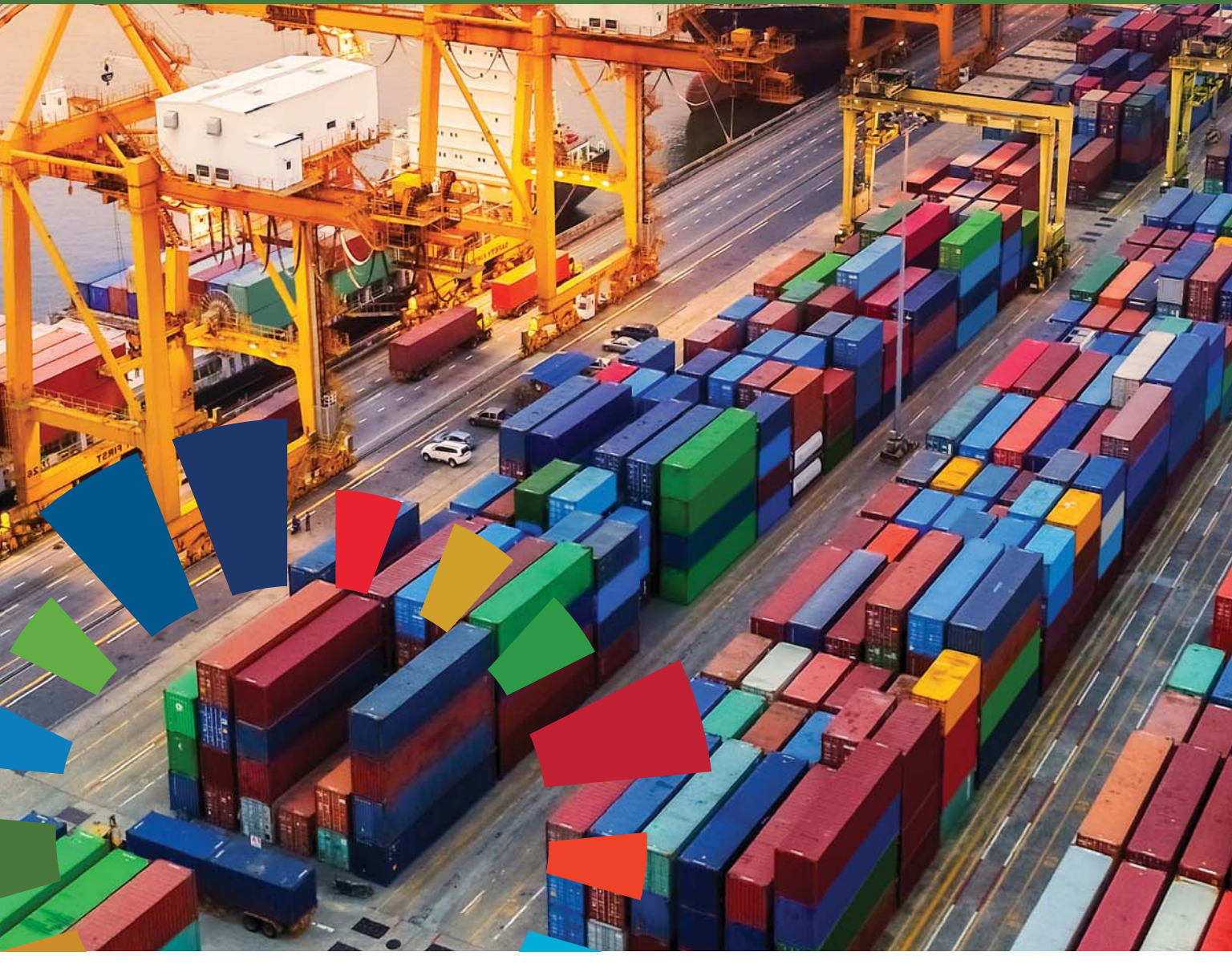
STRUCTURAL TRANSFORMATION AND ITS ROLE IN REDUCING POVERTY

Asia-Pacific Countries with Special Needs Development Report



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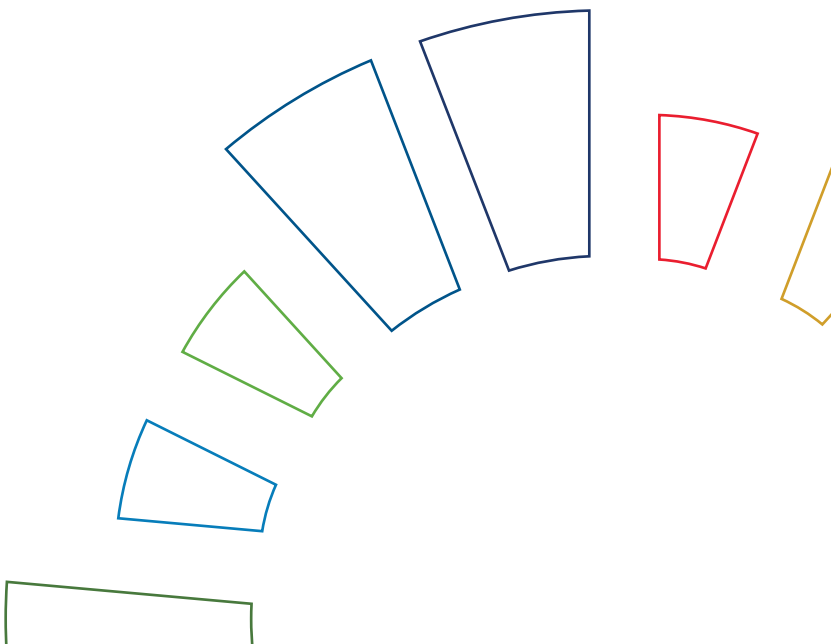

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STRUCTURAL TRANSFORMATION AND ITS ROLE IN REDUCING POVERTY

Asia-Pacific Countries with Special Needs Development Report

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FOREWORD

Supporting least developed countries, landlocked developing countries and small island developing States, collectively referred to as "countries with special needs", is central to our effort to achieve the 2030 Agenda for Sustainable Development. This effort has shaped this report, which identifies ways in which the structural transformation of these countries could be accelerated to reduce poverty.

Countries with special needs are a heterogenous group. The composition of their economies, the size of their populations and their geographic features vary considerably, but they do share common features. They have achieved considerable development gains in recent decades. However, income poverty persists, and income inequality is increasing. Two in five people in these countries of Asia and the Pacific live below the lower-middle-income country poverty line of $3.20 a day.

These challenges are partly explained by low productivity levels, due to the slow pace of structural transformation. In many of these countries, the increase of productive capacities, which move economic activities up the value-added ladder, has not taken place. Instead, these countries have expanded their existing industries, including extractive sectors. This has inhibited the structural transformation that allows employment to shift to more productive activities and more advanced activities to emerge.

To achieve such a transformation in countries with special needs, the experience of East Asian economies is worth considering. It is an example of how the State can guide the transition from an agriculture-based economy to one that is manufacturing-based. While environmental considerations require more attention than they were given in East Asia, this experience shows how well-targeted policies can create an industrial base oriented towards global markets. This report considers how an equally successful structural transformation could be achieved by countries with special needs in the Asia-Pacific region.

In least developed countries, such an industrial policy must focus on improving productive resources, entrepreneurial capabilities and links to the rest of the economy. Special economic zones, aligned with national development strategies, should be considered in order to attract foreign direct investment as well as build a manufacturing base that absorbs labour from the agricultural sector. In parallel, rural development is essential as agriculture still employs a significant share of the labour force. Providing access to higher-yield seeds, commercializing agricultural production as well as supporting mechanization and new technologies must be part of this effort, alongside development of the agri-business and food processing industries.

Well-functioning labour markets, able to draw on well-educated and skilled individuals, are a prerequisite for structural transformation that will lead to poverty reduction. It attracts foreign direct investment in a way that increases

participation in global value chains. This requires labour mobility and a long-term vision for an education system, together with curricula that equip students with skills relevant to employers and opportunities for workers to be retrained. Minimum wages, unemployment benefits and collective bargaining, can contribute to ensuring workers' conditions and jobs are decent.

In landlocked developing countries the focus must be on economic diversification to reduce dependence on extractive industries, including through attracting foreign direct investment and mitigating the consequences of premature deindustrialization. Both require active policies to incentivize development of the manufacturing sector and productive services, and business sector integration into regional value chains.

In small island developing States, the focus must be on sustainable ocean management. Undertaken in a sustainable way, fisheries and tourism hold great promise. Higher-value crops also have potential. Sea-bed resource extraction could deliver higher productivity gains, although environmental protection is crucial.

This *Asia-Pacific Countries with Special Needs Development Report* provides recommendations for delivering structural transformation that reduces poverty and promotes equity in all these areas. The analysis and policy considerations presented in this report can help to inform the global mid-term review of the Vienna Programme of Action for Landlocked Developing Countries, the high-level review of progress made on the SAMOA Pathway and the conclusion of the Programme of Action for the Least Developed Countries in 2020. I hope we can seize this opportunity to galvanize international cooperation in accelerating progress towards sustainable development in Asia and the Pacific.

Armida Salsiah Alisjahbana
Under-Secretary-General of the United Nations and
Executive Secretary, United Nations Economic and
Social Commission for Asia and the Pacific

EXECUTIVE SUMMARY

Structural transformation in countries with special needs

The Asia-Pacific least developed countries, landlocked developing countries and small island developing States, which collectively are referred to as "countries with special needs", are a heterogenous group of countries that vary significantly in their economic size, population size and geographic features. Notwithstanding their differences, these economies face deep structural impediments in their pursuit of sustainable development. Thus, while landlocked developing countries suffer from high transport costs to world markets owing to their lack of access to the sea, small island developing States are particularly constrained by their geographic isolation and their smallness, which translates into lack of economies of scale. Least developed economies face the challenge of overcoming low levels of human development and are confronted with high levels of economic vulnerability.

The diversity of the countries with special needs is also reflected in the structural composition of their economies. Indeed, agriculture, which contributes an average of 17.3 per cent of output in countries with special needs, is today no longer the largest sector in terms of output share. This reflects structural transformation, which broadly refers to the process of continuously redeploying factors of production to higher value activities. Traditionally, this has involved a change in the composition and distribution of economic activities from agriculture to industry and then services. Recently, several countries have experienced a switch from agriculture to services, bypassing the transition to industrial development. Structural transformation helps to enhance an economy's productive capacity, and thus is fundamental to ensuring and sustaining long-term economic growth, which in turn facilitates employment generation and a reduction in poverty.

Based upon employment shares in agriculture, industry and services, one can classify countries in different structural transformation pathways and distinguish between "structurally underdeveloped" economies (where the share of employment in agriculture is higher than in industry and services), "structurally developing" economies (where the share of employment in services is highest, followed by agriculture and industry) and "structurally developed" economies (where the share of employment in services is highest, followed by industry and agriculture). While this approach can lead to the counterintuitive situation in which some least developed countries (such as Cambodia) and small island developing States (such as Maldives) are technically classified as structurally developed, using additional parameters such as aggregate productivity provides a more complete assessment.

According to this classification, most least developed countries are categorized as "structurally under-developed", most landlocked developing countries are "structurally developing", and many small island developing States are classified as "structurally developed". For instance, in Nepal (a least developed, landlocked country), almost 72 per cent of the population depends upon agriculture, which contributed 34 per cent to output. Indeed, agriculture accounts for an average of 53 per cent of employment in least developed countries and 37 per cent across countries with special needs. In Maldives, however, only 8 per cent of labour is employed in agriculture and 68 per cent is employed in the service sector.

Despite these differences in classification, a general defining feature of the countries with special needs is that levels of productivity are generally low. For instance, in 2016 averages of gross value-added per employee in least developed countries, landlocked developing countries and small island developing States were only 20 per cent, 48 per cent and 50 per cent, respectively, of that in other developing Asian countries. Moreover, levels of productivity have only evolved incrementally, particularly in the services sector. In some countries, productivity has stagnated or even regressed since 1991.

One reason is that the pace of structural transformation in the countries with special needs has been relatively slower than in other Asia-Pacific countries. Also, their structural transformation has followed a different pattern to that of the East Asian "miracle economies". This is in part due to today's significantly altered economic and political landscape, which is marked by a greater degree of globalization and a different set of rules by which the countries with special needs are governed as well as the emergence of regional and global value chains.

Typically, employment shares in industry (which comprises manufacturing and construction) broadly follow an inverted U shape, that is to say, reflecting an increase for lower levels of development and a decrease for higher levels of development owing to the productivity differentials between sectors. However, in countries with special needs, the share of employment in industry, particularly in manufacturing, has stagnated or even regressed ("deindustrialization") while the share of services in output has increased significantly since 1991. Many countries with special needs are bypassing the dynamism of the manufacturing sector. This is a cause for concern and needs the attention of policymakers. Specifically, the average share of employment in manufacturing has not progressed beyond 7.8 per cent in countries with special needs, in contrast to the 18 per cent share of manufacturing in total employment that today's high-income countries averaged during their ascent.

The manufacturing sector is fundamental to capital accumulation, technological progress and job creation. However, the changing nature of manufacturing, which is most prominently reflected by increasing labour-saving automation, raises the question of its ability to absorb large increases in labour supply. This is particularly true for least developed countries where large proportions of the labour force currently in the agriculture sector could potentially be absorbed in manufacturing.

Moreover, although the role of the services sector has increased in terms of the contribution to output in most countries with special needs, worryingly, this increase has mostly been in low productivity informal services, especially in the least developed countries and small island developing States. As a result, labour productivity in services has also remained stagnant or increased only marginally at best. The role of the service sector and productivity enhancements within the sector must therefore be examined in greater detail, with a view to expanding high-productivity services. This is especially relevant in small island developing States, where immutable factors such as distance and lack of economies of scale are likely to limit the potential of manufacturing to serve as the backbone of economic development.

Finally, the highest productivity growth in countries with special needs has often been in the extractive industries sector. This sector, however, tends to be capital intensive and bears only limited potential for employment. At the same time, it has weak backward and forward linkages with the rest of the economy such that spillovers from growth in the extractive sector to the rest of the economy tend to be limited. Moreover, greater activity in this sector often goes hand-in-hand with significant negative environmental spillovers.

In sum, despite evidence of structural transformation unfolding in countries with special needs, with only a gradual increase in levels of productivity taking place, the expansion of the productive capacities, that is, moving up the value-added ladder, has not taken place. Rather, these countries have expanded the production of their current set of products and those of the extractive sectors. Successful structural transformation must include two interrelated outcomes: in addition to a reallocation of labour to more productive existing activities, new and more advanced activities must also emerge. Such structural transformation tends to be more conducive for employment generation and poverty reduction.

Structural transformation must also take place in a socially and environmentally sustainable way. This means that development paths of countries with special needs must deviate significantly from business as usual and take social and environmental impacts into consideration in order to achieve the goals and targets of the 2030 Agenda for Sustainable Development.

