

There is a continuous increase in the proportion of the African population living in urban areas. The current rate of 40 per cent of urban dwellers is projected to rise to 60 per cent by 2050. Over the years, urbanization in African cities has been driven by natural resources exports rather than by industrial or agricultural revolution.<sup>18</sup> The absolute number of workers in the agricultural sector in most African countries had continuously increased; this was the case for Nigeria where, between 1990 and 2010, the dominant sector was agriculture. This accounted for about half of all GDP across this period until 2010 when it fell to 40 per cent. Wholesale and retail trade is the next largest, accounting for just over 20 per cent of GDP. The predominance of these two industries were reflected in the shares of the labour force they employed. Manufacturing has maintained a relatively constant share of GDP, roughly 5 per cent, while finance and business services have

declined from around 10 per cent in 1996 to 7 per cent in 2009. Some of that loss is made up by the expansion of transportation and communications from only 4 per cent to more than 8 per cent in the same period.<sup>19</sup>

In Ghana between 1960 and 2006, the GDP and the employment shares of agriculture remained almost unchanged, before 1967 and after 1984. During this period, the economy contracted and the GDP and employment contributions of the industrial and service sectors decreased. Agriculture in Ghana consists of four sub-sectors: agriculture, hunting and livestock; cocoa; forestry, logging and fishing. Ghana's economic development seems to take place without industrialization, contrary to what occurred in South-East Asian countries or China today. Further, the employment share of agriculture decreased in per centage terms from 61.8 in 1960 to 54.3 in 2006 and 41.6 in 2010, while its per centage share

18 Jedwab, 2011

19 African Economic Outlook, 2013

of GDP decreased from 51.1 to 43.2 in 2006 and 43.0 in 2010 (Jedwab and Osei, 2012).

In South Africa, the drop in real GDP growth in 2014 reflected a recent downward trend with GDP growth declining from 3.2 per cent in 2011 to 2.2 in 2012 and 2.2 in 2013. Slow growth reflected continued feebleness in South Africa's main trading partners, in particular the European Union and China, as well as structural weaknesses, such as labour market rigidities, skills shortages and infrastructure gaps. The performance of the manufacturing sector was worsened by strong labour unrest; labour costs that were higher than productivity increases; a volatile rand within a 9.1 per cent band during the first three quarters of 2014 and severe energy bottlenecks.

Growth in 2015 is forecast to rebound at 2 per cent, benefiting from the gradual global economic recovery, stronger demand from emerging partners and lower oil prices. However, tighter domestic fiscal conditions, concerns over security of electricity supply, weak consumption and the future of the United States Federal Reserve's tapering policy are likely to act as a constraint on growth. Growth had a positive, though marginal, effect on job creation in 2014. In recent years, however, it has not created sufficient jobs to match the supply of low-skilled labour. The manufacturing sector, in particular, saw its share in GDP decline and capital intensity levels rise.

Unemployment, at 25 per cent in much of 2014, remains the most pressing social and economic challenge for South Africa. Youth unemployment remained extremely high at 51 per cent in that quarter, up from 50 per cent during the same period in 2013. Unemployment has a racial dimension, reflecting South Africa's unequal educational background and historical legacy, and disproportionately affects 'Black African' and 'Coloured population' groups at 29 per cent and 24 per cent respectively, compared to 'Asian/Indian' and 'White population' groups at 12 per cent and 7 per cent respectively. About 10.3 per cent of South Africa's population is considered multi-dimensionally poor (the Multidimensional Poverty

Index value was 0.04 in 2014). Food security remains a pressing issue: in 2013, 23 per cent of households did not have adequate access to food and 13 per cent experienced hunger. While the government is implementing important programmes reducing poverty and improving access to social services, high inequality levels profoundly affect social cohesion (African Economic Outlook, 2015).

In general, the share of manufacturing in Africa's GDP fell from 15 per cent in 1990 to 10 per cent in 2008. The most significant decline was observed in Western Africa, where it fell from 13 to 5 per cent over the same period. Nevertheless, there has also been substantial deindustrialization in the other sub-regions of Africa. For example, in Eastern Africa the share of manufacturing in output fell from 13 per cent in 1990 to about 10 per cent in 2008 and in Central Africa it fell from 11 to 6 per cent over the same period. Furthermore, in Northern Africa it fell from about 13 to 11 per cent and in Southern Africa it fell from 23 to 18 per cent. The declining share of manufacturing in Africa's output is of concern because historically manufacturing has been the main engine of high, rapid and sustained economic growth.<sup>20</sup>

Overall, economic transformation which is often known to be associated with the migration of labour out of rural agricultural sector into the urban industrial sector, has not been strongly experienced in the African context during most of the first five decades of their independence. Driven by urbanization and decades of neglect of agriculture, most countries in the region have seen rapid labour migration out of a stagnating agriculture sector into an informal services sector with even lower productivity levels. The contribution to overall economic productivity has therefore been negative. The industrial sector has seen zero to negative growth, leaving the entire burden of absorbing the growing labour force to the informal services sector. The latter has expanded at an extremely rapid pace to a size that is currently not justified by the level of

<sup>20</sup> UNCTAD, 2012; United Nations Industrial Development Organization (UNIDO), 2011

Overall, the sub-Saharan region can be said to have benefited from structural change which has contributed positively to Africa's overall growth accounting for nearly half of the countries.

development of African economies. The agriculture sector, on the other hand, has shrunk faster than is normal under successful transformation.<sup>21</sup> Overall, the sub-Saharan region can be said to have benefited from structural change which has contributed positively to Africa's overall growth accounting for nearly half of the countries.<sup>22</sup> Findings also show that in more than half of African countries, structural change coincided with some expansion of the manufacturing sector; the magnitudes, however, are small which would indicate that these economies may be becoming less vulnerable to commodity price shocks.

### 1.3.2 Structural Transformation in Latin America

In a study conducted by Ferreira and da Silva (2014), Latin American economies experienced a strong process of labour force reallocation with steep decreases in the participation of agriculture and an increase in the share of labour in services. The region was reported to be at the early stage of structural transformation compared with developed economies although each country is going through different phases of labour reallocation process. It is established that, for most Latin American and Sub-Saharan African countries, broad patterns of structural change have served to reduce rather than increase economic growth since 1990.<sup>23</sup>

Globalization in Latin America and sub-Saharan Africa appears not to have fostered the desirable kind of structural change. Labour has moved in the wrong direction, from more to less productive activities. This finding differs from other studies

that reported the productivity-enhancing effects of trade liberalization. Labour pull effect was reported to be relatively weak compared to the effect it had in the Asian countries, while a similar decline in agriculture was experienced in Asia and Latin American Countries.<sup>24</sup>

Latin America is far from solving its development problems and it is still struggling in concurrently tackling inequalities and achieving economic transformation. But the region has been witnessing high growth, the emergence of a new middle-class with new aspirations and demands and a renewed commitment of governments to promote science, technology and innovation as pillars of new development strategies more in line with the new global economic landscape. Like Africa, Latin America as a region varies widely with countries that differ in endowments, geography, institutions and size.<sup>25</sup>

In a sample study of 12 countries in Latin America, 10 in Asia and 12 in Africa, scholars reported differences between the paths followed by Sub-Saharan Africa, Asia and Latin America. Asia tends to be following a path that is closest to that of developed countries.

A key feature for Asian countries is high industrial output shares. African countries have low agricultural output shares and high service output shares at very low GDP per capita. Latin American countries, on the other hand, have agricultural output shares similar to those of developed countries but a key feature for these countries is that they move from the first to the second phase of structural transformation at a low GDP per capita and with low maximum industrial output shares. This led to high service output shares around the year 2000, which was the end of the period of interest of that study. Another finding of the study was the presence of structural transformation during periods of economic stagnation or decline. Many African and Latin American countries experienced periods of significant sectoral output

<sup>21</sup> Badiane, 2012

<sup>22</sup> McMillan, Rodrik and Verduzco-Gallo, 2013

<sup>23</sup> McMillan, Rodrik and Verduzco-Gallo, 2013

<sup>24</sup> Lu, 2012

<sup>25</sup> Primi, 2013



An electric train dropping and picking passengers at a terminus in Medellín, Colombia. © UN-Habitat/Julius Mwelu

changes in the wrong direction while GDP per capita was stagnant or even declining.<sup>26</sup>

Sub-Saharan African and Latin American countries were reported to have been growing since the late 1990s and are facing the challenge of sustaining this growth and reducing inequalities in the long run. Also, the two regions are both influenced by the new trends in their traditional OECD trade partners and in their emerging partners, which are redefining their development opportunities. In addition, they are both profiting from a good global momentum in which windows of opportunity for new comers seems to be more accessible due to increased diffusion of ICT, emerging global challenges such as the search for new and renewable energy sources and greener production and consumption modes, and changes in the organization of production at a global level with growing specialization opportunities.

In addition, countries in Latin America, as well as in Africa, are increasingly involved in developing new visions for their development in context of new societal demands and growing concern about equity. Most countries in the two regions have in fact suffered from a process of institutional weakening in the realm of science, technology and production in the aftermath of the structural reforms, and are now facing the challenge of design and implementing industrial policies with old or weak institutions. Since the Millennium began, Latin America has witnessed a resurgence of interest in industrial policies. Brazil has been the pioneer, with the Integrated Industrial, Technology and Trade Policy introduced in 2003 that evolved into the Production Development Policy in 2008 and in the Plano Brazil Maior in 2012. Other countries in the region have had a shier approach towards explicitly using the term industrial policy but in practice sectoral technology initiatives and governments incentives to promote domestic scientific, technological and industrial development

<sup>26</sup> Bah, 2007



have been strengthened in most countries of the region. Argentina, for example, has created its Ministry for Science, Technology and Productive Innovation in 2007, signalling the willingness of the country to shift towards a more knowledge-based growth pattern.<sup>27</sup>

Latin American countries are recognizing the importance of strengthening their production and innovation capacities. Despite the perceived risks of failure of industrial policy, there is renewed interest in the subject. The new context and the increased availability of information about countries' strategies are showing that state intervention is needed to back private sector efforts to foster development. In the past decade several emerging and developing economies re-engaged in active industrial policies in Africa, Asia and Latin America. Latin America looks today like a region in motion that is increasingly acknowledging the relevance of science, technology and innovation for development and that is, in different ways, trying to foster production transformation and upgrading through different channels. From the recent experience of the return of industrial policies in Latin America it is possible to identify some lessons for Africa

Essentially, industrial policy is back in Latin America but with different emphasis and nuances in the different countries. Brazil is the country that most openly speaks about its industrial policy, however, in the past decade most Latin American countries have reinforced government actions to strengthen domestic entrepreneurial activities and/or to promote a better inclusion in global value. This is actualized by promoting new forms of foreign direct investment (FDI) and by increasing support to science and innovation. Achieving structural transformation in Latin American countries means overcoming several barriers, which include low skills, poor infrastructure, low demand and poor financing, for example. Critics often argue that getting all these conditions right is difficult for

most developing countries. However, clarifying the objectives of structural transformation helps in revealing the barriers and in creating a demand for articulating the necessary actions. Regardless of the specific country approach, the countries of the region are additionally facing a major governance challenge to rehabilitate the planning functions in countries where these capabilities had been reduced due to the extensive application of the structural reforms packages of the 1990s.<sup>28</sup>

### 1.3.3 Structural Transformation in Asia

The benefits from, and consequences of, globalization depend on the manner in which countries integrate into the global economy. China, India and some other Asian countries have fulfilled the globalization promise with high productivity employment opportunities having expanded in these countries to enable structural change which has contributed to their overall growth.<sup>29</sup>

Asian countries have, during the same period, experienced productivity-enhancing structural change in contrast to the productivity-reducing structural change observed both in Latin America and Africa. It is, therefore, difficult to ascribe Africa's and Latin America's performance solely to globalization or other external determinants; clearly, forces were at work - particularly country-specific ones. Differential patterns of structural change account for the bulk of underperformance by Latin America and Africa in relation to Asia. In other words, Asia outshone the other two regions not so much in productivity growth within individual sectors, where performance has been broadly similar, but rather in terms of the broad pattern of inter-sectoral shifts whereby structural change contributes to, rather than detracts from, overall economic growth.<sup>30</sup>

Since the 1970s, the composition of agricultural output in developing Asia has shifted dramatically, although, with country-specific differences, the

27 Primi, 2013

28 Primi, 2013

29 McMillan et.al, 2013

30 McMillan, 2012

increase in global trade was a key driver behind these trends. The share of developing Asia in global agricultural exports has increased from 12 per cent to 17 per cent since 1970. The composition of export trade has changed, away from traditional tropical products such as coffee, cocoa, tea, sugar, spices and nuts towards products such as horticulture and seafood, as well as processed ones.<sup>31</sup>

The change in agricultural output composition occurred within a broader diversification, known as the agribusiness transition. This involved input providers such as farm equipment producers, logistics firms and other business service providers as well as agro-processors, distribution companies and retailers.<sup>32</sup> The share of agribusiness in GDP is substantially higher than that of agriculture, and the ratio of the share of agribusiness to that of primary agriculture is typically higher the greater the per capita income of the country. For example, the per centage shares of agribusiness in GDP for Indonesia and Thailand are 33 and 43 respectively; the share of agribusiness as a per centage of GDP in the Philippines is 15. Agricultural transformation thus involves a parallel development of industry (agro-processing) and services such as finance, logistics and marketing.<sup>33</sup>

Agriculture represented the largest employer in many Asian countries including Bangladesh, Cambodia, China, India, Pakistan, Papua New Guinea, Thailand, and Vietnam. Moreover, the bulk of the poor are still found in rural areas where the primary source of employment is agriculture. Thus, discussion of developing Asia's future structural transformation cannot neglect this sector. This is obvious for countries where the process of structural transformation remains shallow, such as Bhutan, Cambodia, Myanmar and Nepal (where the share of agriculture in employment remains more than 60 per cent). In the rest of developing Asia, even though the output and employment shares of agriculture have declined over time, the reduction

Latin America looks today like a region in motion that is increasingly acknowledging the relevance of science, technology and innovation for development and that is, in different ways, trying to foster production transformation and upgrading through different channels.

in the employment share lags behind that in the output share, implying relatively low levels of labour productivity in agriculture.<sup>34</sup>

The analysts predict that the region will conform to the traditional mode and that the past directions of structural transformation will likely continue over the next few decades. As per capita incomes in developing Asia continue to rise, the share of agriculture in GDP will continue to fall. The share of agriculture in total employment will also decline but at a slower pace. Only at a mature stage of development will the employment share catch up with the output share, and this will be accompanied by an acceleration of agricultural labour productivity growth, as seen in the experiences of Japan and the Republic of Korea. The pace of agricultural transformation will also be determined by other global drivers.

## Patterns of Structural Change Empirical Analysis

The following sub-sections present the analysis of value added share changes of various sectors during 1991 to 2012. The sectors included in the analysis are agriculture; mining; manufacturing; utilities; construction; trade, restaurants and hotels; transport, storage and communications and, finally, finance, insurance, real estate and business services. Value added data have been given from Groningen Growth and Development Centre (GGDC), University of Groningen, The Netherlands, for sample economies of all the three continents. Data

<sup>31</sup> Jongwanich 2009

<sup>32</sup> World Bank, 2009

<sup>33</sup> Balisacan et al., 2011

<sup>34</sup> Briones and Felipe, 2013

for Uganda and Sri Lanka are taken from World Development Indicator database as GGDC did not have data for these countries.

### Comparative Structural Change in Regional Perspective

Perhaps for the first time the study uses advanced statistical techniques to quantify structural change. In the estimation of composite score of structural change sectors namely agriculture; mining; manufacturing; utilities; construction; trade; restaurants and hotels services; transport; storage, communication services and finance; insurance; real estate and business services are included. The exceptions are Sri Lanka and Uganda where three sectors - agriculture, industry, and services - are considered. It was done due to non-availability of a breakdown of industry and services sector data.

Estimation of structural change was done in three stages. First a composite score of the share of all sectors was generated. This was done through

Factor Analysis technique, an advanced statistical tool used for variable reduction situations. After obtaining the composite score, the next step was to measure the variability of the score over a sample period. Standard deviation was used to estimate variability. In the third stage, these deviations were standardized on a 100-point scale. The structural change witnessed by sample economies on this scale are presented and discussed in the following sub-section.

In Uganda, the per centage share of agriculture declined from 52.82 in 1991 to 25.26 in 2013, which is a Compound Annual Growth Rate (CAGR) of -4.03 per cent. The share of the services sector changed from 34.82 to 53.98 per cent (CAGR of 2.32 per cent) during the same period. Such a drastic change in structure is captured by showing the highest structural change. On the other hand, agriculture's share in Tanzania witnessed a declining trend from 36.07 to 29.15 per cent from 1991 to 2011 with a CAGR of -1.36 per cent while other sectors did not experience as much.



A logistics centre in Uberlândia, Brazil. © UN-Habitat/Julius Mwelu

Nigeria experienced the second-highest structural change due to the share of mining sector, which declined from 52.61 per cent in 1991 to 28.17 in 2011 (CAGR -3.14 per cent) while agriculture increased from 24.88 to 37.69 per cent (CAGR 2.66 per cent) during the same period and attained the value of 21.25 per cent in 2011. Such a major change in shares of mining, agriculture and trade services resulted in second-highest overall change in the structure of the Nigerian economy.

Comparative analysis of structural change experienced by Asian economies shows that variability of the change is not as high as in case of African continent. Chinese and Indian economies have witnessed similar levels of structural change, which is the highest among the sample countries. The share of Chinese agriculture sector sharply declined from 30.21 per cent in 1991 to 9.14 per cent in 2010 (CAGR -5.82 per cent) while the share of the manufacturing sector has grown from 22.29 to 36.53 per cent during the same period.

On the other hand, the share of India's agriculture sector declined at the rate of 3.58 per cent from 30.58 to 15.35 per cent, while manufacturing's share remained more or less unchanged. The share of trade related services declined in China while in India the sector recorded positive growth rate of 1.70 per cent annually. Its share changed from 13.22 in 1991 to 18.87 per cent in 2012. The decline in agriculture sector and positive growth in Chinese manufacturing and trade related services in India are similar. Hence, the structural change observed in both the countries is similar.

Sri Lanka's economy experienced the similar change as that of China and India. Unlike India and China the agriculture sector recorded a positive growth rate of 1.30 per cent as its share went from 14.76 to 18.00 per cent. On the other hand, manufacturing's share drastically declined (CAGR -4.80 per cent) from 26.75 to 12.81 per cent in 2010. The services sector share changed from 47.68 to 57.76 per cent by realizing positive annual growth rate of 1.16 per cent. It is clear that

structural change in Sri Lankan economy has been similar to that of China and India.

Among the Asian economies, the Indonesian economy realized the lowest structural change. The mining sector recorded the sharpest decline (CAGR -1.98 per cent) from 16.52 to 10.07 per cent during 1991 to 2012. Although the growth of share of utilities and transport services (4.61 and 4.60 per cent respectively) is high, the magnitude is small and this has resulted in little structural change. Consequently, the structural change witnessed by Indonesian economy is lowest.

The extent of structural change observed in Latin American economies shows that Venezuela recorded the largest change. The mining sector contributed the highest share in 1991 (29.94 per cent) but declined at the rate of 0.96 per cent annually, leading to a share of 26.67 per cent in 2012. Similarly, the manufacturing sector was second-highest (20.34 per cent) in 1991 but experienced negative growth rate of 1.32 per cent. It is clear that both sectors which had contributed more than 50 per cent recorded declining trends. Hence, the structural change is high.

The Brazilian economy experienced the lowest structural change. In 1991, the share of financial services was 21.48 per cent followed by 17.45 per cent of manufacturing in the same year. The share of both sectors changed marginally (CAGR -0.45 per cent in financial services and 0.27 per cent in manufacturing). Trade services that recorded a 15.65 per cent share in 2011 recorded a CAGR of 0.53 per cent. In view of the very little change in the share of substantially contributing-sectors, the Brazilian economy can be regarded as the one with the lowest structural change.

### Analysis of African Economies

The analysis in this sub-section is based on the contribution of value added by various sectors and presented separately for each country. The figures are all in the Appendix. A

## Botswana

The share of the mining sector in Botswana made a substantial contribution to GDP (41.57 per cent) in 1991 but experienced the sharpest decline (CAGR -2.58 per cent) resulting in a mere 18.56 per cent contribution in 2010. On the other hand, three service sectors (trade, finance and transport) performed well and increased their contribution between 1991 and 2010.

The contribution of the trade sub-sector increased from 9.65 per cent to 20.56 with a CAGR of 3.46 per cent while that of finance witnessed a change from 6.79 per cent to 11.70 with a CAGR of 1.98 per cent during the same period. It is worth noting that transport service sector experienced a growth rate of 1.97 per cent but at the base year its contribution to GDP was just 2.86 per cent. The structure of other sectors by large remains unchanged. The analysis of structural change suggests that service sectors have assumed pre-eminence over the past two decades while manufacturing has remained relatively stagnant.

## Ghana

The structure of the Ghanaian economy during 1991 and 2010 reveals that, although the contribution of agriculture sector witnessed a decline (CAGR -1.07 per cent) from 35.41 in 1991 to 26.24 per cent in 2011, the decline in the manufacturing sector (CAGR -1.40 per cent) has experienced the highest decrease. The per centage contribution of the manufacturing sector declined from 11.86 in 1991 to 8.76 in 2010. On the other hand, the construction sector recorded the highest growth (CAGR 2.54 per cent) with a 9.14 per cent level of contribution in 2010. Like Botswana, contribution of all the service sectors experienced positive growth at 0.90, 0.64, and 1.19 per cent in trade, transport, and financial services respectively. We can infer from the results that, in addition to services, the construction sector made the highest contribution.

## Kenya

The structural transformation of the Kenyan economy reveals that the share of agriculture

declined at the annual rate of -0.66 per cent, resulting in a drop to 23.33 per cent in 2011 from 29.24 per cent in 1991 though the sector remained the largest contributor to value added in 2013. The share of the manufacturing sector also declined at more or less the same rate (-0.71 per cent).

On the other hand, two components of the services sector, trade and transport-related, experienced a positive growth rate of 0.91 and 2.66 per cent annually respectively. Although the share of financial sector services also grew at the rate of 1.33 per cent, its contribution to value added remained much lower than trade and transport services. Lack of opportunities and poor attention to agriculture and manufacturing could be possible reasons for the decline in their share.

## Nigeria

The structure of the Nigerian economy between 1991 and 2010 shows that the mining sector, which had had the highest contribution (52.61 per cent) to value added in 1991, experienced the sharpest decline (CAGR -3.14 per cent) and lost its position as the highest contributor to agriculture, which witnessed positive growth (CAGR 2.66 per cent).

In 2010, the contribution of agriculture was the largest at 37.69 per cent. Like several other sample countries, the service sector recorded continuous positive growth rate. The transport and trade services achieved a CAGR of 7.08 per cent and 2.54 per cent respectively while the share of financial services has been fluctuating with an overall CAGR of -0.45 per cent. It may be worth mentioning that the contribution of transport was at 2.14 per cent in 2010, which is the lowest among the services sector. Structural change of the Nigerian economy suggests that the services sector is dominant while due attention is being given to agriculture at the expense of manufacturing.

## South Africa

The structural change analysis of the South African economy is very different from other sample countries. In most of the other sample countries,

the contribution of agriculture was the highest in 2010 but in that year financial services was the highest contributing sector in South Africa with 18.42 per cent level of contribution. In the same year that the sector experienced the highest growth contribution (CAGR 4.34 per cent).