Implications for poverty reduction

Countries with special needs have made great development gains in recent decades. High economic growth in many of them has been accompanied by significant improvements across a range of development indicators. For instance, they have experienced large declines in the incidence of income poverty over the past several decades. Between 1999 and 2015, the number of people living in extreme poverty (defined as below $1.90 a day) declined by 100 million in the countries with special needs. Today, the average poverty headcount ratio in these economies is 11.1 per cent, compared with 45.7 per cent in 1999.

Despite this progress, income poverty continues to persist, especially in the least developed countries and some small island developing States. On average, two in five people in the Asia-Pacific countries with special needs still live on incomes below $3.20 a day (the standard poverty line for lower-middle income countries), compared with one in fifteen people in other developing Asian economies. At the same time, income inequality has been on the rise in several countries with special needs. For instance, between 1990 and 2014, the income Gini coefficient increased for 7 of the 24 countries with special needs for which data are available, including in Bangladesh, which is by far the largest country with special needs.

Moreover, the incidence of poverty in countries with special needs is concentrated in rural areas, where on average, four poor people live compared with one urban poor person. Indeed, people living in rural areas are 2.4 times more likely to be poor than people living in city areas in countries with special needs.

Urbanization may be one way to alleviate rural poverty. However, in some smaller countries with special needs, the process of urbanization has been accompanied by increasing shares of the urban poor. This has been observed in, for example, Maldives, Mongolia, Nepal and Vanuatu. Indeed, rapid and uncontrolled urbanization, coupled with the difficulty in transitioning from farms to urban settings, could bring about increasing informality in urban economic activities. A lack of policy actions to address informality would have a particularly detrimental impact on gender equality, as women are more exposed to informal employment than men in most countries with special needs.

While general social policies are essential to ensure access to education, health care and social welfare, Governments must also focus on structural transformation in general, and on rural development in particular, as more than half the population in countries with special needs is still expected to be living in rural areas by 2050.

In theory, structural transformation plays an important role in reducing poverty as it generally leads to increases in productivity and output and raises incomes of workers. It also indirectly reduces poverty as higher levels of income tend to increase demand for goods and services, which in turn creates additional employment within and across sectors.

In practice, however, the response of poverty to structural transformation depends on several factors and conditions. These include workers' or firms' abilities to absorb new technology and to adapt to changes in the availability of natural resources or changes in input prices of materials and primary factors. Other pertinent factors include: the distribution of ownership of capital; the extent of backward and forward linkages among sectors of production; and access to markets as well as rural-urban connectedness, to name a few.

For example, shifts towards capital-intensive extractive industries in many countries with special needs have resulted in higher average economic growth. This has, however, been at the cost of lower long-term growth in other more labour-intensive sectors. The cost has also come in the form of pollution, greenhouse gas emissions, groundwater scarcity and biodiversity loss in the absence of appropriate environmental management policies. These environmental and potential health consequences disproportionally affect the poor and the vulnerable due to their greater exposure to environmental pollutants and limited capacity to cope with them. It has therefore limited the potential impact of structural transformation on income poverty reduction. While many of the resource-rich countries with special needs may have the resources to address the environmental impacts of structural

transformation, least developed countries and small island developing States will not be able to do so on their own.

What matters for poverty alleviation in the context of structural transformation is a reallocation of production factors that involves productivity growth of unskilled labour-intensive sectors. This is because unskilled labour tends to be the primary input of the poor to production processes. In addition, creating more jobs in more productive sectors with higher wages will have a more significant impact on poverty reduction than creating jobs in low productivity, low wage sectors.

Consequently, sustainable rural development and agricultural transformation are particularly effective in reducing poverty in many of the Asia-Pacific countries with special needs. Agricultural productivity growth can drive rural growth and catalyse a "pro-poor" development process, as it benefits poor and landless farmers by increasing production and employment. Promoting farm and non-farm activities in rural areas can, in turn, have a poverty reducing effect by increasing the demand for labour, goods and services in urban areas.

In addition, the potential of positive spillovers of agricultural productivity growth on other sectors increases with the level of agricultural development. This is because backward linkages of agriculture with other sectors evolve with increases in agricultural productivity. Hence, the more productive agriculture is, the larger the benefits are for other sectors, and thus the more inclusive and sustainable rural development becomes.

Clearly, sustaining poverty reduction in the long run requires that sustainable agricultural transformation is complemented by dynamism in other sectors, particularly in manufacturing but also in high-value-added services where the synergic effects of new technological advances are higher than in agriculture. One way to facilitate this transformation is to strengthen backward and forward linkages from existing domestic productive capacities. This entails, in the case of the Asia-Pacific countries with special needs, creating linkages from existing primary production, including agriculture and mining, to manufacturing of export products to increase inter-sectoral spillovers through input demand.

In contrast to poverty, the association between structural transformation and inequality is less clear as it depends on several factors. What is important, however, is that productivity growth can cause rapid declines in poverty if inequality can be kept at a low level during the structural transformation process. The historical experience of countries in the Asia-Pacific region has demonstrated that access to land is one of the important factors determining whether structural transformation increases inequality or not. In particular, inequitable access to land and unequal land rights increase the adjustment costs arising from structural transformation and can contribute to increasing or widespread informality in low productivity services. In doing so, it can exacerbate inequality by locking workers into poverty and reducing the resources available for redistributive policies.

Policy considerations to align structural transformation and poverty reduction

Asia-Pacific countries with special needs are a diverse group. Therefore, any discussion on policy options to effectively manage structural transformation to reduce poverty needs to reflect this diversity.

When exploring policy solutions, the experiences of the so-called East Asian miracle economies may provide important lessons. The East Asian development model was based on the centrality of the State, which guided structural transformation from an agriculture-based economy to a manufacturing-based one, gradually increasing value addition in production assortment. The process was accommodated by creating a domestic industrial base oriented towards exports and the engagement with global markets, using mechanisms and incentives that at times distorted market signals, navigating foreign direct investment flows, and supporting development of the domestic business sector. State industrial policy was based on targeting specific sectors for development. High rates of domestic savings generated additional resources, whereas investments made in education allowed for rapid increases in the quality of human capital. Japan, the Republic of Korea, Singapore and Taiwan Province of China are often seen as the main

historical examples of the East Asian development model, and China is seen as the contemporary case. Some South-East Asian economies, such as Viet Nam, adopted some of the model's features at various stages of their respective structural transformations.

However, the East Asian development miracle took place during a time when economic interdependencies were more limited, the forces of globalization less advanced, and thus the availability of protectionist and interventionist measures perhaps greater. Moreover, as it ignored environmental considerations, the "development miracle" was accompanied by significant environmental degradation. In the era of the 2030 Agenda for Sustainable Development, sustainability is an indispensable element to development, bringing to the fore environmental and social concerns of development outcomes, as opposed to mainly economic concerns. Nevertheless, some of the lessons can be selectively used, after adjusting for country-specific circumstance and experiences.

For instance, similar to the experiences of East Asia, in countries with special needs the State must play a decisive role in facilitating structural transformation, rather than only being a guardian of laws and institutions. This can be achieved through industrial policy. Industrial policies are a set of strategic interventions by the State that catalyse structural transformation. Such policies can be categorized as functional and selective policies. Functional policy involves a more general approach that seeks to improve the business climate and promote competitiveness. In contrast, selective policy involves a more interventionist stance in which the State explicitly targets the growth of certain sectors. Such an approach harnesses a country's latent comparative advantage going beyond existing strengths, by picking sectors that may hold a potential for development. Historical examples of successful interventionist approaches in the Asia-Pacific region include Japan and the Republic of Korea. After appropriately adjusting for country-specific circumstances, some elements of this approach can be considered in countries with special needs. It is worth highlighting that an effective pursuit of industrial policies will require high-calibre human resources in the Government and strong governance and institutional frameworks. Otherwise, the risk of non-productive loss-making State-led enterprises may increase. Moreover, different industrial policies will be necessary for least developed countries, landlocked developing countries and small island developing States.

The industrial policy of targeting certain sectors must reflect the specific needs of countries and must recognize that the private sector remains a key actor for ensuring its effectiveness. For instance, targeting in least developed countries must focus on creating productive capacities, which include development of productive resources (natural, human, financial and physical), entrepreneurial capabilities and backward and forward production linkages to the rest of the economy. Building a manufacturing base and becoming integrated into global and regional value chains – a solution difficult to some small island developing States with a limited landmass – may initially take place through special economic zones, which can facilitate absorption of labour moving out of the agriculture sector. In the process of establishing a manufactural base, one needs to consider environmental impacts and ensure that the natural environment is not adversely affected, as this will slow or even reverse socioeconomic developmental achievements.

Foreign direct investment plays a crucial developmental role in Asia-Pacific countries with special needs. In least developed countries the emphasis should be on improving productive capacities and facilitating business for the private sector. Policies to promote foreign direct investment need to be aligned with national development strategies. Special economic zones are an effective strategy to attract foreign direct investment to desired industrial sectors and to speed up development, as least developed countries often lack the capacity to create an enabling business environment throughout their territories.

Rural development is of particular importance for Asia-Pacific countries with special needs, especially least developed countries where agriculture employs a significant share of the labour force. Efforts should be made to increase labour productivity in agriculture by modernizing the sector. This can be achieved through facilitating access to higher-yield seeds, commercializing agricultural production, mechanizing and using

technology, linking agricultural production with market opportunities through development of the agribusiness sector and creating robust food processing industries that are linked to regional and global value chains.

As the rural sector develops and the agricultural sector moves from subsistence farming to more commercially oriented farming activities, productivity will increase, and less labour will be required. The resulting excess labour can then be engaged in higher productivity activities such as manufacturing. As factories are usually located in cities and well-connected areas (for example, coasts), this will contribute to urbanization, which will require ensuring basic urban planning in aspects such as providing public services (including electricity, water or sanitation, and education).

It will be vital that the labour force is trained to be employed in higher value-added activities (see next paragraph). For example, if workers move from agriculture to the services sector, they should be able to move to high-value services and not get trapped in low productivity services. Investing in rural infrastructure, combating environmental degradation and mitigating the effects of climate change are additional objectives that would help, as they favour labour mobility and resilience of the agricultural sector – making it less vulnerable to the negative effects of climate change.

Countries must strive to have well-functioning labour markets with supporting laws for structural transformation to translate into poverty reduction. In the short term, absorbing labour from agriculture requires concerted efforts to improve workers' employability in other sectors by developing their skills. This necessitates that workers be retrained to carry out different functions – those demanded by employers. At the same time, to climb the value-added ladder, countries with special needs and particularly least developed countries will in the medium to long term, need a critical mass of skilled human capital that can apply knowledge to productive processes. This presents two key benefits – it attracts foreign investment and allows countries to benefit from foreign direct investment in the form of knowledge and capacity gains that subsequently allows them to participate in global value chains. The education sector should therefore adapt the curricula to provide students with the skills to undertake high-value jobs. In many countries with special needs, improving the business climate can foster the development of the private sector, potentially attracting foreign companies. While labour market institutions can vary greatly, minimum wages, unemployment benefits or collective bargaining have been identified as mechanisms that should be in place to ensure that workers' conditions and the jobs are decent, especially to protect vulnerable segments such as women, children and people with disabilities.

For least developed countries, the role of the international community will be to provide more support to countries that are poised to graduate from the category of least developed country in the years to come. This comprises implementing fully official development assistance (ODA) commitments, including the commitment by many developed countries to achieve the target of 0.15 to 0.20 per cent of ODA as the share of gross national income to least developed countries. It also entails providing assistance to strengthen capacities that enable a smooth transition and the continuation of structural transformation in the post-graduation period, which are among the principle priority areas for these economies.

In landlocked developing countries, the two main policy targets concern (a) economic diversification to reduce dependence on extractive industries, together with the related policy of strategizing foreign direct investment that prioritizes manufacturing and value addition, and (b) preventing and mitigating consequences of premature deindustrialization, even a "primitivization" of the industrial base. The latter is particularly important for States in transition from the economic model based on central planning to a market-based one. For these countries, restructuring "socialist" industries is of paramount importance. While structural transformation is particularly difficult in resource-rich countries as the short-term incentives are limited, this points even more to the decisive role of the State in pushing for necessary changes. Economic diversification away from extractive industries and mitigating "primitivization" of the industrial base require an active State policy aimed at incentivizing development of the manufacturing sector and productive services. This policy needs to facilitate

the domestic business sector's development and its engagement with the regional value chains as well as to increase access to global markets. Moreover, in resource-rich landlocked developing countries, environmental degradation caused by extractive industries must be addressed through effective State policies.

The international community must facilitate the cooperation among landlocked developing countries and their respective transit countries, through which they can have access to global markets. It can promote regional sectoral integration to increase inter-State economic interaction by promoting international frameworks that establish standards, rules and aims of cooperation.

For instance, the Eurasian Economic Union and the Belt and Road Initiative stand out as the integration initiatives with extensive potential to accelerate structural transformation in Asia-Pacific landlocked developing countries. This can be achieved either through building economic links (within, for example, global and regional value chains) or facilitating economic interaction with other economies in the region (for example, through eliminating trade barriers).

In small island developing States, targeting should be related to the concept of the "blue economy" and sustainable ocean management, considering that the total area of the exclusive economic zones of 12 Asia-Pacific small island developing States is 31 times more than their land mass. Fisheries could be considered among the main sectors for targeting, provided that their development is undertaken in an environmentally sustainable way and that it benefits local populations. Environmentally sustainable tourism can also be considered as a sectoral target among the larger Asia-Pacific small island developing States, while some may consider exploring options for commercial production of higher-value niche crops for export, the existing examples being beef production in Vanuatu and sugarcane production in Fiji. High productivity gains can also be achieved through the development of sea-bed resource extraction, including deep sea mining. In this respect, attention to environmental protection and sustainability is particularly important.

The role of the international community is critical for small island developing States that are susceptible to the effects of climate change, which can hamper their efforts for sustainable development and structural transformation. Concerted actions to address climate change can be undertaken by, for example, supporting the take-up of carbon pricing instruments and energy subsidy reforms, promoting public and private partnerships for low carbon climate-resilient infrastructure investments, and improving transboundary climate data collection. The international community must also help small island developing States to mitigate and adapt to the consequences of climate change by scaling up finance for climate action and providing disaster risk transfer and financing instruments through financing mechanisms such as the Green Climate Fund of the United Nations Framework Convention on Climate Change. Concerted efforts by the international community would not only help mitigate climate change but also accelerate structural transformation of the region's economies towards more low carbon, resource-efficient ones.

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EXPLANATORY NOTES

Analyses in this ***Asia-Pacific Countries with Special Needs Development Report*** are based on data and information available up to the end of February 2019.