The growth of the contribution of trade and transport services has been 0.30 and 2.34 per cent with level of contribution in 2010 of 14.82 and 10.91 per cent respectively. Like the other sample countries, agriculture witnessed a negative growth rate of -1.50 per cent with level of contribution at just 2.62 per cent in 2010. Notably, the level of contribution of agriculture in South Africa had historically been much less compared to other African countries. Although the contribution of the construction sector enjoyed a positive growth rate of 1.37 per cent, its level of contribution is similar to that of agriculture with 3.68 per cent in 2010. Analysis of the structural change of the South African economy suggests that the country has been experiencing de-industrialization, with a strong rise of the service sector, for a long period.

### Tanzania

The structural transformation of the Tanzanian economy is clearly different from that of many African economies. For instance, while the share of manufacturing sector declined in South Africa, its share in Tanzania experienced a positive growth rate of 1.11 per cent. Similarly, the share of the mining sector declined sharply in South Africa, while the contribution of the sector in Tanzania witnesses a positive growth - although the magnitude of the share is not very large.

Structural transformation in Tanzania suggests that the share of the services sector did not improve much, a phenomenon very different from many developing economies. In fact, financial services declined at the rate of -1.61 per cent, resulting in a contribution of 4.73 per cent in 2011. Trade- and transport-related services witnessed a positive annual growth rate of 0.49 and 1.02 per cent respectively.

### Uganda

The analysis of Uganda should be treated as industry level rather than manufacturing. The Ugandan economy has experienced wide fluctuations in the past two decades and the overall picture is very different from other sample African countries.<sup>35</sup> The agriculture sector's contribution was the highest (52.82 per cent in 1991) among other sample countries but it declined to 25.26 per cent in 2013 with a CAGR of -4.03. The contribution of agriculture was highest among all other sectors in the economy in the base year.

The services sector, although growing, also experienced considerable upheavals as the base year contribution was 34.82 per cent - putting it into second position - but it moved up to first in 2013 at 53.98 per cent. It made a contribution of more than 55 per cent to the Ugandan economy during 2004, 2009 and 2010 at a CAGR of 2.32 per cent. Thus, it is a dominant sector of the economy. The industrial sector has the highest CAGR (of 2.55 per cent) among all the three sectors but could not contribute much as its share is lowest - just 12.36 per cent in 1991 and up to 20.76 per cent in 2013.

### Analysis of Structural Change of Asian Economies

The analysis for sample countries in Asia is presented in this section.

### China

The structural changes reveal that the agriculture sector in the Chinese economy did not contribute much due to its declining trend. In 1991, Agriculture made the largest contribution at 30.21 per cent, but slid to fourth position in 2013 at 7.64 per cent. Manufacturing (22.29 per cent in 1991) achieved first position in 2013 with 38.65 per cent. The services sector - transport (6.52 in 1991 to 8.34 in 2013), finance (7.37 in 1991 to 8.26 in 2013) and construction (6.07 in 1991 to 6.74 in 2013) showed an increasing growth trend and thus

<sup>35</sup> The data have been taken from World Development Indicator (WDI) online. This database is incompatible with GGDC as it provides data for industry as a whole and not component-wise.

contributed substantially to the economy. Also, the share of mining sector grew positively with a CAGR of 2.61 per cent. It can be inferred from the analysis that the growth of the Chinese economy has been driven by the manufacturing sector, unlike the pattern observed in African economies.

### India

The structural transformation in India shows that the services sector had had a positive impact on the economy with a CAGR of trade, transport and business services being 0.085, 0.092 and 0.115 per cent respectively and thereby suggesting that the strength of the Indian economy has grown on services sector during the past two decades.

Trade increased from 15.45 in 1991 to 22.37 in 2013, transport also experienced increased growth from 7.35 in the base year to 11.38 per cent in the concluding year and business increased from 6.27 to 14.78 per cent. Thus, business services emerged as the most dynamic among the three components of the service sector. Another sector showing positive growth trend is construction, which increased from 8.80 to 10.42 per cent with a CAGR of 0.081. The manufacturing sector in the country was in this period largely stagnant with a CAGR of 0.066 and the contribution being just about 19 per cent during the entire two decades. The agriculture sector here behaved similarly to that of China with a declining trend from 35.74 in 1991 to 17.25 per cent in 2013. The mining sector also shows a declining trend during the period from 4.49 to 2.63 per cent although with a positive CAGR of 0.044.

### Indonesia

The structural transformation of the Indonesian economy reveals that the manufacturing sector experienced high fluctuations during the sample period from 27.85 per cent in 1991 to 31.60 in 2001 but slightly declined to 28.28 per cent in 2013. Transport services performed well since it was the lowest contributor to value added in 1991 with 4.86 per cent but achieved fourth position by 2013 with 11.77 per cent as the most dynamic sector.

Among the other components of services sector, trade also showed a slight positive trend with a CAGR of 0.042 per cent (from 16.42 in base year to 19.21 per cent) while business services was almost stagnant but recording a positive CAGR of 0.033. The agriculture (from 17.79 in 1991 to 12.83 in 2013) and mining sectors (18.66 to 11.00 per cent in 2013) showed a declining trend.

### Malaysia

As experienced in other countries, manufacturing sector of the Malaysian economy grew positively but with much fluctuation and a CAGR of 0.059. In 1991, it was 26.09 per cent then shot to 31.96 in 2000 and was slightly lower in 2013 at 29.60 per cent. The trade and business services also showed promising growth. The trade services that was fourth in 1991 (15.27 per cent) jumped to second position in 2013 (19.89 per cent). The business sector followed an even better trajectory from 8.09 per cent to 18.20 per cent, thereby contributing much to the GDP and showing that Malaysia's economy grew on the strong trade and business services relative to other sectors.

There are also indications that the contribution of transport services is quite substantial at a 0.072 per cent CAGR. The growth of the sector was positive from 5.91 per cent in 1991 to 8.91 in 2013. The performance of agriculture and mining sectors showed a declining trend. Agriculture slid from 17.38 per cent in 1991 to 8.38 per cent in 2013, while mining declined from 20.76 to 9.67 during the same period.

### Philippines

Unlike other economies of Asia, structural change in the Philippines shows the manufacturing sector in a declining trend from 32.34 per cent in 1991 to 27.38 per cent in 2013 with a CAGR of 0.036. The agriculture sector recorded a declining trend as well from 18.62 to 12.75 per cent during the same period while the mining and construction sectors were almost stagnant. The services sector, however, showed a positive upward growth and contributed quite substantially to the economy.

Trade services grew from 19.38 per cent in 1991 to 22.61 in 2013 with a CAGR of 0.053 per cent. Transport services also saw an upward trend from 6.26 to 9.43 per cent and business services went from 10.73 to 14.68 per cent during the same period. From the analysis, the Philippines services sector was dominant in the country during the past two decades; a pattern similar to that of African economies.

### Sri Lanka

The case of Sri Lanka should be treated as industry-wide rather than manufacturing. Another difference for Sri Lanka is that data have been taken up to 2010 rather than 2013 due to data limitation.<sup>36</sup>

It is evident that the Sri Lankan economy relied more on the services sector than industry, which had a positive growth rate (from 14.76 per cent in 1991 to 18.00 per cent in 2010) with a CAGR of 1.16. This sector contributed quite substantially to value added. Very much like some of the African economies, the agriculture sector of this country showed a positive growth rate (CAGR of 1.30 per cent) from 14.76 per cent in base year to 18 per cent in 2010. The industrial sector, however, declined with a CAGR of -4.80 per cent.

### Thailand

The pattern of structural transformation in Thailand reveals that the agriculture sector shows a decline from 15.14 per cent in 1991 to 11.56 in 2013. The contribution of the manufacturing sector to the economy is high and grew even higher from 30.39 in 1991 to 43.13 per cent in 2013. Among the services sector, transport showed a positive upward trend (from 6.25 to 8.74 per cent during the sample period) while trade (from 29.03 to 22.89 per cent) and business services (5.05 to 3.85 percent) declined. Also, business services experienced fluctuations during the sample period with the peak 8.35 per cent in 1994.

The mining sector showed a tiny boost with a CAGR of 0.056 per cent while the construction sector experienced a decline from 8.86 per cent in 1991 to 2.76 per cent in 2013. It is, however, evident that Thailand economy did not pay much attention to construction sector.

### 1.4.4 Analysis of Latin American Economies

The analysis for sample countries in Latin America is presented in this section.

#### Argentina

We start with the structural change of Argentina, where the contribution towards value added of the manufacturing sector has been the highest of any in 2013 with 27.08 in that year. The growth of trade and transport services has also been quite high, with 18.55 and 14.20 per cent respectively. The growth of transport services has been quite exceptional from 7.35 in 1991 to 14.20 per cent in 2013. The business services did a bit for the economy with a CAGR of 0.038 and grew from 5.03 in 1991 to 7.17 in 2013.

The agriculture sector in the country witnessed negative growth, dropping from 11.19 in 1991 to 8.59 per cent in 2013. The mining sector also experienced a slight negative trend to 4.45 per cent in 2013. On the other hand, construction enjoyed a slight positive growth from 4.96 in 1991 to 5.83 per cent in 2013 and business grew from 5.03 in the base year to 7.17 per cent in 2013.

#### Bolivia

The analysis of structural change in Bolivia reveals that the business and mining sectors in this country experienced much upheaval during the sample period. The growth in mining was significant, up from 14.41 in 1991 to 17.27 per cent in 2013; it jumped from fifth position to second in 2013.

The business sector also grew from 6.72 per cent in the base year to 10.41 per cent in 2013. It showed maximum growth in 1999 at 12.80. The transport sector was similar, with growth from 15.42 per cent in the base year to 17.81 per cent in 2013. Agriculture, manufacturing and trade services

<sup>36</sup> Data taken from World Development Indicator (WDI) online. This database is incompatible with GGDC in the sense that it provides data for industry as a whole and not component-wise.



experienced a declining trend of 15.00, 17.77 and 13.42 respectively in 2013. The construction sector was almost stagnant during the sample period.

### **Brazil**

Structural transformation in Brazil, as in Argentina and Bolivia, experienced higher per centage rises towards value added growth from 22.76 in 1991 to 26.80 in 2004, although it dropped back to 22.87 in 2013. Business services achieved first position in 1991 with 28.02 but declined slightly to 22.33 in 2013.

Trade services grew from 17.47 per cent in the base year to 20.50 in 2013 thereby contributing substantially to the value added. The other sectors, namely agriculture (from 6.74 to 8.31 per cent) and mining (from 2.87 to 3.67 per cent) showed slight positive growth. The CAGR of mining (0.042) is the highest across the sectors in the sample period. However, construction and transport services in the country remained almost stagnant.

### **Colombia**

The structural behaviour of various sectors of the economy in Colombia shows that the agriculture sector contribution declined from 13.44 per cent to 9.54 per cent. The construction sector experienced much upheaval during the entire period (with a CAGR 0.024) but ended up back where it was.

Manufacturing contributed highest to the value added with a CAGR of 0.028. Among the services sector, the contribution of trade is the highest at 19.42 per cent in 1991 and 18.28 in 2013. Business services performed quite well as its contribution increased from fourth (11.68) to third (14.72) with a positive CAGR of 0.038. The mining sector contribution also witnessed high fluctuation from 9.78 per cent in 1991 to 14.08 in 1999 and then

back down to 12.03 in 2013. The contribution of construction sector remained at the bottom of the graph with a CAGR of 0.024.

### **Mexico**

The transformation in Mexico followed the broad pattern evident in other Latin American economies where the manufacturing, trade and business services have outpaced that of agriculture and construction. The contribution of manufacturing and trade services were almost the same in 1991 at around 24 per cent. Both experienced huge fluctuations and trade emerged first in 2013 with a 25.85 per cent contribution followed by manufacturing (22.10 per cent).