Groupings of countries and territories/areas referred to in the present issue of the Report are defined as follows:

- Countries with special needs – least developed countries, landlocked developing countries and small island developing States.
- ESCAP region:
  - ESCAP member States – Afghanistan; Armenia; Australia; Azerbaijan; Bangladesh; Bhutan; Brunei Darussalam; Cambodia; China; Democratic People's Republic of Korea; Fiji; Georgia; India; Indonesia; Iran (Islamic Republic of); Japan; Kazakhstan; Kiribati; Kyrgyzstan; Lao People's Democratic Republic; Malaysia; Maldives; Marshall Islands; Micronesia (Federated States of); Mongolia; Myanmar; Nauru; Nepal; New Zealand; Pakistan; Palau; Papua New Guinea; Philippines; Republic of Korea; Russian Federation; Samoa; Singapore; Solomon Islands; Sri Lanka; Tajikistan; Thailand; Timor-Leste; Tonga; Turkey; Turkmenistan; Tuvalu; Uzbekistan; Vanuatu; and Viet Nam;
  - Associate members – American Samoa; Cook Islands; French Polynesia; Guam; Hong Kong, China; Macao, China; New Caledonia; Niue; and Northern Mariana Islands.
- Developing ESCAP region – ESCAP region excluding Australia, Japan and New Zealand.
- Developed ESCAP region – Australia, Japan and New Zealand.
- Least developed countries – Afghanistan, Bangladesh, Bhutan, Cambodia, Kiribati, Lao People's Democratic Republic, Myanmar, Nepal, Solomon Islands, Timor-Leste, Tuvalu and Vanuatu.
- Landlocked developing countries – Afghanistan, Armenia, Azerbaijan, Bhutan, Kazakhstan, Kyrgyzstan, Lao People's Democratic Republic, Mongolia, Nepal, Tajikistan, Turkmenistan and Uzbekistan.
- Small island developing States:
  - ESCAP member States – Fiji, Kiribati, Maldives, Marshall Islands, Micronesia (Federated States of), Nauru, Palau, Papua New Guinea, Samoa, Singapore, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu;
  - Associate members – American Samoa, Cook Islands, French Polynesia, Guam, New Caledonia, Niue and Northern Mariana Islands.
- Pacific – American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, New Caledonia, New Zealand, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.
- Due to the limited availability of data, associated members of ESCAP are excluded from the analysis by the Report unless otherwise indicated.
- Singapore is not considered to be a small island developing State in the Report because of its high level of development and high-income status, and for simplicity of analysis.

Bibliographical and other references have not been verified. The United Nations bears no responsibility for the availability or functioning of URLs.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Mention of firm names and commercial products does not imply the endorsement of the United Nations.

Growth rates are on an annual basis, except where otherwise indicated.

References to dollars ($) are to United States dollars, unless otherwise stated.

The term “billion” signifies a thousand million. The term “trillion” signifies a million million.

ACRONYMS

ADB	Asian Development Bank
AEC	ASEAN Economic Community
BRI	Belt and Road Initiative
EAEU	Eurasian Economic Union
ECI	Economic Complexity Index
EEZs	exclusive economic zones
EPZs	export processing zones
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
FDI	foreign direct investment
GDP	gross domestic product
GMS	Greater Mekong Subregion
GVCs	global value chains
ILO	International Labour Organization
MSMEs	micro, small and medium-sized enterprises
NIR	new industrial revolution
PPP	purchasing power parity
PPPs	Public Private Partnerships
RVCs	regional value chains
SEZs	special economic zones
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organization

INTRODUCTION

Least developed countries, landlocked developing countries and small island developing States, collectively referred to as "countries with special needs", face deep structural impediments in their pursuit of sustainable development. Thus, while landlocked developing countries suffer from high transport costs to world markets due to their lack of access to the sea, small island developing States are constrained primarily by their geographic isolation and their small size, which translates into lack of economies of scale. Least developed economies face the challenge of overcoming low levels of human development, while also being confronted with high levels of economic vulnerability.

Notwithstanding the structural impediments of these countries, they have experienced steady economic growth in recent decades. The group of least developed countries achieved an average rate of 6.5 per cent during 2010-2017, landlocked developing countries grew at an average rate of 5.1 per cent and small island developing States grew at an average of 5.6 per cent (ESCAP, 2019). This performance was accompanied by significant improvements across a range of social development indicators. For example, the under-5 mortality rate declined to an average of 40 per 1,000 live births in 2016, compared with 54 per 1,000 live births in 2010. During this period, access to electricity in these countries expanded by a quarter, from 62 per cent of the population in 2010 to 78 per cent in 2016. Access to the Internet increased significantly, almost quadrupling from 7 per cent in 2010 to 26 per cent in 2016.

Countries with special needs have made tremendous progress in reducing rates of extreme poverty. This is especially true for the least developed countries. Yet, in many countries, extreme income poverty still remains high. In Timor-Leste, an estimated 30 per cent of the population lives in extreme poverty (defined at the $1.90-a-day international poverty line in 2011 purchasing power parity);[1] in Papua New Guinea it is 28 per cent. Similarly, in the Solomon Islands 25 per cent of the population live in extreme poverty while for Bangladesh, the Federated States of Micronesia and the Lao People's Democratic Republic the figure is 15 per cent of the population.[2] While poverty is a multidimensional concept, income poverty is highest in the rural areas of countries with special needs. On average, two in five people in the Asia-Pacific countries with special needs live on incomes below $3.20 a day, the standard poverty line for lower-middle income countries, compared with 1 in 15 people in other developing Asian economies. While this situation is expected to improve, it is projected that by 2050 more than half the population in these countries will still be living in rural areas.

The high levels of poverty are generally a reflection of low levels of productivity across countries with special needs. The levels of labour productivity in agriculture remain low as mechanization and commercialization in this sector has only been minimal. This is particularly relevant in least developed economies, where average productivity levels are lowest, as well as in landlocked developing countries. Yet, compared with other developing countries, the levels of productivity are also low in services and industry.

Strengthening levels of productivity and increasing productive employment in countries with special needs is therefore critical to reducing poverty levels. Doing so will also provide decent jobs for the millions of people that enter the workforce every year. Indeed, achieving the socio-economic objectives of

the Sustainable Development Goals is ultimately dependent on generating decent employment, as expressed in Goal 8 which seeks to "promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all".

In recent years, the countries with special needs have undergone structural transformation, which broadly refers to the change in the composition and distribution of economic activities across the agriculture, industrial and services sectors (see box). While the pattern of structural transformation varies across countries, a cause for concern is that despite this structural transformation, levels of productivity have not increased sufficiently to further reduce poverty.

One possible reason may be the fact that many countries with special needs have leapt from agriculture to services. In doing so, they are forgoing the advantages of a manufacturing-oriented structural transformation. In tandem with this bypassing of the manufacturing sector, the increase in terms of contribution to output of the service sector in most countries with special needs has mostly been in low productivity services. Indeed, workers have often moved to the informal sector where demand for skilled labour is minimal.

What is structural transformation?

The term "structural transformation" refers to a change in the long-term composition and distribution of economic activities. More specifically, it is a process of reallocating factors of production, both capital and labour, from one economic activity to another. While structural transformation can technically involve shifts from high- to low value-added economic activities, it typically brings about positive outcomes and can be defined effectively as a process of shifting from low to high value-added economic activities (ESCAP, 2015a; UNCTAD, 2016).

Traditionally, structural transformation has broadly involved an economy transitioning from agriculture to manufacturing and then to services at the macro level, as measured by their contribution to GDP and the proportion of the workforce employed. Yet, structural transformation also involves within-sector upgrading, for example, from low-tech manufacturing to high-tech manufacturing, or from low value to high value-added services. This takes place as economies diversify and the sophistication of production within sectors increases. Structural transformation is therefore a multidimensional process that involves not only the movement/reallocation of factors of production across sectors, but also a reallocation of resources within sectors such that technologies of production change (ESCAP and others, 2016).

Structural transformation can be measured in terms of share of the value-added and the distribution of employment in order to capture any structural and intersectoral shifts, while it is also referred to in conjunction with labour productivity growth to capture within-sector upgrading and diversification of production within sectors.

What causes structural transformation?

Structural transformation is a response to changes in some factors of economic development, such as income, resource availability, technology and, to some extent, a change in the political system. It is driven both by push and pull factors.

As a push factor (or supply factor) productivity enhancements in agriculture, for example, would release labour from the sector and "push" it towards more productive industries such as manufacturing and modern services. On the pull side (or demand side), as income increases, the relative demand for food and agricultural products decreases, while at the same time demand for more income-elastic goods and services increases. This will "pull" workers from traditional activities to higher value-added activities.

What does structural transformation result in?

Structural transformation can generate static and dynamic gains. The static gain is the rise in economy-wide labour productivity if workers are employed in more productive sectors. Dynamic gains, which occur over time, result from skills upgrading and positive externalities due to workers having access to better technologies and accumulating capabilities. A successful structural transformation process simultaneously generates productivity growth within sectors and shifts labour from lower to higher productivity sectors, thereby creating more jobs that are better remunerated, more formal and have higher productivity, in order to reduce poverty and inequality (see, for example, Kuznets, 1955; and Lewis, 1954).

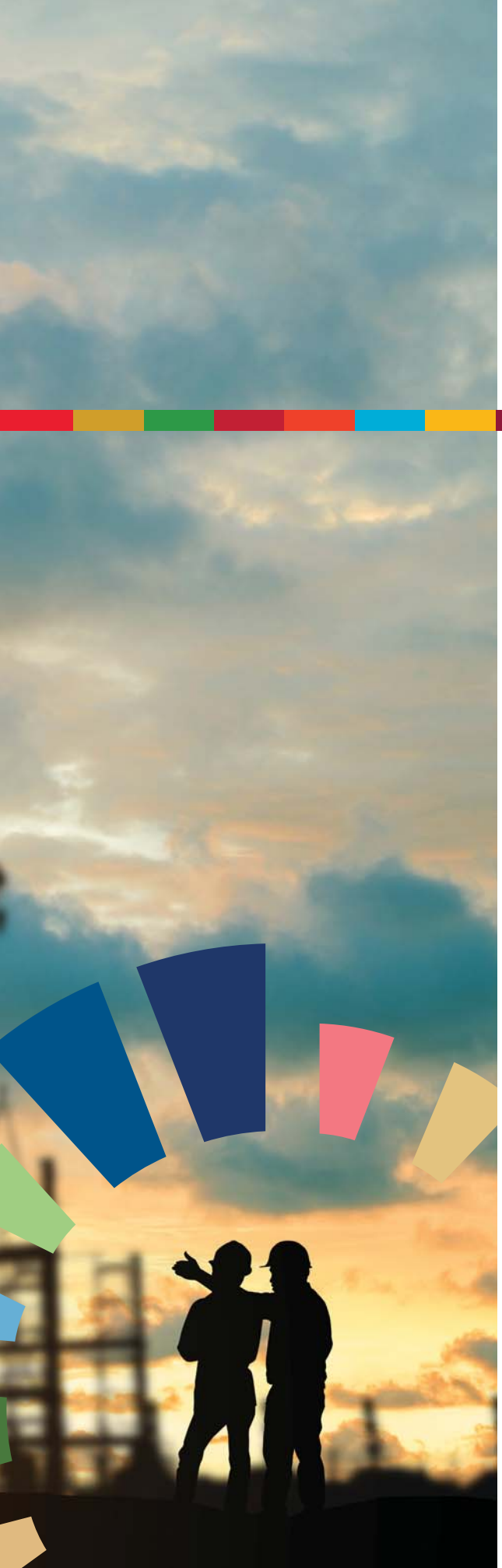
This report therefore assesses in greater detail the structural transformation in countries with special needs and its role in reducing income poverty. The report identifies the appropriate channels, conditions and patterns through which structural transformation can reduce poverty. It also examines whether the traditional approach of structural transformation is still a valid pathway, given the increasing pace of technological advancement as well as the broader objectives of social inclusiveness and environmental sustainability in the era of the 2030 Agenda for Sustainable Development.

Chapter 1 of this report describes the stage and patterns of structural transformation in countries with special needs. It tracks changes in employment and value-added shares and how labour productivity has evolved within these sectors. Chapter 2 explores the link between structural transformation and income poverty reduction. Chapter 3 provides relevant policy considerations for aligning structural transformation and poverty reduction.

ENDNOTES

1 Data are for 2016 and from the World Bank World Development Indicators Database (WDI) (accessed 6 February 2019).

2 Data are for 2015 and from the World Bank PovcalNet (accessed 25 January 2019).



CHAPTER 1

ASSESSMENT OF STRUCTURAL TRANSFORMATION

The Asia-Pacific countries with special needs are a heterogenous group and thus exhibit varying degrees and patterns of structural transformation.[1] A defining feature of the countries with special needs is their low levels of productivity that have only evolved incrementally and, in some cases, stagnated or even regressed. Such low productivity levels, however, mask the huge productivity differentials that exist across sectors, with agriculture typically occupying the bottom spot, and extractive sectors (such as mining and petroleum production) with limited employment potential ranking as the most productive. In fact, such productivity gaps are a feature of developing countries due to allocative inefficiencies that reduce overall labour productivity (McMillan, Rodrik and Verduzco-Gallo, 2014).

The asymmetry between the employment share and productivity of sectors also suggests that the countries with special needs are still at the formative stages of structural transformation and can benefit from significant reallocations. Importantly, economic growth cannot be sustained without structural changes (Kuznets, 1966). Such a process is fundamental to bringing about increases in aggregate productivity. While the typical trajectory of structural transformation is one where factors of production move from primary sectors to industry and then services, the countries with special needs appear to be bypassing a manufacturing-oriented structural transformation. Given the role that the sector has played in driving employment, productivity and poverty reduction, such trends have implications for these countries as they are experiencing a youth bulge as well as operating in a different technological and institutional landscape compared to successful earlier industrializers.

This chapter assesses the pace and patterns of structural transformation in the Asia-Pacific countries with special needs by analysing some of the critical dimensions of structural transformation such as movements in labour and

labour productivity. More importantly, the chapter seeks to trace the drivers of growth in productivity and consequently per capita incomes. It also attempts to identify (a) the sectors that have contributed to transformation and (b) whether the changes in productivity and employment have resulted in an improvement of productive capabilities for these countries. The chapter concludes by describing the daunting task facing these countries.

A. Stylized facts of structural transformation

Two common measures of structural transformation are employment shares by sector and value-added shares by economic activity.[2] This report primarily relies on the share of employment in different sectors in assessing where countries stand. This is because the impact of growth on poverty, a key focus of the report, depends largely on the extent to which decent employment opportunities can be created (World Bank, 2012a). Value-added shares can also present a misleading picture, especially in resource-rich countries, where the extractive sectors are significant in monetary terms but generate very little employment.[3]

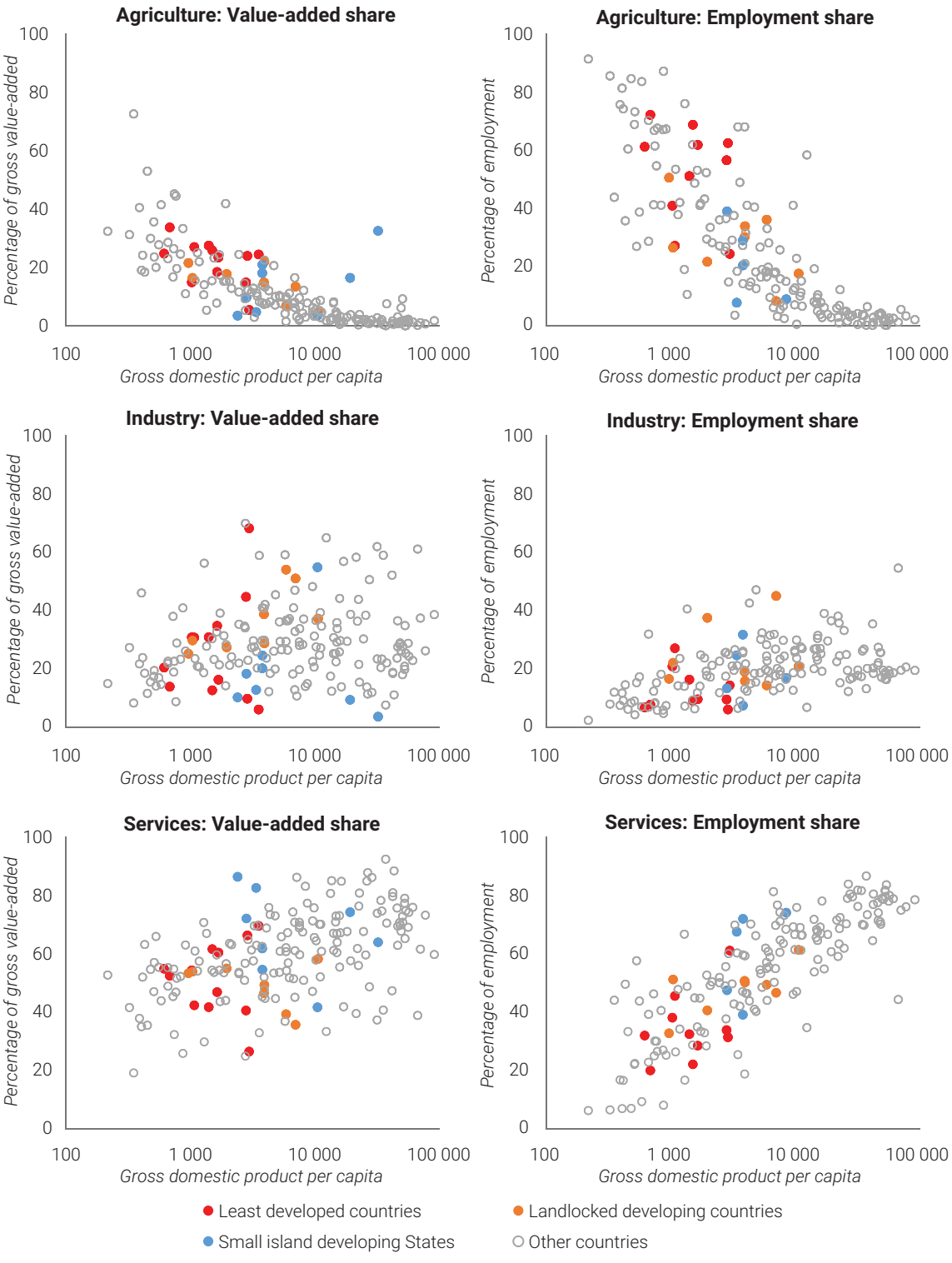
There are still some caveats to these measures such as the broad level of generalization of sectors, since even within these sectors productivity can vary significantly at the intra-sector level, thereby masking certain nuances.[4] Yet, while these caveats may result in a limited description and understanding of the situation, particularly in countries with large informal sectors such as least developed countries and small island developing States – e.g., the informal sector accounts for 77 per cent of employment in Bangladesh and 70 per cent in Nepal – they still provide relationships that are valid at the margin.

Starting at the regional level, one can observe the typical patterns conceptualized by numerous studies (Lewis, 1954; Kuznets, 1957; Chenery and Taylor, 1968). Thus, figure 1.1 shows static cross-sectional associations between the value-added shares (left-hand panels), employment compositions (right-hand panels) and GDP per capita. These confirm the following stylized facts:

- In the agriculture sector (top two panels), employment and value-added shares decrease with GDP per capita, while in the services sector (bottom two panels) they increase with GDP per capita.
- The employment shares in industry broadly follow an inverted U, i.e., increasing for lower levels of development and decreasing for higher levels of development due to the productivity-differential between manufacturing and the rest of the economy (Lawrence and Edwards, 2013). Its value-added share does not follow this trend closely as the sector is very productive in advanced countries (Rodrik, 2015).

While structural transformation is predominantly an economic phenomenon, its social and environmental dimensions must be emphasized to ensure that the process of structural transformation is inclusive and sustainable. The process can be disruptive with costs and benefits spread unevenly, thereby warranting appropriate social policies such as social protection and measures to enhance workers' employability (education and vocational training). On the environmental front, the relationship between structural transformation and the environment has been conceptualized through the "environmental Kuznets curve". Essentially, the inverted U-shaped relationship suggests that, at lower income levels, economic growth is positively correlated with environmental degradation up to a certain threshold. Beyond that threshold, due to technological progress and the shift to services, the emissions intensity of production decreases and income growth is associated with falling environmental impacts (UNIDO, 2017; Taguchi, 2012). In the era of the 2030 Agenda for Sustainable Development, steering production towards more sustainable approaches will therefore be critical as the hypothetical turning point of the Kuznets curve might still be a long way off.

Figure 1.1. Sectoral shares of value-added and employment in Asia and the Pacific, cross-section, 2016



Source: ESCAP, based on data from the International Labour Organization Database (ILOSTAT) and the United Nations National Accounts Main Aggregates Database (UN-AMA) (accessed 25 January 2019).

B. Pace and patterns of structural transformation in countries with special needs

Where do countries with special needs stand?

Based upon each economy's share of employment in agriculture, industry and services, one can classify the structural transformation pathway of countries and thus distinguish between structurally underdeveloped, developing and developed economies (Sen, 2018), as follows:

(a) Structurally underdeveloped economies are those where the share of employment in agriculture is higher than in industry and services;
(b) Structurally developing economies are those where the share of employment in services is highest, followed by agriculture and industry;
(c) Structurally developed economies are those where the share of employment in services is highest, followed by industry and agriculture.

While this approach can lead to the counter-intuitive situation in which some least developed countries and small island developing States could technically be classified as structurally developed, using additional parameters such as aggregate productivity provides a more complete assessment. Nevertheless, the sequence of progression is important and is reflective of the typical path taken by high-income countries. A series of studies have found empirical regularity in the transformation from agriculture to manufacturing, and further from manufacturing to services as the process of economic development (Chenery, 1979; Fuchs, 1980). Essentially, as incomes increase the demand for more income-elastic goods such as those produced by the manufacturing sector increases first. This is followed by the next stage when the domestic income elasticity of demand for services is a little higher than that for manufactured goods, resulting in a higher share of the services sector (UNCTAD, 2013a).

An often-overlooked but related dynamic is the relationship between manufacturing and services. The backward and forward linkages of the manufacturing sector make it a catalyst for the emergence of business services and other high-productivity services (see chapter 2 for a more detailed discussion). The preponderance of low-paying services in the countries with special needs is also associated with their low levels of industrialization.

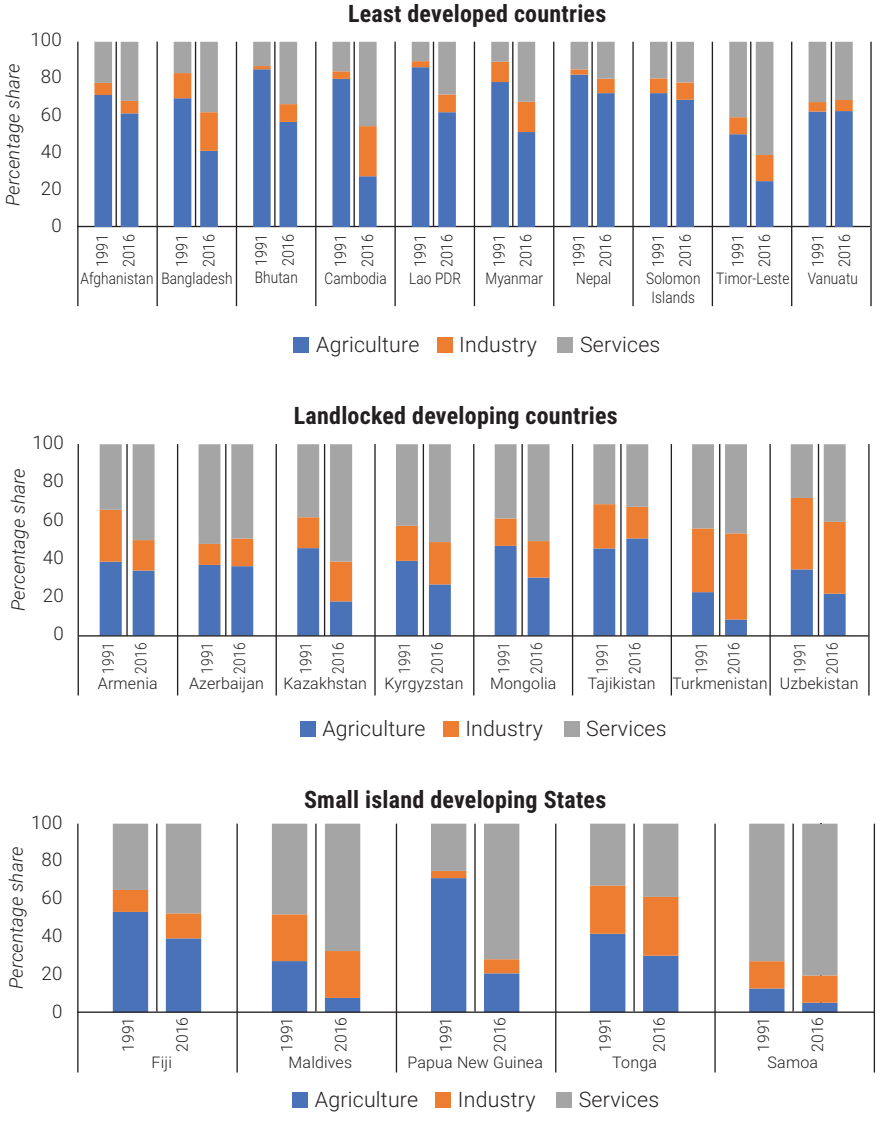
Even within the broad three-sector categorization, intra-sectoral or within-sector transformation can occur. This can take place, for example, by a move from low-skilled labour-intensive manufacturing to high-tech manufacturing, as was demonstrated by the Asia-Pacific region's newly industrialized countries when they moved from garments to semi-conductors to increasingly sophisticated electronics. Indeed, for some countries with special needs, it is this type of transformation within the service and manufacturing sector that is required.

As figure 1.2 illustrates, most least developed countries are categorized as "structurally under-developed", as agriculture still accounts for the largest share of employment. Exceptions are Cambodia and Timor-Leste, where the services sector has recently surpassed agriculture; such economies would be classified as structurally developing. While Bangladesh, Cambodia, Myanmar and Timor-Leste have experienced some level of transformation, Nepal, Solomon Islands and Vanuatu have seen very little structural transformation in recent years. Indeed, the potential for developing a large manufacturing hub or the potential for integration into global value chains (GVCs) may be relatively limited in those economies.

In contrast, most landlocked developing countries, except Kazakhstan, Turkmenistan and Uzbekistan, are considered to be structurally developing as services have emerged as the largest sector in terms of employment, while the share of industry is still less than that of agriculture. In Kazakhstan, Turkmenistan and Uzbekistan, manufacturing has already surpassed agriculture to the extent that these economies are considered to be structurally developed.

While the share of services in the small island developing States was already high, further structural transformation has been limited. The exception is Papua New Guinea with its pattern of structural transformation that is similar to that of Timor-Leste, where released labour from agriculture has been mostly absorbed by low value-added services, so there are limited productivity gains as a whole. Overall, compared to the least developed

Figure 1.2. Trends in employment shares in the Asia-Pacific countries with special needs

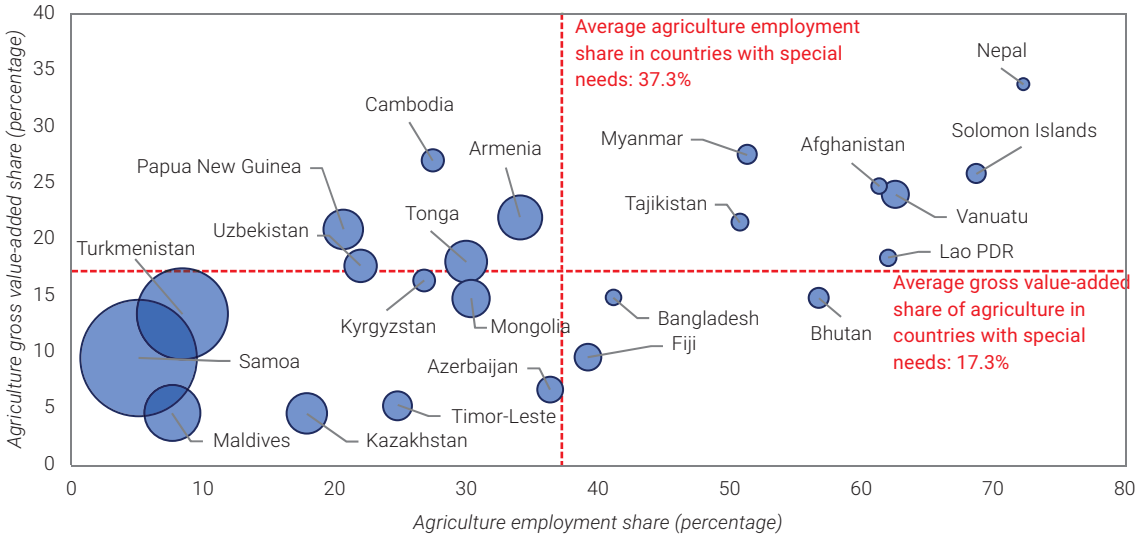


Source: ESCAP, based on data from ILOSTAT (accessed 25 January 2019).

countries, the services sector dominates in small island developing States, and since industry is larger than agriculture they can be classified as structurally developed. However, part of this may be explained by a large government services sector. Furthermore, these economies have relatively limited room for gaining from reallocation factors of production across sectors, and a more strategic approach would involve improving productivity within services.

This raises the question of which economies can gain the most from re-allocations away from agriculture. Figure 1.3 captures each country's position in terms of value-added shares, employment shares and labour productivity in the agriculture sector – a crude representation of the potential for structural transformation. Countries in the upper right quadrant of figure 1.3 have the highest potential for reallocation, as employment and GDP shares in agriculture are higher than average. Labour productivity in the sector is also low due to various reasons such as low levels of mechanization, fragmented landholding and more specifically a limited integration of factor markets between the rural and urban areas (Timmer, 2017). The slow movement of people out of agriculture, on the other hand, may partly be due to the lack of

Figure 1.3. Economies that can gain most from moving out of agriculture



Source: ESCAP, based on data from ILOSTAT and UN-AMA (accessed 25 January 2019).