Business services remained third with a CAGR of 0.024 and positive growth of almost 15 per cent during the entire sample period. Agriculture and construction showed a slight decline from 5.17 to 4.06 per cent and 9.70 to 8.56 per cent respectively. The mining sector declined from 10.87 per cent in the base year to 7.74 in 2013.

### **Venezuela**

The trend of structural transformation in Venezuela has been different to other economies in the region. The major contributor to value added is the mining sector due to oil exploration with the highest contribution in 2003 at 45.05 per cent.

The manufacturing sector remained the second-highest contributor to value added despite dropping from 23.29 per cent in 1991 to 18.11 in 2013. Trade services remained third (15.20 in 1991 to 14.96 per cent in 2013) position with a CAGR of 0.022. Transport services also grew remarkably from 4.96 in 1991 to 11.33 in 2013 with the highest CAGR of 0.063. The agriculture and construction sectors were almost stagnant.

## Conclusion

### Comparative Regional Perspective

Growth-reducing structural change was observed for Latin America and African countries. Africa's economic development level is generally much lower than that of Latin America. It was expected that flow of labour from traditional to modern sectors of the economy would be an important driver of growth in Africa; instead, labour seems to have moved from a high-productivity activity, which reduced Africa's growth. In general, Africa exhibits a lot of heterogeneity but the sector with the largest relative loss in employment is formal wholesale and retail trade where productivity is higher than the economy-wide average.

We concluded that Asian countries have, during the same period, experienced productivity-enhancing structural change, in contrast to the productivity-reducing structural change observed both in Latin America and Africa. It is, therefore, difficult to ascribe Africa's and Latin America's performance solely to globalization or other external determinants. Clearly, country-specific forces have been at work as well. We noted that differential patterns of structural change account for the bulk of Latin America's as well as Africa's underperformance relative to Asia.

### Jumping Manufacturing

Comparison with other developing regions confirms the underperformance of agriculture and bloated nature of the services sector in Africa. For example, the average GDP share of agriculture in African countries is significantly smaller than that of South Asian countries with similar levels of income. It hardly exceeds the average share of agriculture in the GDP of countries in East Asia, the Middle East and North Africa, although these regions have per capita incomes that are three times higher than that of Sub-Saharan African countries. Africa also has the highest average GDP share for services among developing regions. The GDP share of the service sector in Africa is only slightly lower than the average share of Latin American countries, which have an average per

capita income that is nearly eight times higher than the African one. This imbalance in sectoral growth has delayed structural transformation and slowed productivity and income growth across Africa. There is a need for renewed industrialization strategies to sustain and broaden the recovery within and beyond the agriculture sector.<sup>37</sup>

### Rent Kills Structural Transformation

Rents from natural resources are spent on urban goods and services which are not available in the rural areas. The region needs to engage in growth paths that generate jobs on a large scale to cater for marginal labour supply. This is essential because Africa has a young and a progressive population. This region is projected to account for 29 per cent of the world's 15 to 24 year old population. Therefore, there is a need to move away from jobless growth strategies and towards inclusive growth paths that are labour-intensive and create learning opportunities for young people.

The new industrial strategies in African countries will have to address premature industrialization through technology, infrastructure and macroeconomic policies. New industrial policies would have to target enterprise creation and growth, not only in manufacturing but also in the agribusiness sector and the informal services sector.<sup>38</sup> The bulk of the difference between Asia's growth, Latin America and Africa's growth can be explained by the variation in the contribution of structural change to overall labour productivity.<sup>39</sup> While Asian countries have tended to experience productivity-enhancing structural change, both Latin America and Africa have experienced a productivity-reducing version.

<sup>37</sup> Badiane, 2012

<sup>38</sup> *Ibid*

<sup>39</sup> McMillan, Rodrik and Verduzco-Gallo, 2013

## The Missing Gap

This study identifies the pattern of shift that has taken place in each country and region in general over the period. We seek to know the contributions each sector has made to the GDP of each country by the reason of the shift.

The study will also examine the determinants of these contributions and policies that have affected activities in each sector. The study is interested in measuring the extent to which the shift has affected productivity, urbanization, poverty level and standard of living of the people. This has a direct bearing on the inclusive growth agenda, which increasingly has gained importance within the global discourse, and is currently a focus within the post-2015 debate and goal setting process. Inclusive growth demands not just high economic growth but also benefits for those in the lower income per centile; the number and quality of jobs are the key determinants and channel of achieving it.

Jobless growth constitutes a serious concern because leaving large swathes of society in the mire of unemployment is costly to economies and societies. It leads to lower growth, lower productivity and throws the economy into an inefficiency cycle. In a recent study, a strong association was established between lower levels of inequality in developing countries and sustained periods of economic growth. Developing countries with high inequality have 'succeeded' in initiating growth at high rates for a few years but 'longer' growth spells are robustly associated with more equality in the income distribution.<sup>40</sup> In other words, long run sustainability is closely connected to sustain equality. Therefore, job rich growth and structural change is fundamental to addressing inequality over the long term. Even though, other factors such as governance, state capacity and skills are contributive, low inequality is a necessary condition to achieve long-run growth.

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40 Berg and Ostry, 2011

Figure 1.1: Comparative analysis of structural change in African countries

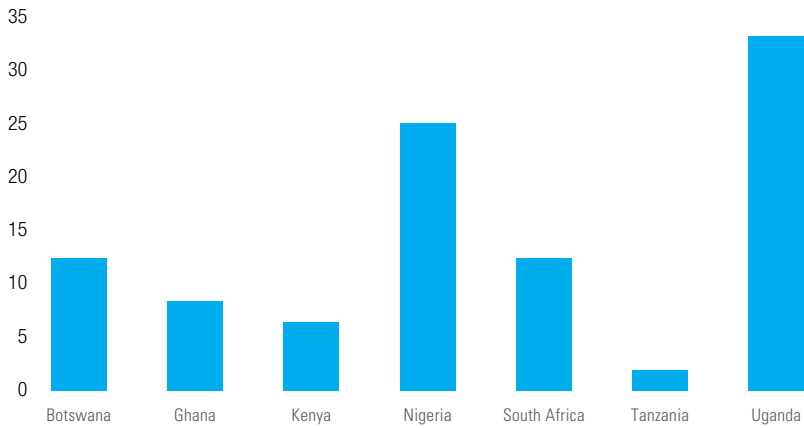


Figure 1.2: Comparative analysis of structural change in Asian countries

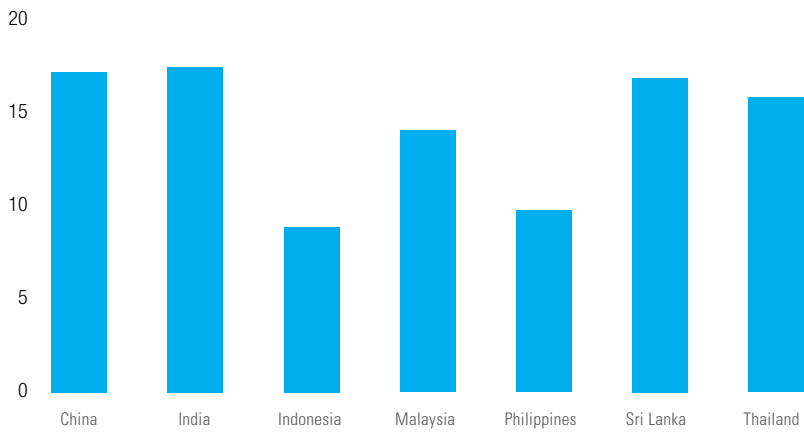


Figure 1.3: Comparative analysis of structural change in Latin American countries