Note: The bubble size represents agricultural output per worker. Gross value-added and employment shares are based on 2016 data.

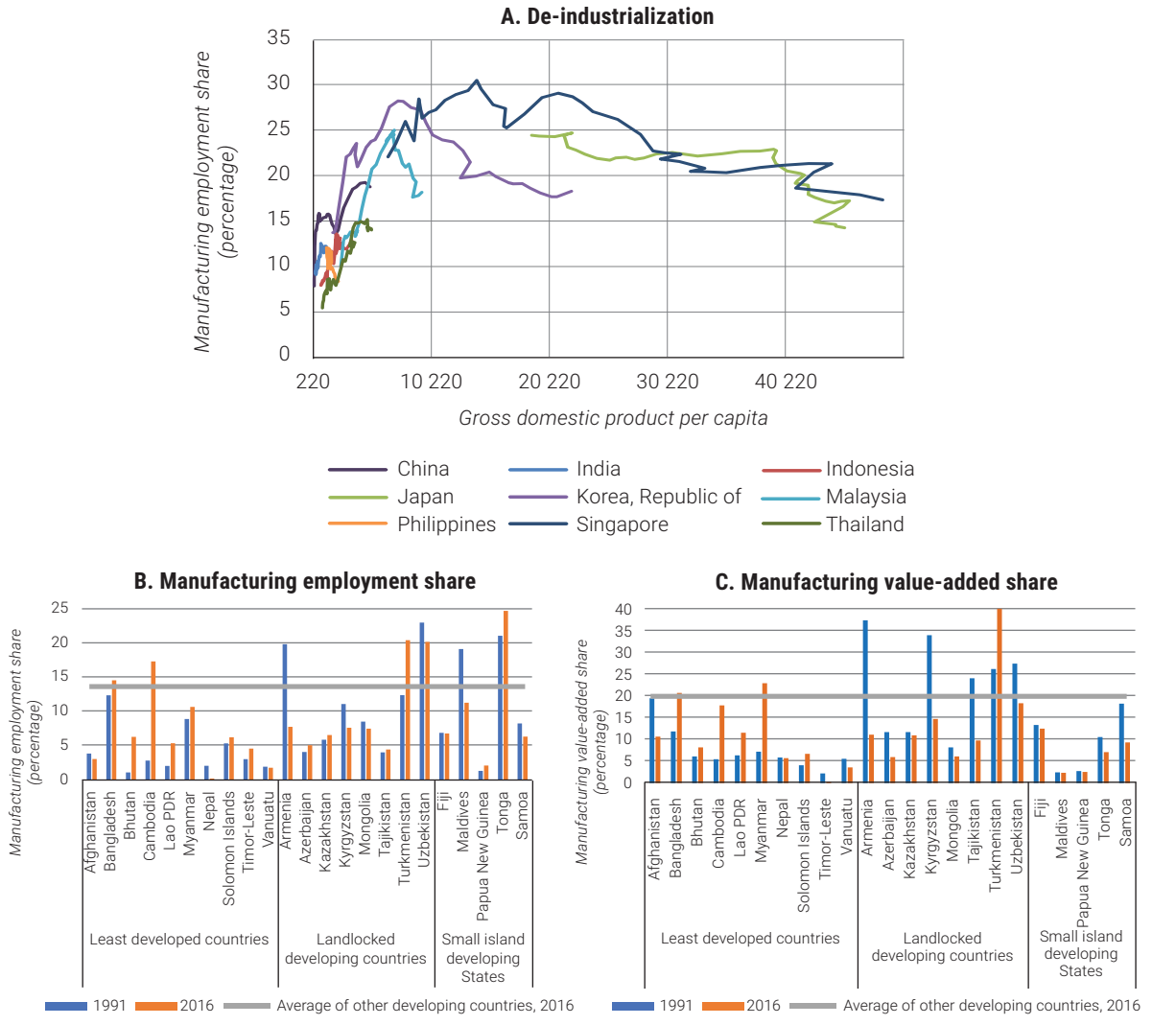
opportunities in other sectors or to rigidities in labour transitioning to manufacturing and regulations governing use of land (Sen, 2018). Nepal, in particular, stands out with an extremely high share of employment and the lowest labour productivity in agriculture amounting to $540 per worker, which is in stark contrast to its manufacturing sector where productivity is $31,000 per employee. This is further compounded by Nepal's high level of informality and aptly captures the dichotomy between the modern and traditional sectors that is a common feature of lesser developed economies (Fields, 2007).[5]

Generally, an initial shift from agriculture to labour-intensive manufacturing that is consistent with an economy's comparative advantage has characterized successful transformation processes in a number of countries in the Asia-Pacific region. This was evident in the Asian economies of Japan, Republic of Korea, Taiwan Province of China, Singapore and, more recently, China, Malaysia and Thailand. Yet in recent years many economies have seen a jump from agriculture to services thereby bypassing the dynamism of the manufacturing sector. Consequently, manufacturing employment is peaking at lower shares and at lower levels of income compared to the past (panel A of figure 1.4).[6] The fact that no country, with the exception of oil-rich countries, has been able to reach high income status without the manufacturing sector accounting for at least 18 per cent of employment highlights some of the concerns related to limited industrialization (ADB, 2013).[7]

The benefits of manufacturing are manifold. It is characterized by significant static and dynamic economies of scale, and the sector has the highest capacity to disseminate productivity improvements to the economy as a whole (UNCTAD, 2013a).[8] Manufacturing is also fundamental to the labour market. Jobs in manufacturing tend to be more productive than others and better paid, in addition to offering better labour conditions. Through its spill-over and indirect effects, the productive linkages of manufacturing with other sectors lead to employment creation (Szirmai and Verspagen, 2011; UNIDO, 2013).

Premature de-industrialization or in some cases limited industrialization is evident in countries with special needs, with an average employment share of manufacturing at 8 per cent. This is worrying as the benefits of industrialization that were harnessed by early movers may not be available for these countries.[9] In some least developed countries, manufacturing value-added as a share of GDP has increased; these patterns are echoed in employment shares, although the levels are lower than for the value-added shares (panels B and C of figure 1.4).

Figure 1.4. Deindustrialization and limited industrialization in Asia and the Pacific



Sources: ESCAP, based on data from ILOSTAT and UN-AMA (accessed 25 January 2019), Groningen Growth and Development Centre (GGDC) (accessed 4 February 2019).

Note: Other developing countries include Brunei Darussalam, China, Georgia, Indonesia, India, Islamic Republic of Iran, Republic of Korea, Sri Lanka, Malaysia, Pakistan, the Philippines, Russian Federation, Thailand, Turkey and Viet Nam.

An exception is Cambodia, where the share of manufacturing employment has reached 18 per cent. However, labour productivity within the sector has barely improved, indicating that the capital intensity of the sector has hardly changed, and the sector still absorbs mostly unskilled labour.

The reasons for the limited growth of manufacturing are manifold and include, inter alia, the increasing adoption of labour-saving automation and the reduced policy space in the global trading regime compared with the context during the East Asian miracle (ESCAP, 2018d; Szirmai and Verspagen, 2011). On the other hand, a more consequential reason could be the lack of domestic efforts to facilitate structural change. As is evident from the large infrastructure gaps and low ease of doing business (ESCAP, 2017a), the countries with special needs are confronted by significant coordination and information failures.[10] Nevertheless, some countries with special needs, such as Turkmenistan and Uzbekistan, have achieved decent employment growth in manufacturing with the former also experiencing large increases in value-added shares, suggesting the potentials for industrialization if pursued coherently (box 1.1).

Box 1.1. Manufacturing-led structural transformation in Uzbekistan

Uzbekistan is regarded as one of the best performing transition economies among the 15 former Soviet Republics. It was the first country to recover its pre-transition GDP level. By 2001, its GDP was 3 per cent above the 1989 level. Uzbekistan succeeded in upgrading its industrial output; the share of machinery, equipment and chemicals increased at the expense of light industry. Thus, the share of machinery and equipment in total exports increased from 2 per cent to 7 per cent and the share of chemical products from 6 per cent to 9 per cent, while the share of cotton in exports fell from 65 per cent in 1992 to only 9 per cent in 2012.

Uzbekistan created a competitive export-oriented auto industry from the ground up. Car production was supported by the Government and the Republic of Korea's automobile company, Daewoo. After Daewoo declared bankruptcy, General Motors of the United States became the partner of the Government. The Government also bought a stake in Turkey's Koc Holding subsidiary SamKochAvto, a producer of small buses and lorries. Afterwards, it signed an agreement with Isuzu Motors of Japan to produce Isuzu buses and lorries. In 2014, Uzbekistan produced 250,000 cars, of which nearly one quarter were exported. In 2011, the Tashkent engine plant joint venture between the State Auto Company and General Motors became operational with a capacity of 360,000 engines a year.

The diversification in industry and the expansion of manufacturing exports were mostly the result of both protectionism and the policy of low exchange rate by the Government/central bank. Uzbekistan maintained a low (undervalued) exchange rate due to rapid accumulation of foreign exchange reserves. In addition, there were non-negligible tax measures to stimulate the export of processed goods (50 per cent lower tax rates for manufacturing companies exporting 30 per cent and more of their output). National statistics suggest that the share of non-resource goods in exports increased to more than 70 per cent against less than 30 per cent in 1990 before independence.

As for the agricultural sector, diversification was carried out mostly via state orders, with emphasis on cereals over cotton. Thus, the production of cotton decreased by 50 per cent compared to the late-1980s, while the output of cereals and vegetables increased several-fold.

Sources: Chowdhury (2019) and Popov and Chowdhury (2016).

C. Dimensions of structural transformation in countries with special needs

1. Trends in employment and labour productivity

To further assess the implications of the trends highlighted above, examining the interplay between employment and labour productivity is important. Most least developed countries in which transformation has taken place have experienced higher rates of labour productivity growth; however, in many small island developing States where transformation has been slower, the growth rate of labour productivity was less than 1 per cent per year between 1991 and 2016. Vanuatu and Solomon Islands, two least developed countries that did not experience employment structural transformation, achieved limited labour productivity growth.

However, not all countries that went through structural changes witnessed increases in labour productivity. For example, Timor-Leste and Papua New Guinea, two countries that experienced a dramatic shift in employment shares witnessed very different outcomes. Labour productivity grew at a double-digit rate in Timor-Leste, mostly driven by oil exports, while in Papua New Guinea labour productivity grew less than 1 per cent per year as most labour moved to low productivity services.

Thus, distinguishing between sectoral productivity and aggregate productivity is important, as an increase in the former may not necessarily result in an increase in the latter. Productivity within a sector can increase in various ways, for example, through

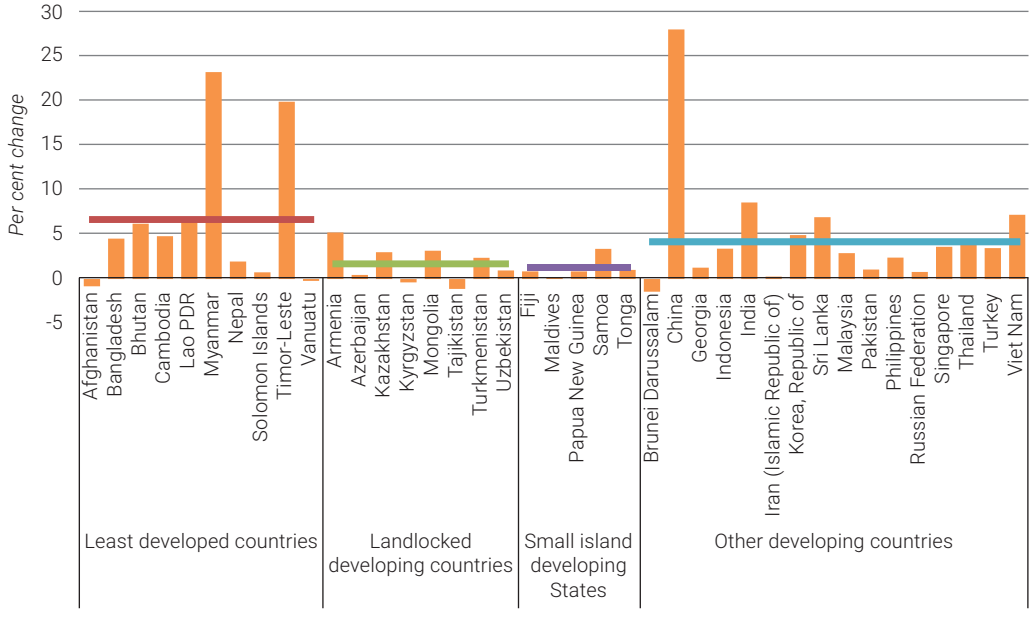
efficiency gains from technology or process innovation or when less efficient firms and excess labour exit. However, the outcomes for aggregate productivity can be uncertain, depending on whether the released workers end up in sectors with higher or lower productivity. If workers mostly relocate to sectors that are not significantly more productive, the impacts on aggregate productivity will be negligible.

Figure 1.5 shows that the picture in countries with special needs is quite varied in terms of aggregate productivity gains between 1991 and 2016. While significant gains were observed in Myanmar and Timor-Leste, the gains in other countries with special needs were more muted. Theoretically, the allocative inefficiencies and scope for structural transformation suggest that countries with special needs should be able to grow at faster rates. Instead, it can be seen that except for the group of least developed countries, the countries with special needs experienced slower labour productivity growth than other developing countries.

To further understand where countries with special needs stand in their structural transformation trajectories, movements in the employment shares relative to productivity of sectors can be assessed. While a broad movement towards higher productivity activities can be observed, the magnitude in itself is not significant when compared with the newly industrialized countries such as the Republic of Korea, Taiwan Province of China and Singapore where labour productivity grew nearly four-fold between 1970 and 2000.[11] Figure 1.6 shows the reallocation of employment to the more "modern" sectors (McCaig and Pavnick, 2013).[12] The change in employment share is plotted against initial relative sectoral productivity. In essence, a desired outcome would be an increase in employment share in sectors where productivity is higher. Visually, a position closer to the upper right corner would indicate positive contributions to aggregate productivity and income. The assessment for the landlocked developing countries can also be split into two periods to highlight the negative contributions in North and Central Asia for 1991-2001 of the dissolution of the Soviet Union (panels C and D of figure 1.6).