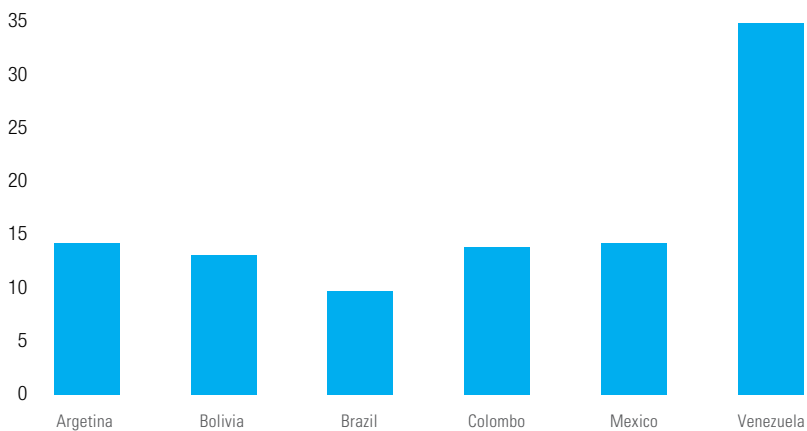


Figure 1.4: Structural change in Botswana

Source: Figure is based on GGDC Structural Transformation Data

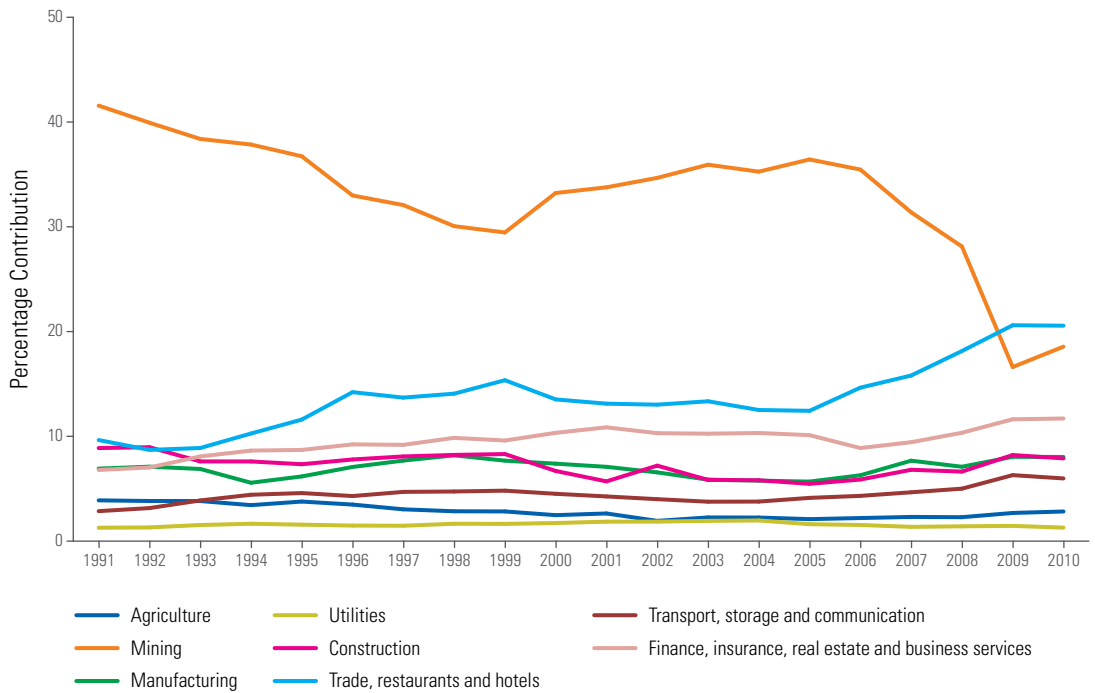


Figure 1.5: Structural change in Ghana

Source: Figure is based on GGDC Structural Transformation Data

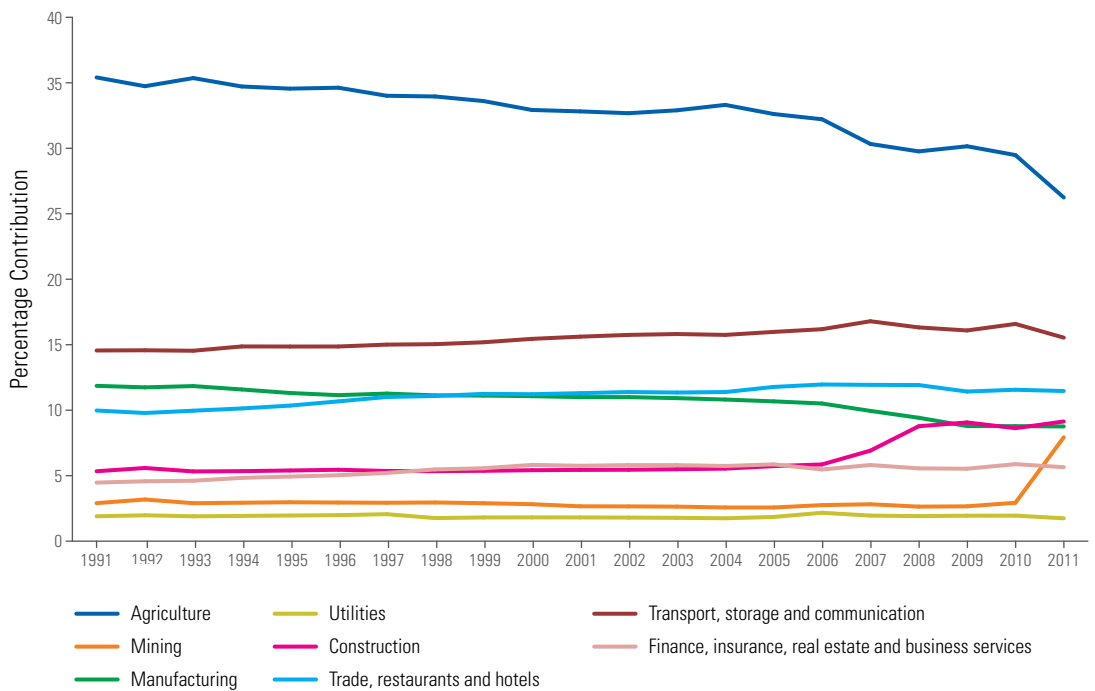


Figure 1. 6: Structural change in Kenya

Source: Figure is based on GGDC Structural Transformation Data

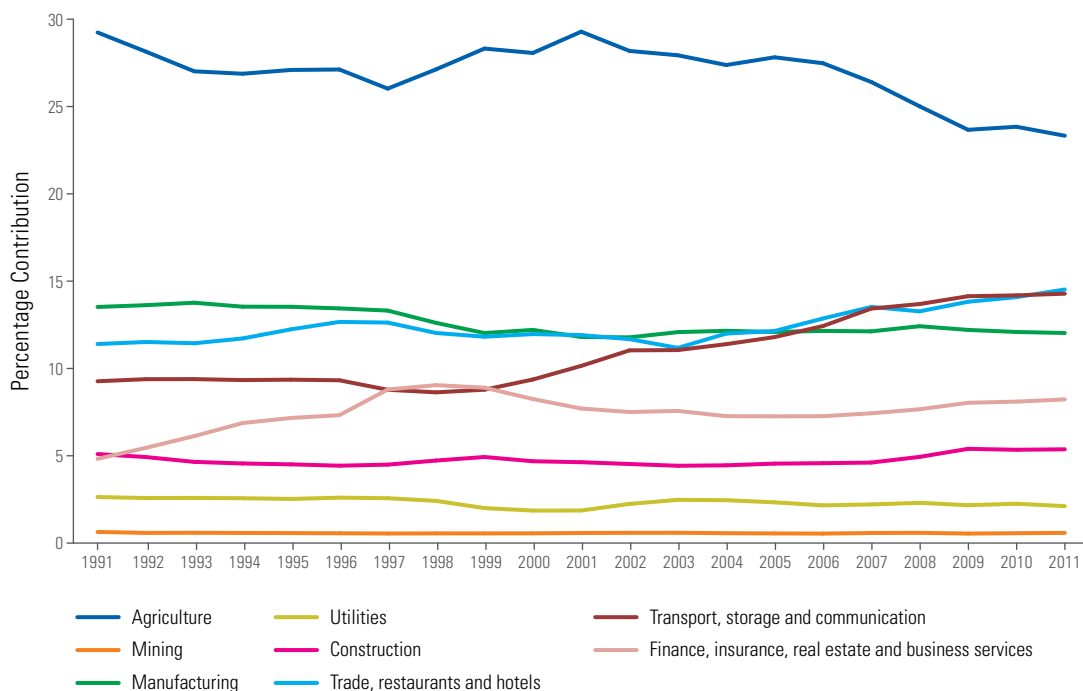
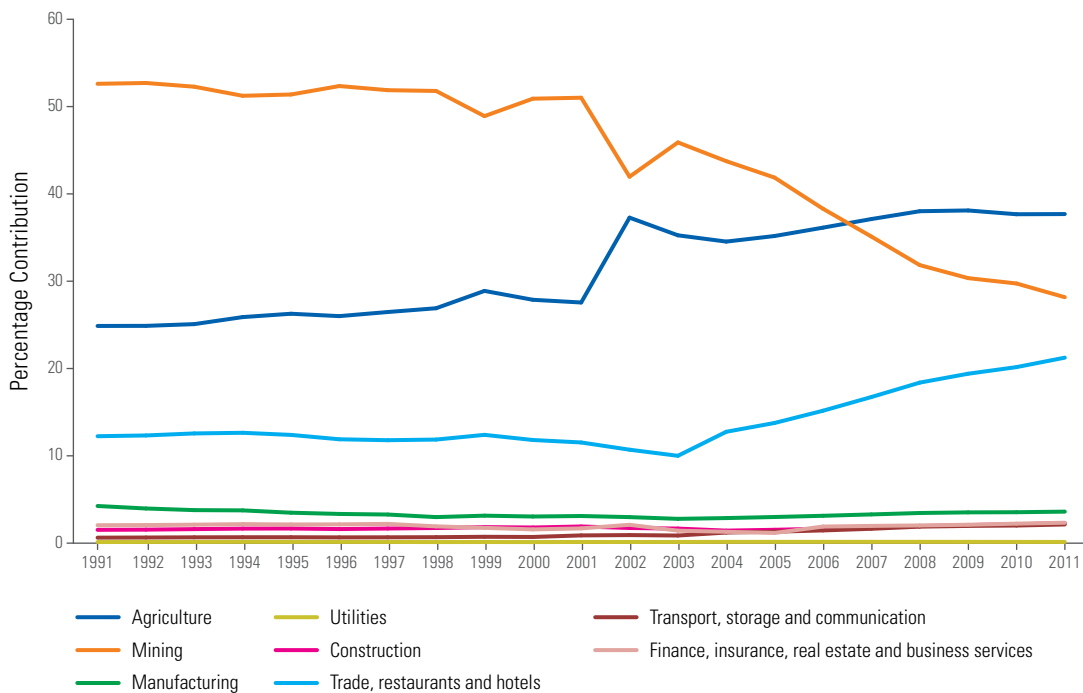


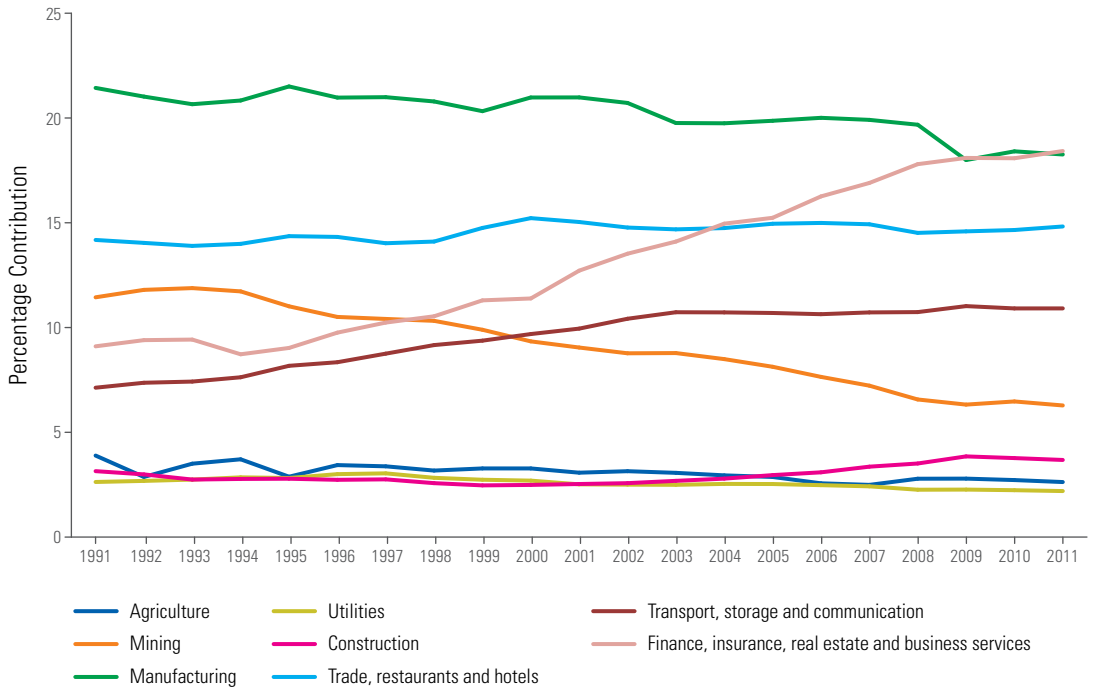
Figure 1. 7: Structural change in Nigeria

Source: Figure is based on GGDC Structural Transformation Data



**Figure 1. 8: Structural change in South Africa**

Source: Figure is based on GGDC Structural Transformation Data



**Figure 1. 9: Structural change in Tanzania**

Source: Figure is based on GGDC Structural Transformation Data

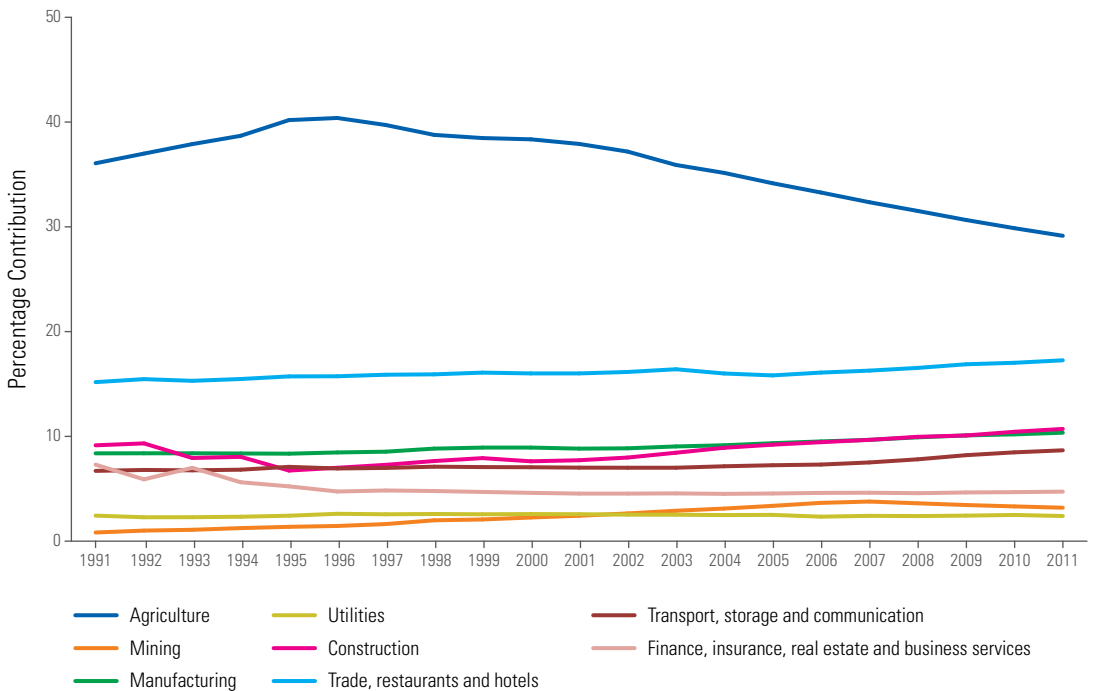


Figure 1. 10: Structural change in Uganda

Source: Figure is based on World Development Indicators Online

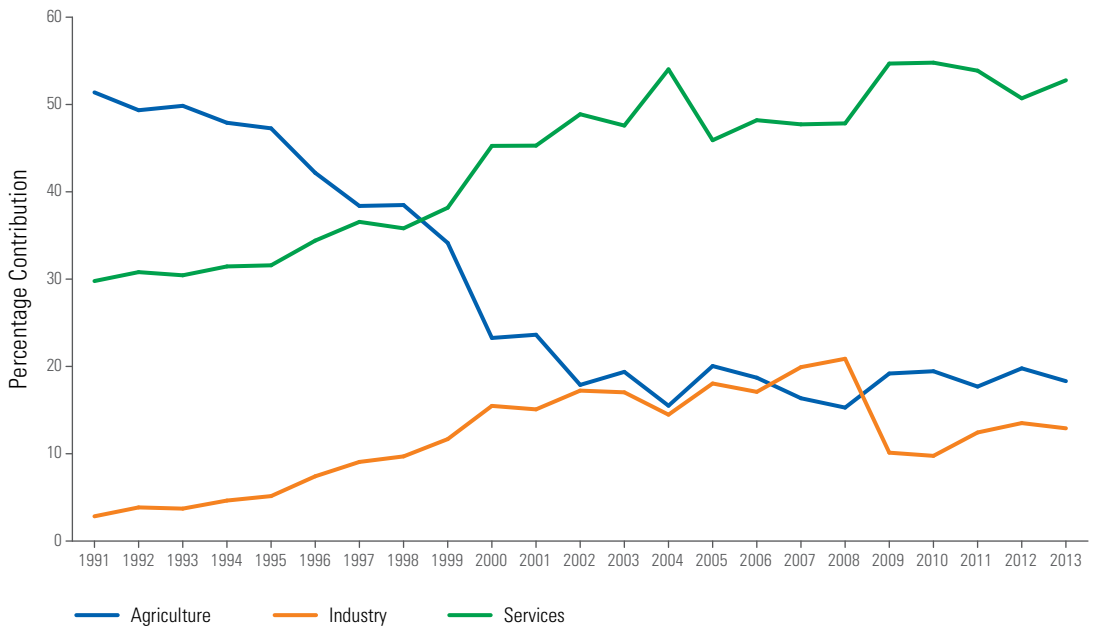


Figure 1. 11: Structural change in China

Source: Figure is based on World Development Indicators Online

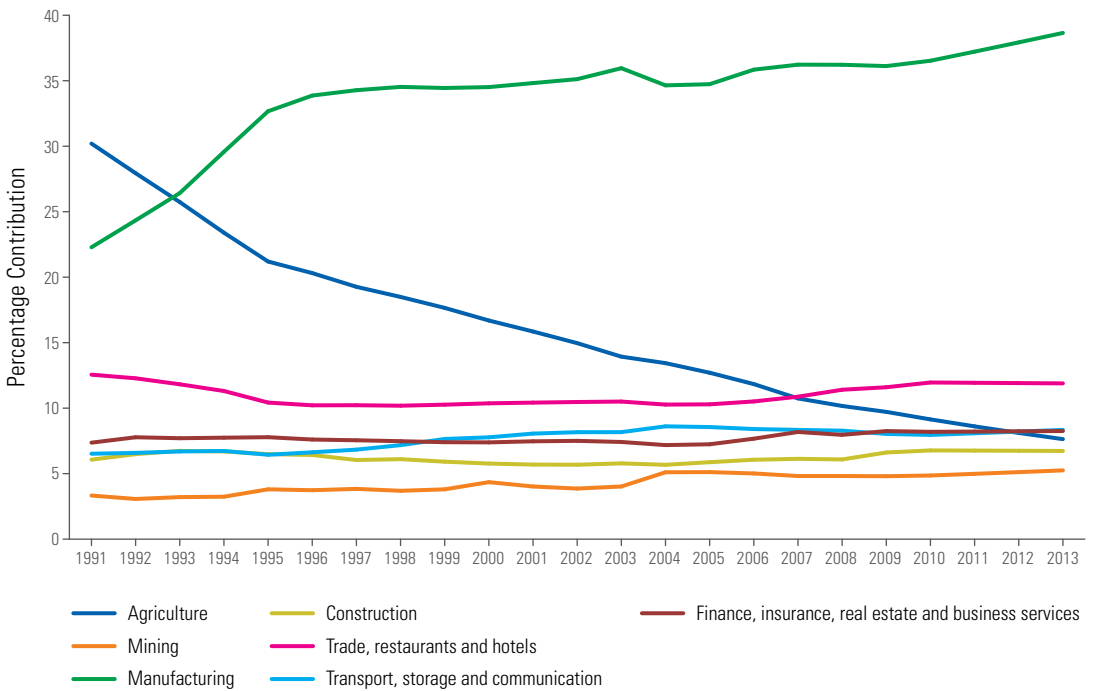




Figure 1. 12: Structural change in India

Source: Figure is based on GGDC Structural Transformation Data

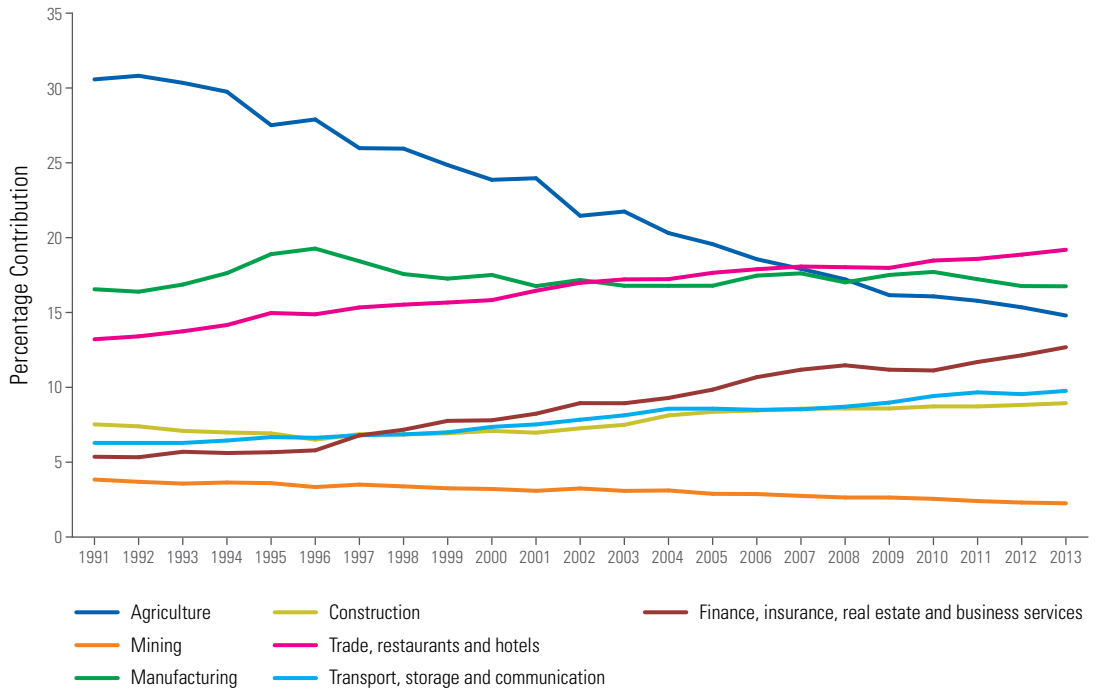


Figure 1. 13: Structural change in Indonesia