The overall positive shift for least developed countries and small island developing States is shown by the upward slope of the fitted line. The steeper slope for least developed countries is consistent with their higher labour productivity growth. The largest shifts in least developed countries are directed towards some high

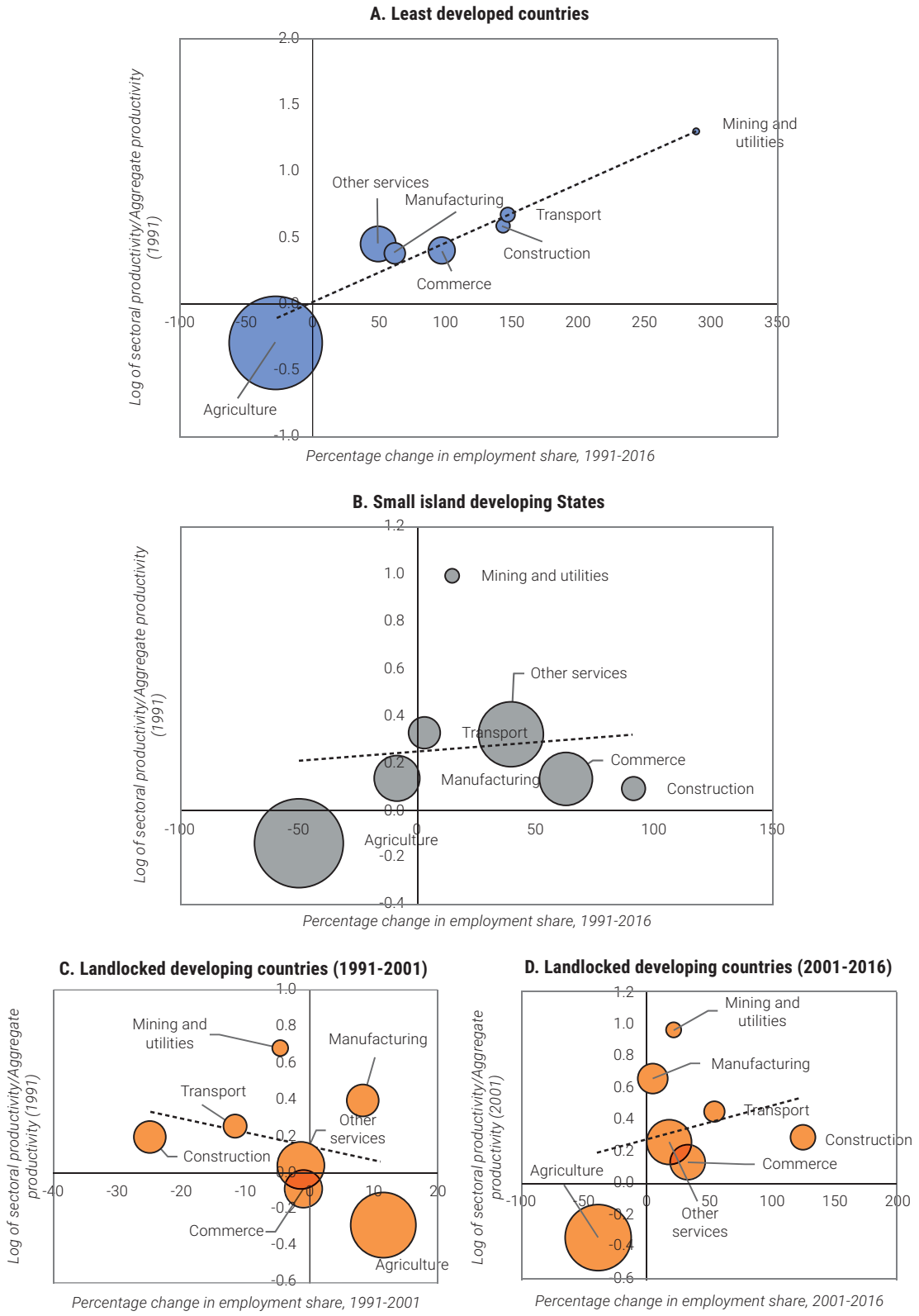
Figure 1.5. Annual aggregate change in labour productivity, 1991-2016



Source: ESCAP, based on data from ILOSTAT and UN-AMA (accessed 25 January 2019).

Note: The horizontal lines represent simple averages of the annual aggregate change for each country group.

Figure 1.6. Change in employment and relative productivity



Source: ESCAP, based on data from ILOSTAT and UN-AMA (accessed 25 January 2019).

Note: The bubble size reflects employment share of the sector at the start of the period. All figures are based on simple averages.

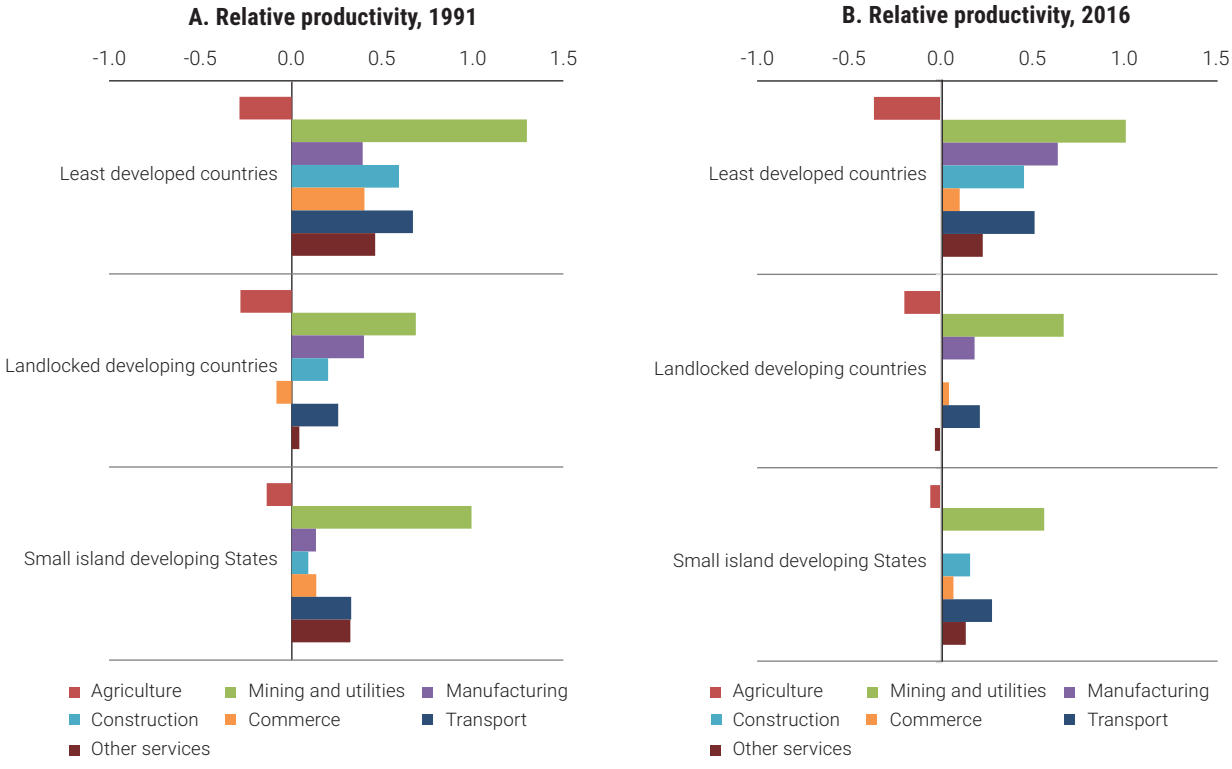
productivity sectors such as mining and construction. However, the aggregate impact on productivity and per capita income of such a shift is muted due to the extremely low shares of employment in these sectors in the base year. The mining and utilities sector, for example, reported an average productivity of $44,000 in 1991 at the start of the period for least developed countries against an average employment share of only 0.39 per cent. This underscores the fact that these sectors are highly capital intensive, and consequently only provide limited scope for positive spillovers through employment generation and backward linkages.

In fact, a glance at the relative productivity levels of sectors that plot the corresponding values on the vertical axis in the previous figure reveals this clearly (figure 1.7). As relative productivity is measured by taking the log of the ratio of productivity in a sector to aggregate productivity, the positive bars reflect higher than aggregate productivity and vice versa.

While figure 1.7 reflects averages, at a more disaggregated level in countries such as Timor-Leste and Bhutan, productivity in the mining and utilities sector was 44 and 13 times higher, respectively, than aggregate productivity in 2016.[13] In every economy apart from Samoa and Turkmenistan, but especially in least developed countries, productivity of agriculture is significantly lower than economy-wide productivity. Indeed such huge variations in productivities, which are a feature of underdevelopment (McMillan, Rodrik and Verduzco-Gallo, 2014), can also be a significant source of growth (Lewis, 1954). It can be seen that such gaps were, and still are the widest for least developed countries. However, this is to be expected, considering their low levels of development.

What sets the experience of the newly industrialized countries apart from more recent cases, such as in countries with special needs, is the significant influence of the manufacturing sector – which also employed a huge segment of the labour force – in

Figure 1.7. Relative labour productivity by sector, 1991 and 2016



Source: ESCAP, based on data from ILOSTAT and UN-AMA (accessed 25 January 2019).

Note: The length of the bars in no way reflects absolute productivity. Relative productivity is measured by taking the log of the average ratios of productivity in a sector to aggregate productivity. The simple averages for the three groups of countries are represented in this figure.

driving aggregate productivity. While the least developed countries have, in general, recorded increases in the share of manufacturing employment from 1991 – when the share was 4 per cent – levels still hover at a lowly 7 per cent. For the small island developing States the move in employment towards more productive sectors has mostly been towards commerce and other services (figure 1.6, panel B). Interestingly, the manufacturing sector in small island developing States does not display the stylized fact of higher relative average productivity, especially in 2016 (figure 1.7).

In landlocked developing countries, the employment share of the least productive sector increased during the initial period (1991-2001), acting as a drag on aggregate productivity and per capita incomes. Conversely, during the second period (2001-2016), employment share in the construction sector increased the most; as a sector with above average productivity in 2001 in four of the landlocked developing countries, and accounting for a fair share of employment, it contributed to productivity growth in these countries. The movement out of agriculture was also particularly steep, with the sector seceding 39 per cent of its share in the second period. The manufacturing sector, which was the second-most productive sector, saw a very marginal increase of 4 per cent in its share of employment. This average figure masks some significant variations at the country level where some landlocked developing countries, such as Azerbaijan, Mongolia, Turkmenistan and Uzbekistan, witnessed double-digit increases, whereas in Armenia, Kazakhstan and Tajikistan the reverse occurred.

In many countries with special needs, employment in services rose significantly. However, labour productivity in services increased only marginally or even decreased except for a few cases (panel A of figure 1.8) Such negligible productivity growth relative to change in the employment share is evident except for some outliers such as Armenia, Myanmar and Samoa. Agriculture has shed labour, but industry has not been able to absorb the resulting rural-urban migration. Indeed, a large part of the urban workforce has moved into low-productivity informal services, especially in the retail and trade sector which is usually dominated by small-scale family-run businesses (panel B of figure 1.8). This is particularly the case for countries such as the Lao People's Democratic Republic and Papua New Guinea.

Figure 1.8. Percentage change in employment shares, and labour productivity, of the services sector, and changes in services subsectors between 1991 and 2016

A. Percentage changes in employment share and labour productivity of services, 1991-2016

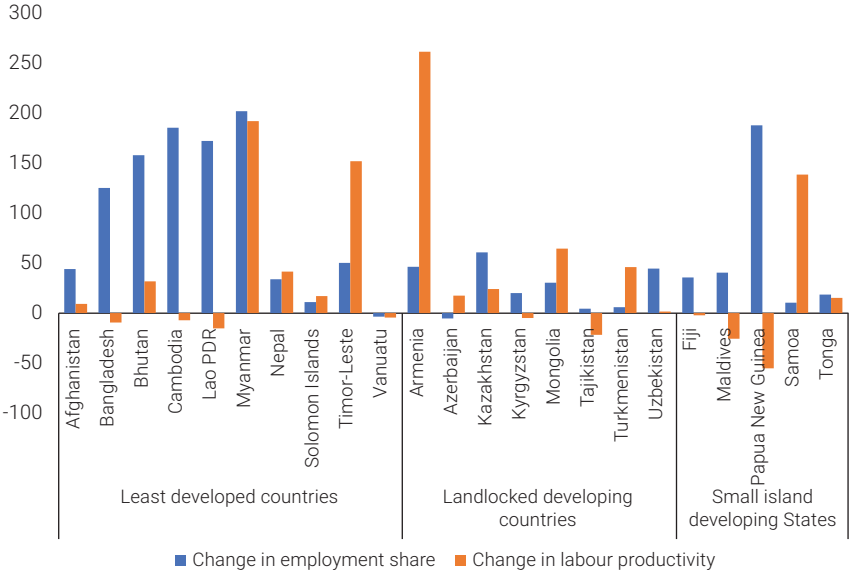
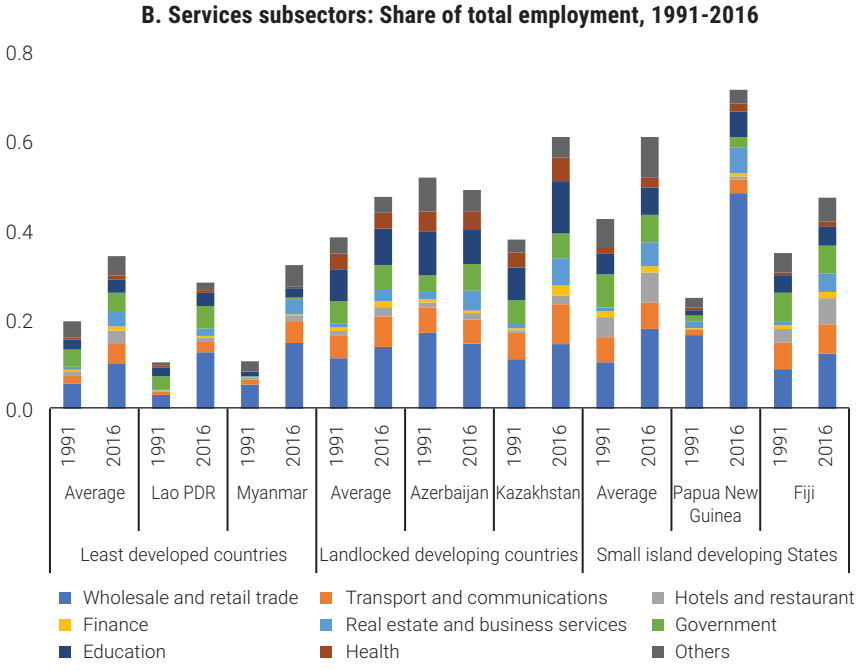


Figure 1.8. *(continued)*



Source: ESCAP, based on data from ILOSTAT and UN-AMA (accessed 25 January 2019).

Note: The averages presented in panel B are the overall average for the country with special needs category.