Source: Figure is based on GGDC Structural Transformation Data

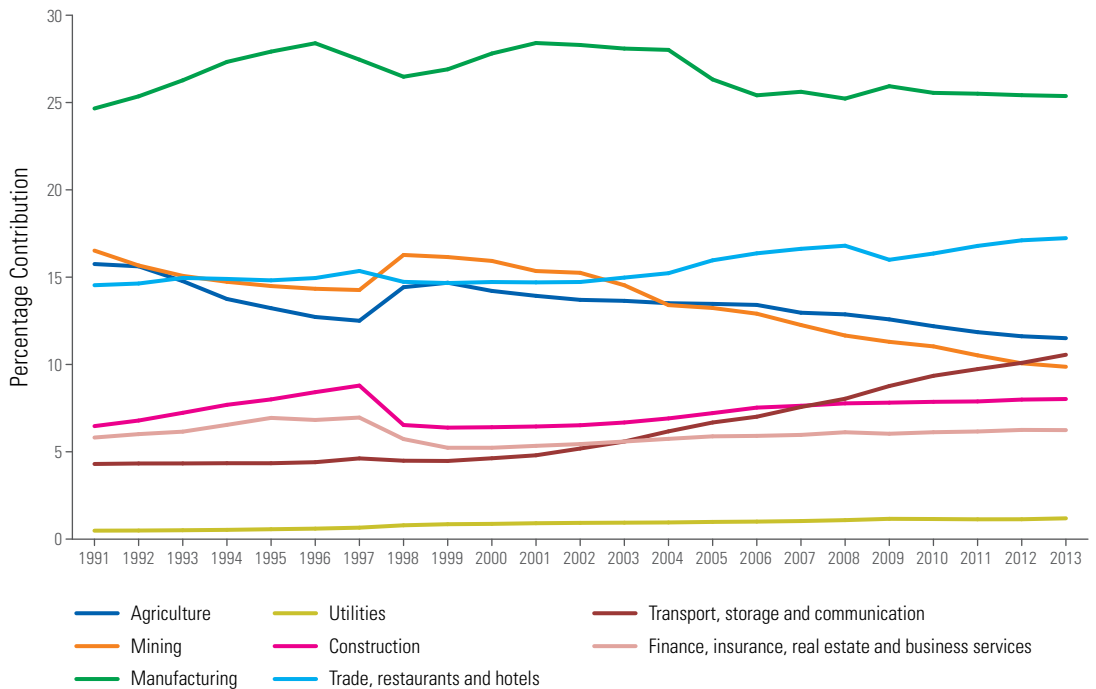


Figure 1. 14: Structural change in Malaysia

Source: Figure is based on GGDC Structural Transformation Data

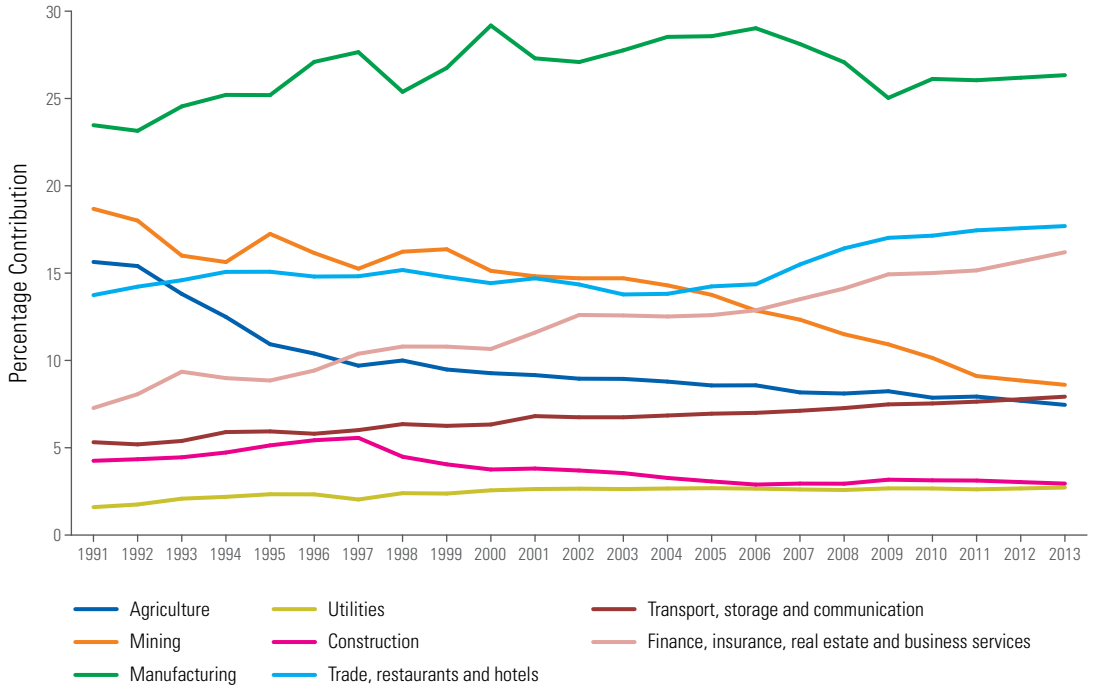


Figure 1. 15: Structural change in Philippines

Source: Figure is based on GGDC Structural Transformation Data

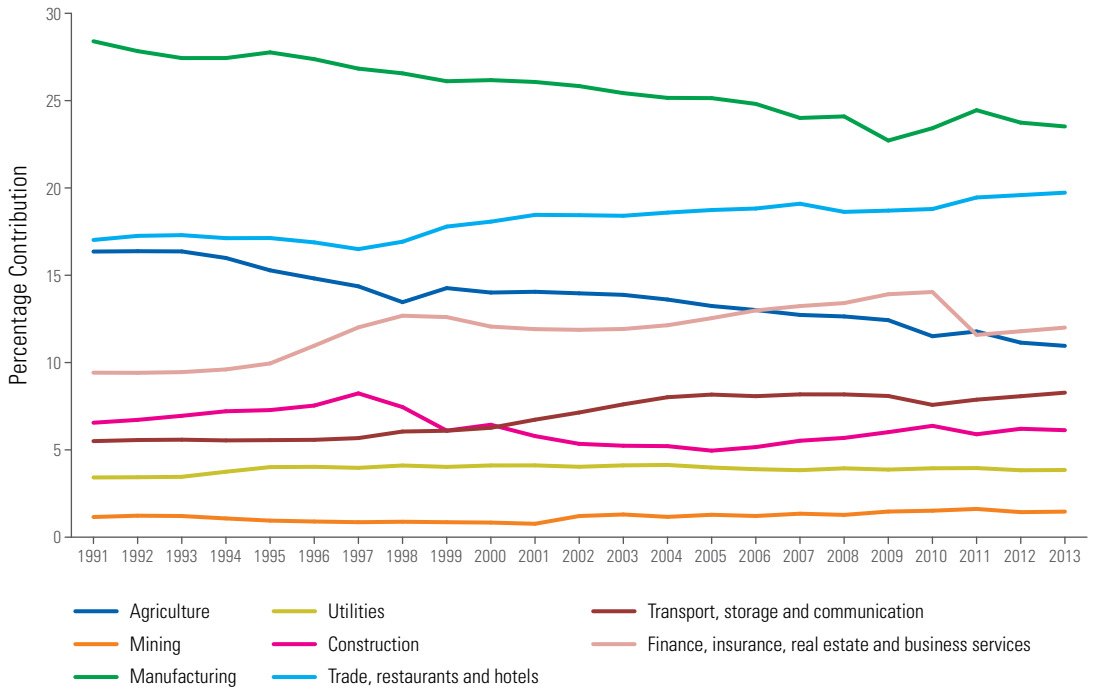


Figure 1. 16: Structural change in Sri Lanka

Source: Figure is based on WDI online Data

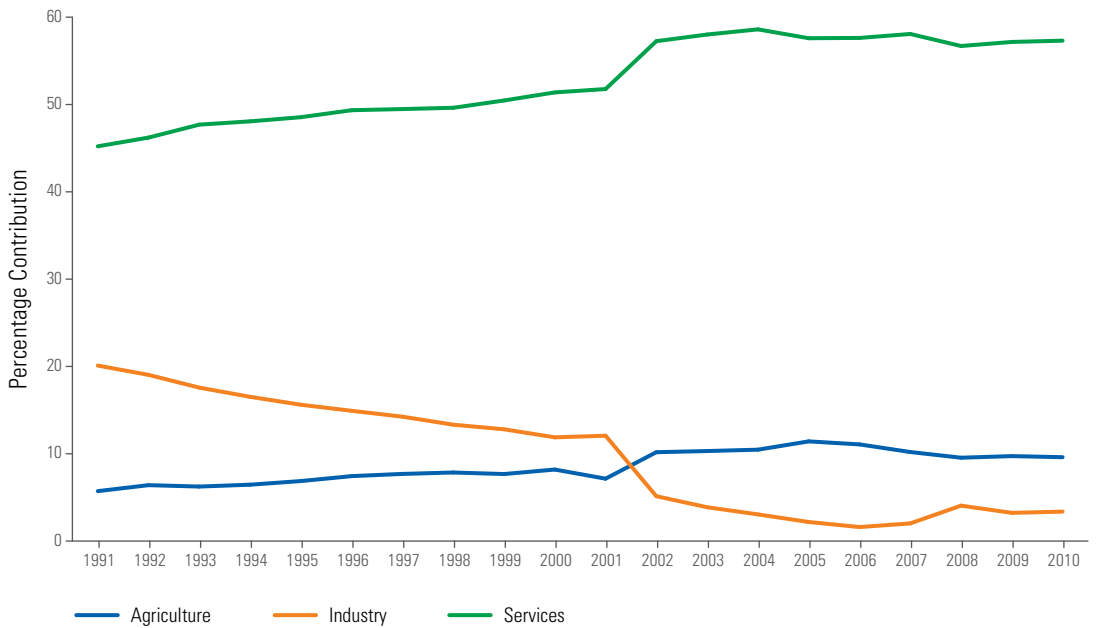


Figure 1. 17: Structural change in Thailand

Source: Figure is based on GGDC Structural Transformation Data

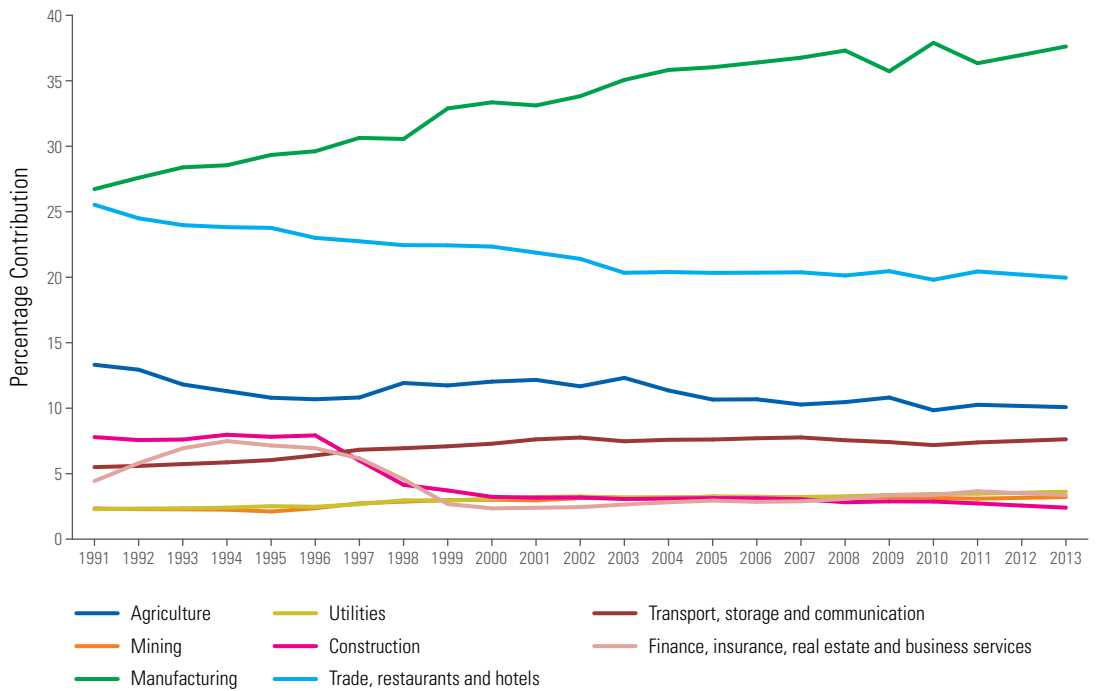


Figure 1. 18: Structural change in Argentina

Source: Figure is based on GGDC Structural Transformation Data