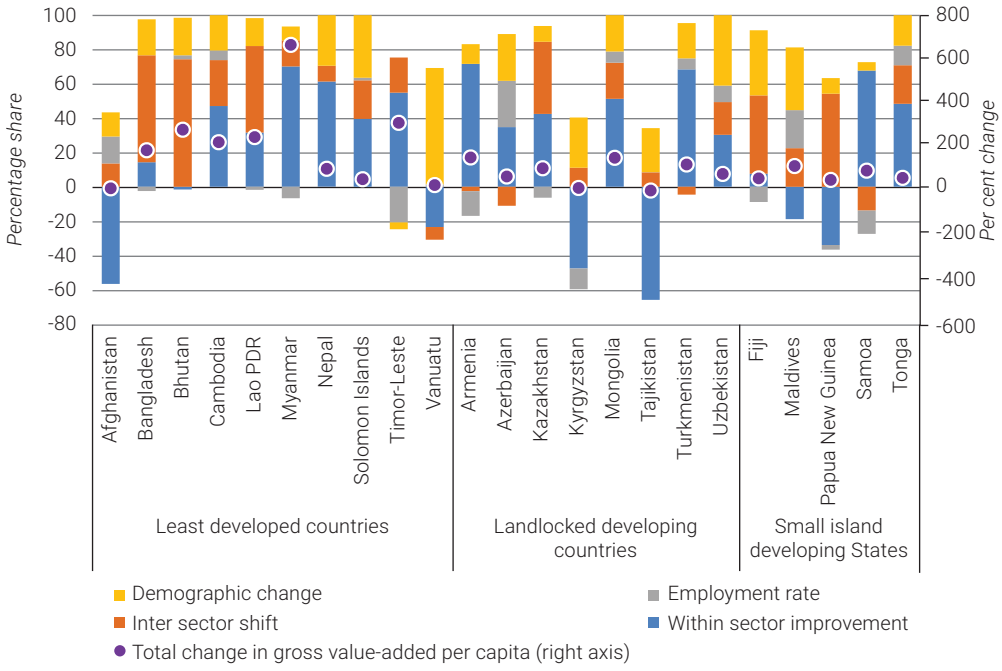
2. Decomposing productivity and output per capita changes

With a foundational view of the trends in labour productivity, income and employment, it is possible to assess how these movements contribute to per-capita output, using a Shapely decomposition. This decomposition links per-capita output growth to several components: (a) labour productivity growth within a sector; (b) reallocation of workers across sectors; (c) changes in employment rates; and (d) demographic changes.[14]

Such a holistic framework is appropriate, especially for countries with special needs, where one can observe a "youth bulge". Furthermore, it allows a complete analysis to be made of the impact of movements in sectoral labour productivity and employment changes on output per capita. For example, an increase in employment in a sector may result in a decline in aggregate productivity and per capita output if productivity in the sector is low. Similarly, an increase in productivity in a particular sector may not necessarily result in an increase in aggregate productivity. As discussed above, this can occur when the increase in a sector's productivity is due to less competitive firms and surplus labour exiting the sector but ending up in lower productivity sectors; this will result in a decline in aggregate productivity. Thus, such integrated frameworks provide a more complete assessment.

Figure 1.9 shows the results of such a decomposition.[15] For example, in Bangladesh, 60 per cent of per capita output growth between 1991 and 2016 can be explained by a reallocation of labour, referred to as the "between effects" or inter-sector shift (in the orange portion of the bars) and less than 20 per cent by within-sector upgrading or by the within-effect (in the blue part of the bars). The remaining 20 per cent can be explained by changes in demographic factors (yellow) and employment participation (gray). Thus, in some least developed countries, such as Bangladesh and Bhutan, the reallocation of labour has been a strong driver of aggregate labour productivity growth as resources moved to more productive activities, whereas in some resource rich economies growth within sectors has dominated. In countries

Figure 1.9. Contribution to gross value-added per capita change in 1991-2016, percentage of all sectors



Source: ESCAP, based on data from the World Bank World Development Indicators Database (WDI), ILOSTAT and UN-AMA (accessed 25 January 2019).

where labour moved to lower productivity activities the inter-sector shift component is negative (see box 1.2 for cases of reverse structural transformation). This is visible in Armenia, where a significant increase in employment in high-productivity services was not enough to offset a collapse in manufacturing employment, resulting in a negative net contribution of this term.

In the case of small island developing States, average growth of per capita output and labour productivity was lower than those of other country groups. For these countries the contributions from demographic change and employment participation were much higher than the average for countries with special needs, partly due to their small population bases that magnify the impact of any changes.

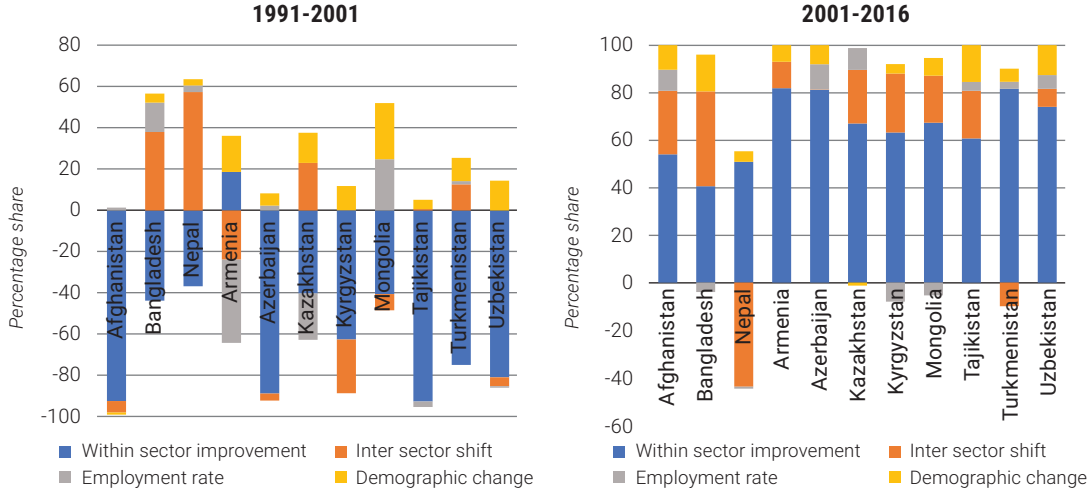
A comparison of the decomposition of countries with special needs with that of other developing and advanced economies also provides some insights. At lower levels of per capita income, the contribution of the between-effect (inter sector shift component) is highly significant as there is an abundance of untapped "modern" sectors where productivity is higher than in agriculture. Thus, the between-effect of structural transformation is highest at income levels between $1,500 and $5,000, accounting for almost 31 per cent of the growth in labour productivity for countries in this income range (Foster-McGregor and Verspagen, 2016). This is approximately the income range for most countries with special needs, and thus an appropriate reference point. The relative contribution of this component diminishes progressively as income levels rise; then productivity gaps between sectors diminish and economy-wide convergence is realized, following which the within-sector effect assumes prominence.

A stark contrast between the countries with special needs and other developing and advanced economies is seen in the magnitude of the contribution of the employment rate to growth in per capita income. Whereas in the earlier industrializers the employment rate accounted for 33 per cent of growth, in countries with special needs, and particularly least developed countries, the employment rate contribution was very low.[16]

Box 1.2. Two contrasting periods of structural transformation

While 1991-2016 was marked by a broad pattern of structural transformation on average, the aggregate outcome masks certain contrasts within. Hence, the assessment is split into two periods for a select group. With the exception of Mongolia, the transition from centralized planning was economically disruptive as market institutions were largely non-existent. The former Soviet economies, on average, witnessed a drop in per capita income of nearly 30 per cent, accompanied by high rates of inflation, partial de-industrialization triggered by the loss of their primary market – the Soviet Union – and the collapse of Soviet-type welfare systems (Batsaikhan and Dabrowski, 2017).

Box figure A. Two contrasting periods



Source: ESCAP, based on data from WDI, ILOSTAT and UN-AMA (accessed 25 January 2019).

The surge in unemployment was compounded by collapsing output within individual sectors, consequently resulting in significant declines in productivity. This resulted in a type of reverse structural transformation and is captured by the segments of the columns below the horizontal axis in the figure. Landlocked developing countries also saw declines in manufacturing output and productivity contributions across the board with the closure of state-owned enterprises.

In the case of the least developed countries of Bangladesh, Afghanistan and Nepal, a negative contribution of this term occurred during the initial period. For Bangladesh and Nepal this was not due to a fall in output, as in the case of Afghanistan, but due to employment increasing in some sectors, implying a larger number of people to whom the output accrues. Based on the definition of productivity, if the number of workers in a sector increases faster than output, a decrease in productivity can be expected. In the case of Afghanistan, it is not surprising that the devastating conflict has caused productivity in every sector apart from transport to collapse, dragging down aggregate productivity growth.

During the second period for these countries one can observe consistent growth in aggregate labour productivity buttressed by strong contributions of sector improvements. Even landlocked developing countries experienced strong growth within sectors, with some marginal contributions also from structural change. For the former Soviet countries, the existence of a foundation for modern sectors in the form of infrastructure and human capital meant that reigniting growth simply required some institutional reforms and not the shifting of labour across sectors or large investment drives. Growth was also largely driven by growing exports of volatile commodities and minerals with limited employment generation.

In Nepal, manufacturing productivity increased significantly during 2001-2016. At first glance, an increase in manufacturing productivity is again a desired outcome. However, this primarily came about as a result of a collapse in employment by 96 per cent. The corresponding increase in output was only 15 per cent. This suggests that production efficiency improved as less productive firms exited the sector. As emphasized above, ensuring that the resources released are diverted to more productive activities is critical to achieving a positive contribution by structural change. The reverse appears to have occurred in Nepal, where employment increased in sectors with lower productivity than manufacturing, especially agriculture. Such an outcome can be attributed to the spill-over from the internal conflict, a protracted energy deficit and weak infrastructure (Shrestha, 2014). The benefits of productivity improvements were essentially concentrated among those remaining in the manufacturing sector. Thus, increases in productivity within a sector do not always result in, or are a result of socially optimal outcomes.

In Bangladesh, the patterns were more balanced as the within-sector contributions were strongest from agriculture, manufacturing and construction. Agricultural productivity increased by 93.7 per cent against a 10.89 per cent decrease in employment, suggesting genuine gains in productivity and not just a mechanical outcome.

Box 1.3. Some empirics on the determinants of structural transformation

The pace of transformation typically depends on how quickly its drivers evolve, such as the pace of income growth (i.e., shift in demand), the pace of demographic changes, resource availability and efficiency, product innovation and technological advancements. However, government policies and capabilities also facilitate structural transformation. Such determinants can be conceptualized in a framework that encompasses "Government failures" related to the functioning of labour, land and product markets, and "market failures" related to coordination of investment, credit market imperfections and human capital formation (Sen, 2018). Thus, countries with more flexible labour markets experience greater growth-enhancing structural transformation and vice versa (McMillan, Rodrik and Verduzco-Gallo, 2014). Similarly, the availability of skilled labour can also influence the sophistication level of activities into which an economy can venture.

To quantify this conceptual framework, this exercise uses an annual panel data of 135 countries from 1991 to 2016 to build a model with one dependent variable (share of agriculture employment) and four independent variables: (a) business freedom; (b) property rights; (c) interest rates spread; and (d) lower secondary education completion. The efficiency and effectiveness of government regulations are consequential for doing business.

Business freedom and lower secondary education have a very strong negative effect on the share of agriculture in both regressions. With time dummies, an increase in the business freedom index of one unit, results in a 0.103 percentage point decrease in the share of agriculture (or a 0.109 percentage point decrease without time dummies). As for lower secondary education, a one unit increase in the completion rate decreases the agricultural share by 0.119 percentage points. With time dummies, the decrease is 0.082 percentage points. The interest rate spread has a positive effect on the share of agriculture in total employment in both regressions, but is only significant without time dummies. An increase of one unit, increases agricultural share by 0.063 percentage points. As for property rights, the variable is counter-intuitively insignificant in both regressions with unexpected signs.

A better business environment obviously promotes a vibrant private sector by facilitating the emergence of more modern sectors such as manufacturing and services, and is a prerequisite for re-allocating labour from the agriculture sector to other sectors. Education is an important supply-side driver of structural transformation as it enables workers to undertake increasingly skilled and sophisticated activities. The interest rates spread is a decent proxy that reflects financial market efficiency. Importantly, financial sector efficiency facilitates capital accumulation and the growth of non-farm activities that drive structural transformation.

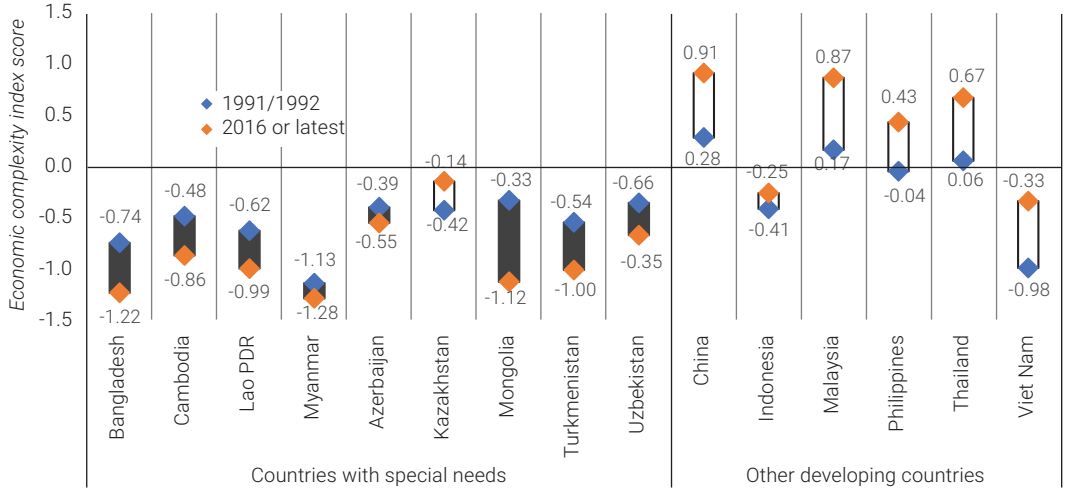
A defining feature of earlier industrializers in Asia was the prominence of the manufacturing sector in driving employment growth, which was then matched by a high labour force participation rate. Among the least developed countries, those in South Asia have lower participation rates stemming from cultural norms that discourage entrance (ESCAP, 2016). Despite this fact, a cause for concern is that least developed countries have not been able to generate sufficient productive off-farm employment to absorb the growing number of entrants seeking non-agricultural work (UNCTAD, 2013b). With growth mostly dependent on urban economic activity, the rural poor have to seek employment in cities, making the flow of labour more difficult. This is most visible in Asian least developed countries where the number of entrants to non-agriculture has been more than double that of agriculture. To facilitate the enhancement of growth by productivity, flexible labour markets and skills enhancement will be critical (see box 1.3 for some determinants).