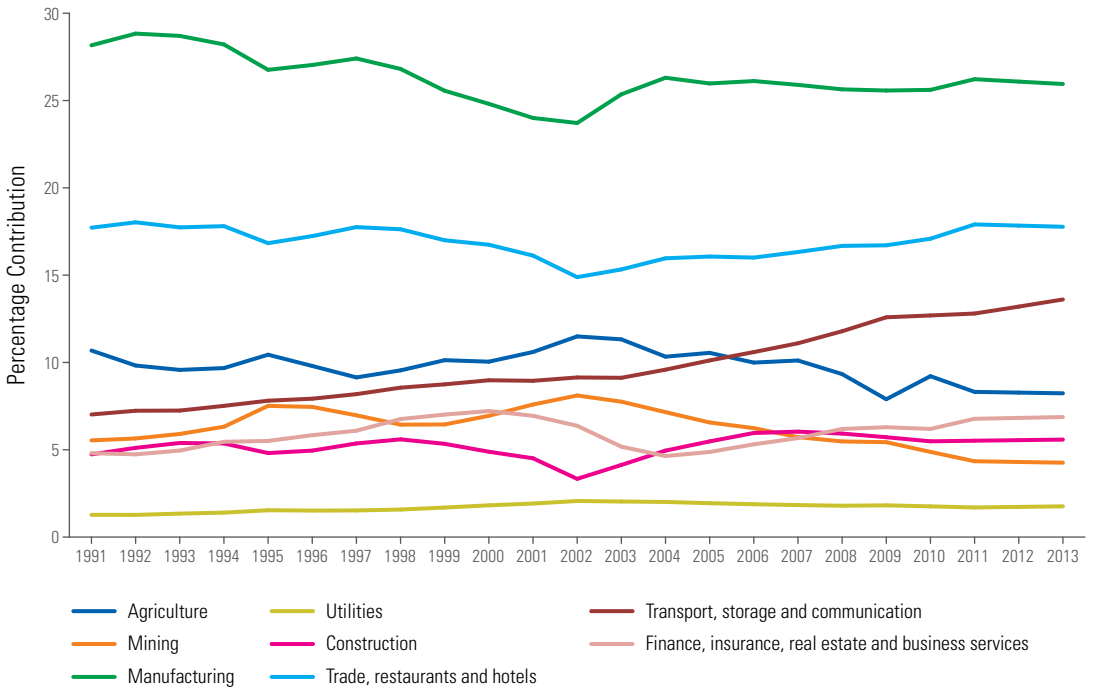


Figure 1. 19: Structural change in Bolivia

Source: Figure is based on GGDC Structural Transformation Data

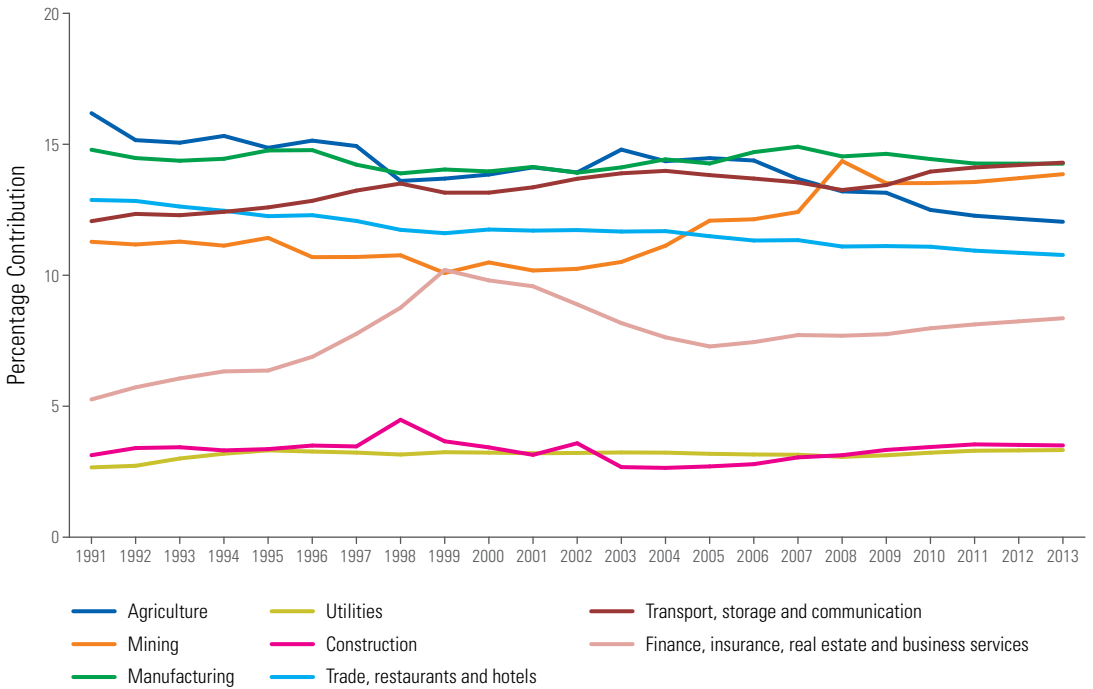


Figure 1. 20: Structural change in Brazil

Source: Figure is based on GGDC Structural Transformation Data

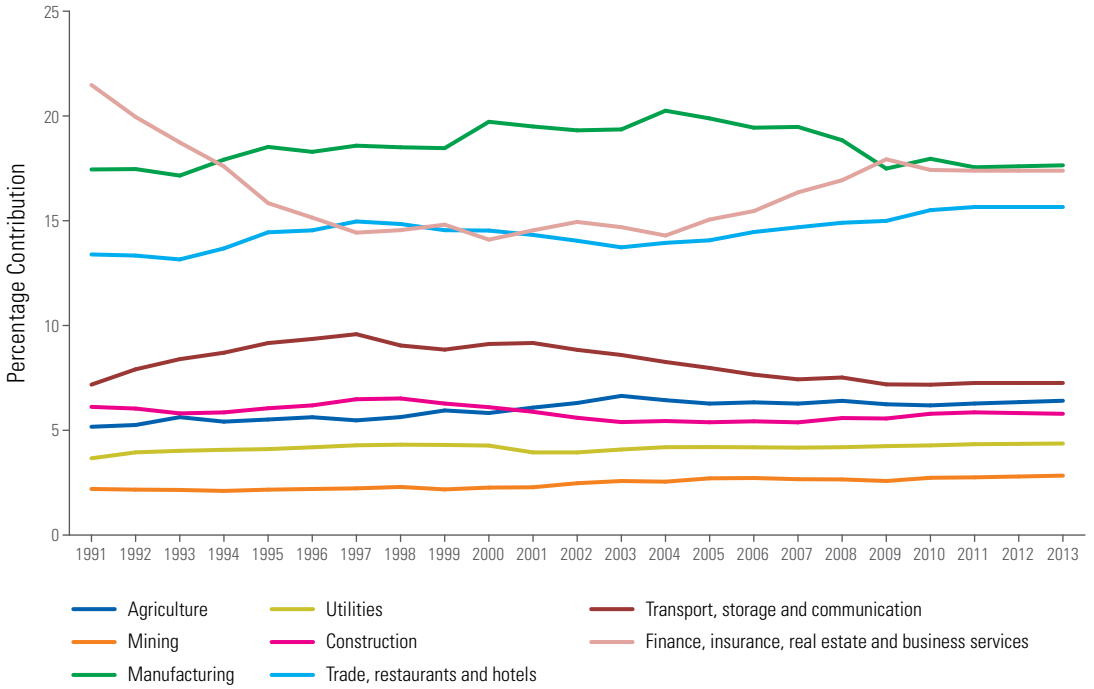


Figure 1. 21: Structural change in Colombia

Source: Figure is based on GGDC Structural Transformation Data

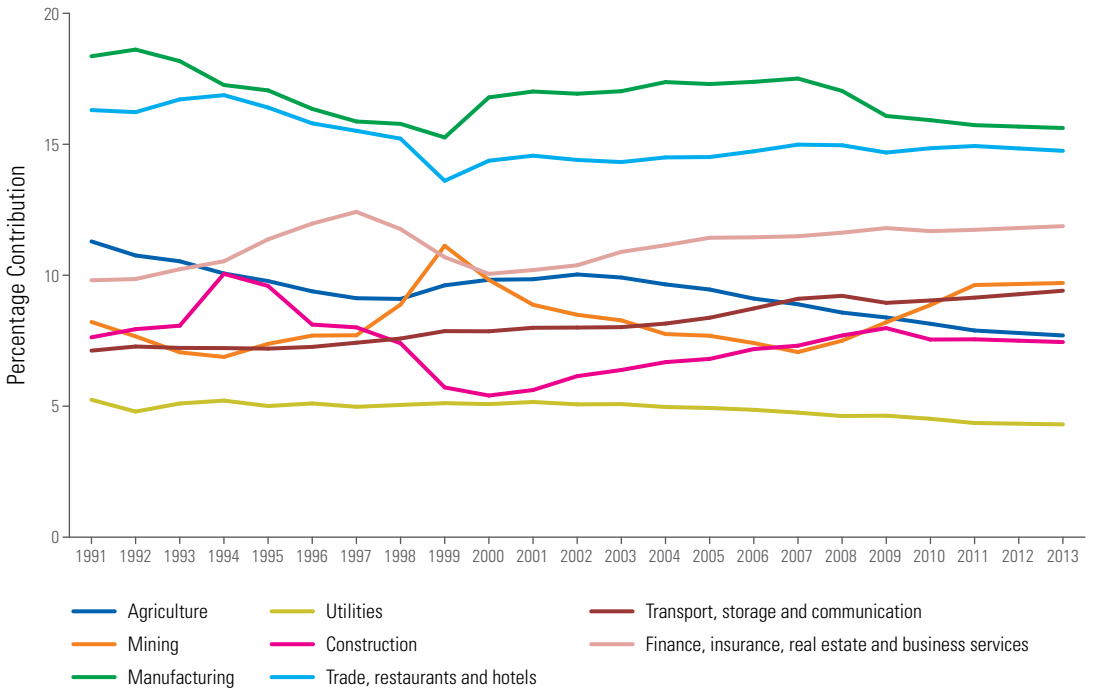


Figure 1. 22: Structural change in Mexico

Source: Figure is based on GGDC Structural Transformation Data

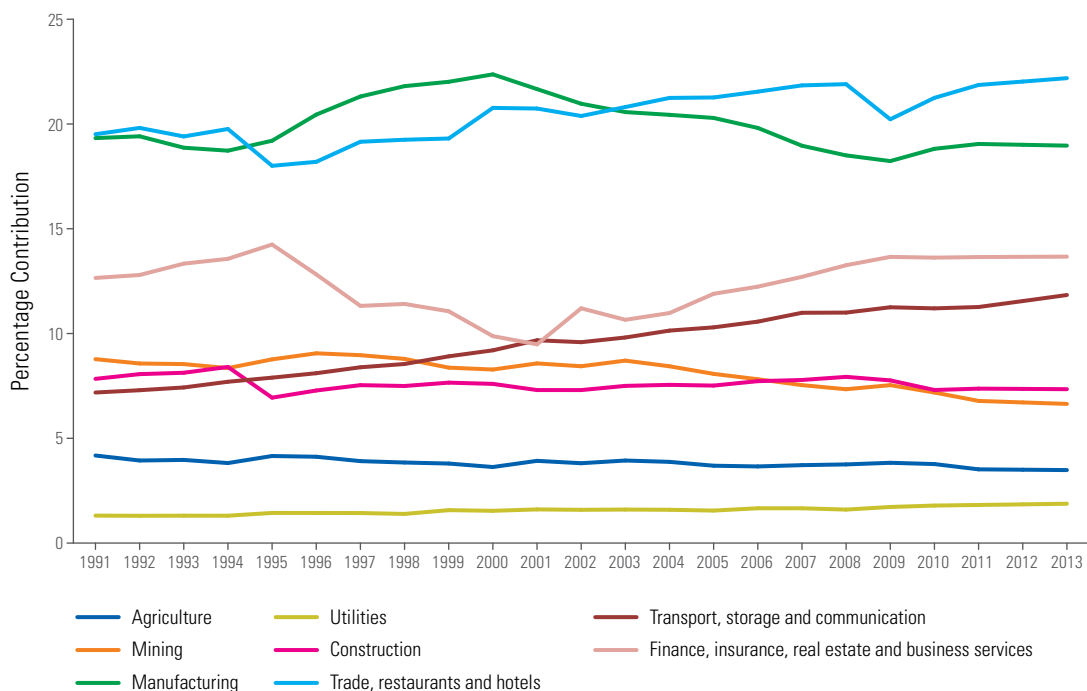
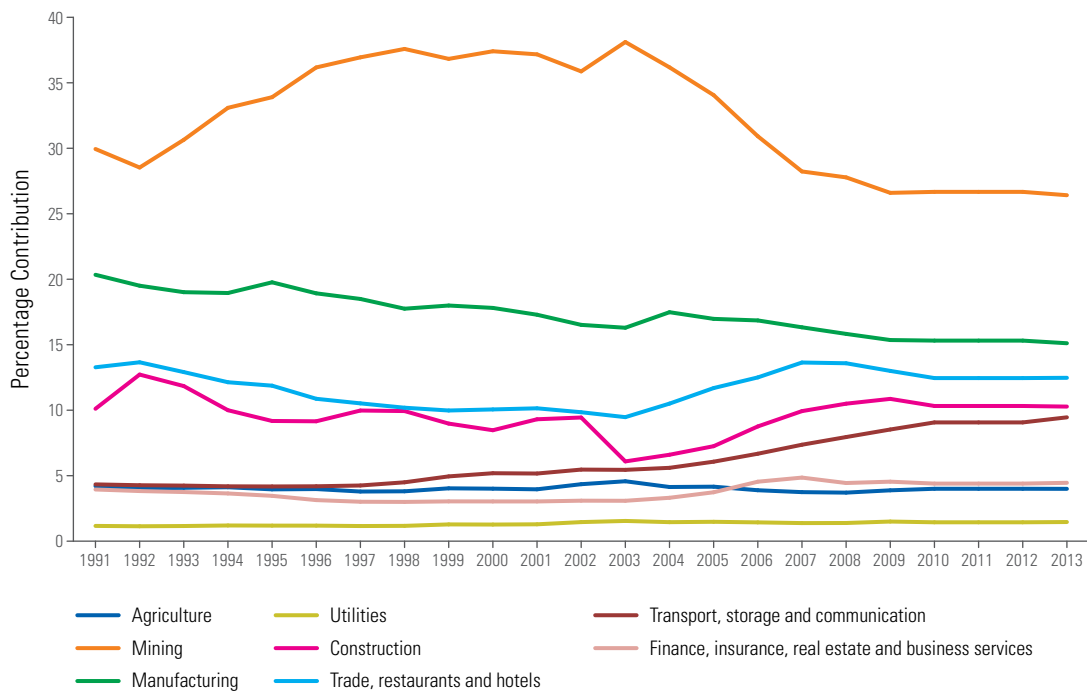


Figure 1. 23: Structural change in Venezuela

Source: Figure is based on GGDC Structural Transformation Data





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