D. Has structural transformation translated into an improvement in productive capacities?

Sustained increases in per capita income, as characterized by continuous technological innovation and industrial upgrading of an economy's productive capacities, is a modern phenomenon (Lin and Monga 2011; Maddison, 2001). A successful structural transformation must include two interrelated outcomes; in addition to reallocation of labour to more productive existing activities, new and more advanced activities must also emerge. Despite some labour productivity growth in countries with special needs, only limited progress in product sophistication can be observed. Overall, the within-sector improvement that has taken place in those countries is largely due to an expansion of output of existing sectors, not necessarily due to within-sector upgrading. Simply producing more of the same product does not boost an economy's capability (ADB, 2017). For example, Mercer-Blackman, Foronda and Mariasingham (2017) found that while Bangladesh had benefitted from being a major player in clothing global value chains, it had been slow in developing ecosystems that can enable it to move up along global production chains; this is reflected in the low sophistication of its exports.

Figure 1.10 shows the change in Economic Complexity Index (ECI) scores, a holistic measure of the productive capacities for selected Asia-Pacific countries between 1991 and 2016. Among countries with special needs for which sufficient data are available, Kazakhstan is the only country for which

Figure 1.10. Economic complexity index, change between 1991/1992 and 2016



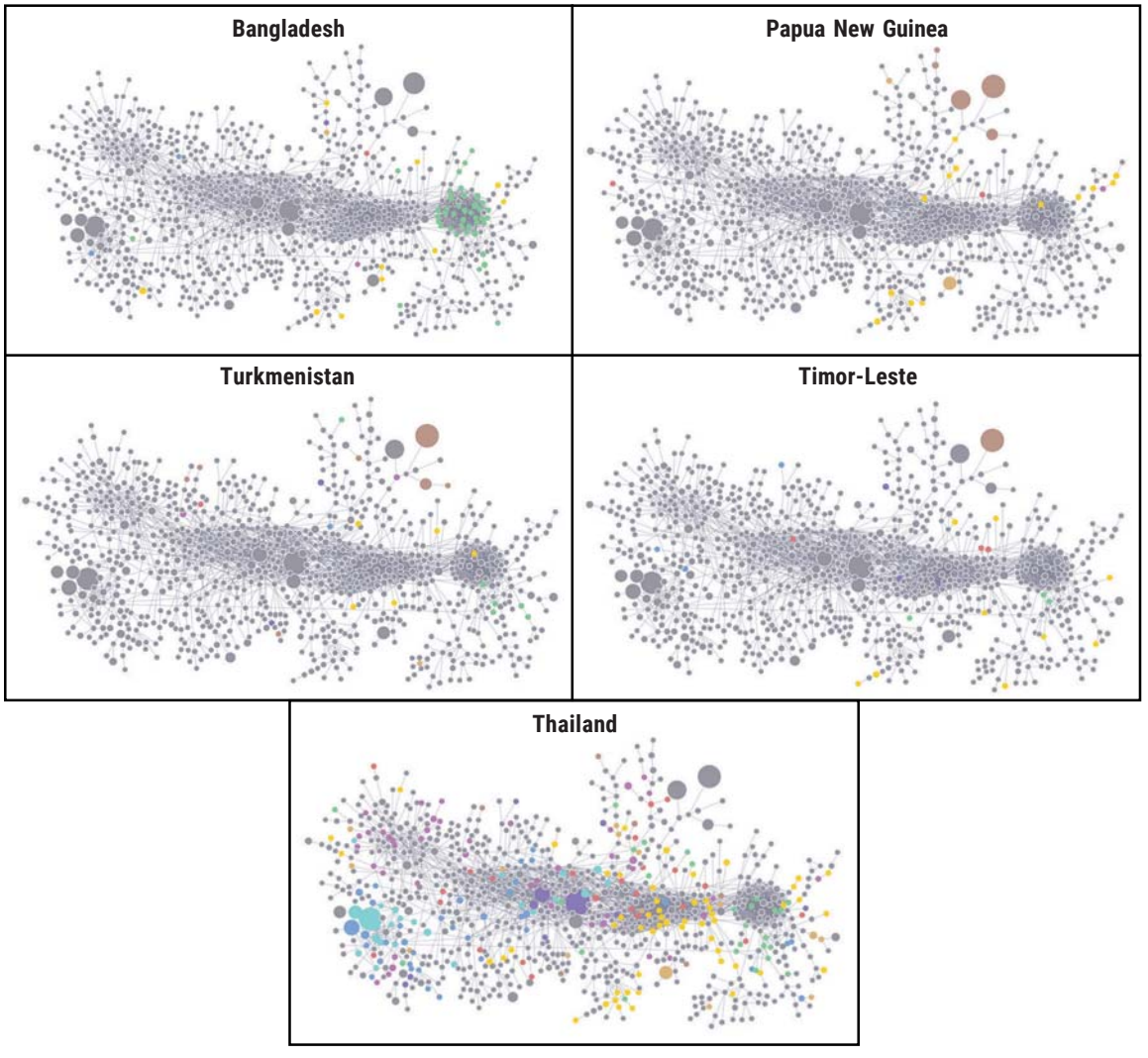
Source: ESCAP, based on data from The Observatory of Economic Complexity, the Massachusetts Institute of Technology Media Lab (accessed 25 January 2019).

Note: White bars on the figure represent improvements, while black bars represent deterioration.

the ECI score has improved marginally. In contrast, the ECI scores have improved for most of the other developing countries, such as China, the Philippines, Thailand and Viet Nam. This suggests that, in relative terms, countries with special needs are less capable of producing sophisticated and complex products than two decades ago.

For most countries with special needs there appears to have been limited upgrading of production structures, whereas other developing countries have moved on to more complex products. The speed at which countries can transform their productive structure and upgrade their exports depends on having a path to nearby goods that are increasingly of higher value (Hausmann and Klinger, 2006). A glance at the product space maps for some countries with special needs also shows a sparsely spread network compared to, for example, Thailand (figure 1.11). This spread reflects the lack of nearby products that require similar capabilities and thus the inherent difficulties in diversifying.[17] It is further

Figure 1.11. Product space maps for select countries with special needs and Thailand, 2017



Source: Atlas of Economic Complexity, Center for International Development, Harvard University (accessed 4 February 2019).

Note: The coloured dots represent the products that a country successfully exports. Coloured dots in the centre where the network is denser imply that the country can venture into production of products with similar capability requirements. These capability requirements, in addition to human capital (engineers, programmers etc.) and physical capital (machinery, infrastructure), also include a conducive institutional framework. The areas on the periphery are less dense, thus implying fewer opportunities to venture into nearby products.

compounded by the coordination and information failures that characterize countries with special needs as evidenced by the significant infrastructure gaps and low level of ease of doing business. Making the jump to nearby products will therefore require concerted government facilitation.

While an important source of improvement in productivity in the case of the newly industrialized countries was capital-deepening, more important was "productive assimilation". By harnessing dynamic economies of scale through learning by doing, those countries not only expanded output of existing products but gradually ventured into increasingly sophisticated technology (Nelson and Pack, 1999).[18] However, as implied by outcomes such as low levels of diversification in the countries with special needs, coordination and information externalities impede the emergence of enterprises. Such market failures are slightly different in the developing country context, where information externalities pertain to the discovery of the production and cost structure of new products (Rodrik, 2004). For the Asia-Pacific countries with special needs, given their stage of development, what is more critical and pertinent is not technological innovation on the frontier, but rather in experimenting whether an imported technology can be successfully implemented; however, this involves a risk. Since technology is largely embodied in machinery, importing it is simple but making it work requires tweaking and adaptation to local factor markets and institutional conditions.

As economies structurally transform, the coordination requirements of more modern sectors become more significant (Lin and Monga, 2011). When these coordination requirements – which are essentially complementary inputs – cannot be provided, they become constraints and reinforce information externalities as the success of a new venture becomes increasingly uncertain.

Diversification is a path-dependent process (Hidalgo and Hausmann, 2009). The product-mix a country will produce in the future is determined not only by its initial conditions in terms of capabilities, such as availability of trained manpower or quality of institutions, but also products it produces today, largely due to 'learning by doing effects'. Thus, in addition to accumulation of new technologies, assimilation of more effective modes of organization are also critical.

Such dependence on pre-existing capabilities means that "purely market-based structural transformations will be too slow as it will involve jumps that are fewer in number and shorter in distance than would be socially optimal" (Hausmann, Rodrik and Hwang, 2006). There may not be enough incentives to accumulate the required capabilities for new activities because of coordination failures. Therefore, the State has to play an active role in not only providing the required infrastructure but also creating an enabling regulatory and institutional environment for the private sector.

E. The road ahead for countries with special needs

While the Asia-Pacific countries with special needs have witnessed gradual structural transformation, which has resulted in some labour productivity growth, there has been virtually no improvement in the sophistication of the products they export. Within-sector improvement has come about primarily through expanding production of existing products or harnessing natural resources. Without venturing into more sophisticated products, genuine transformation will eventually plateau.

These countries face a much more daunting task of structural transformation than developed countries did in the early phases of transformation. As recognized in the Programme of Action for the Least Developed Countries for the Decade 2011-2020 (also known as the Istanbul Programme of Action), "in many least developed countries structural transformation was very limited" (para. 18), and they remain extremely vulnerable to external shocks (see box 1.4 for references to structural transformation in the global programmes of action). For example, the small island developing States are extremely vulnerable to climate change and ocean degradation. In addition to problems such as commodity price volatility in the international markets as well as declining terms of trade of primary and standardized manufactured products, the emergence of GVCs poses new types of challenges and opportunities for the Asia-Pacific

Box 1.4. Structural transformation in the global programmes of action and the 2030 Agenda

Structural transformation is an important component of the Programme of Action for the Least Developed Countries for the Decade 2011-2020 (Istanbul Programme of Action) and the Vienna Programme of Action for Landlocked Developing Countries. For example, the Istanbul Programme of Action calls for attention to structural transformation through increasing productive capacity as well as the diversification and strengthening of home-grown development paths. It recognizes that "a more strategic, comprehensive, and sustained approach, based on ambitious, focused and realistic commitments, is required to bring about structural transformation in least developed countries that will foster accelerated, sustained, inclusive and equitable economic growth and sustainable development and help least developed countries meet long-standing as well as emerging challenges" (para. 5).[19]

The Vienna Programme of Action for Landlocked Developing Countries aims to "promote growth and increased participation in global trade, through structural transformation related to enhanced productive capacity development, value addition, diversification and reduction of dependency on commodities" (para. 22.e).[20] It also aims to "develop a structural transformation strategy aimed at improving science, technology and innovation, export diversification, productivity, efficiency and competitiveness in the agriculture, manufacturing and service sectors, including tourism" (para. 64.1).

While the Small Island Developing States Accelerated Modalities of Action (SAMOA Pathway) does not directly mention structural transformation, it refers to promoting development of cultural and creative industries, including sustainable tourism, which is the Pacific way of structural transformation. In particular, it refers to transformation of sources of energy (para. 48) and a "transformational strategy for the sustainable development of small island developing States" (para. 122).[21]

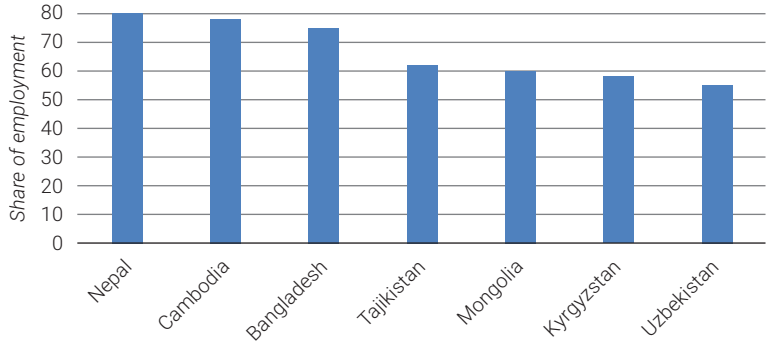
The 2030 Agenda for Sustainable Development also recognizes that structural transformation has an essential role to play in reducing multidimensional poverty as envisaged in Goal 1 (End poverty in all its forms everywhere). Structural transformation is also related to Goal 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all) and Goal 17 (Strengthen the means of implementation and revitalize the global partnerships for sustainable development).[22]

countries with special needs. The fact that production is increasingly taking place within global and regional production networks, and consequently is fragmented across countries rather than occurring in a single country or a single firm as was previously the case, means that countries have to (a) develop niche areas to be able to face increased competition from other low-cost production locations, and (b) avoid damaging 'no-win' competition among themselves by racing to the bottom.

These challenges are compounded by the risk that automation poses. While labour-saving technological progress is not a new phenomenon, it is the increasing pace and scope as well as the limited distribution of its benefits that make the current episode more disruptive (Frey and Osborne, 2016). Indeed, the activities that are most at risk are those where countries with special needs have some level of comparative advantage – unskilled labour-intensive tasks as reflected by the blue columns in figure 1.12. Thus, a possible approach by countries with special needs is to identify the areas where they possess revealed comparative advantage, and map them against the sectors that are most at risk of automation on the product space map. This would reveal niches of opportunities that the State could catalyse. Indeed, there may even be opportunities to "leap frog" over others and gain a competitive edge (ILO, 2016).

For now, these countries face an additional priority in ensuring environmental sustainability. Shared prosperity must also be an integral part of the transformation process. Their path must

Figure 1.12. Automation risk in countries with special needs



Sources: World Bank, 2016; Frey and Osborne, 2017.

Note: The index represents the share of employment at risk of computerization.

significantly deviate from "business as usual", and uphold environmental and labour standards in order to achieve the Sustainable Development Goals.

On a more optimistic note, the newly industrialized countries also faced a daunting task when embarking on their industrialization efforts. The agriculture sector they were specialized in was heavily protected and the avenues may have appeared limited. However, they were able to grow at a pace that was faster than ever recorded before. Similarly, the countries with special needs could also outpace historical peers if they are able to leverage disruptive technologies to their advantage.

ENDNOTES

[1] Incomes range from as low as $561 per capita in Afghanistan to $9,800 in Maldives; some economies such as Nepal employ 72 per cent of their population in agriculture whereas in Maldives only 8 per cent depend on the sector.

[2] The data used in this report are taken from the International Labour Organization database (ILOSTAT) for employment shares and from the United Nations National Accounts Main Aggregates database (UN-AMA) for value-added shares (accessed 25 January 2019). All value-added data are at 2010 constant prices.

[3] Furthermore, earnings in these sectors can be very volatile, particularly in smaller economies where an exogeneous event such as a natural hazard can wipe out large sections of economic activity. Employment, on the other hand, is a more reliable and stable indicator.

[4] Additional caveats are that they do not capture the informal sector in many countries. In addition, the changing share of services vs. manufacturing is partly driven by the faster increase of prices for services compared with manufacturing where technological advances result in price reductions. This is likely to inflate the contribution of the services sector. Moreover, the increasing content of services in manufacturing and its unbundling further inflates its contribution.

[5] See also Temple (2005) for a discussion of dual economy models.

[6] See, for example, Tregenna (2015), Rodrik (2015), ESCAP (2018d) and Felipe, Mehta and Rhee (2018).

[7] This figure reflects the seven-year moving average share of manufacturing employment.

[8] Static economies of scale occur when unit costs of production decrease, as they are spread over a larger volume of output. Dynamic economies of scale, on the other hand, occur when firms are able to reduce long-term unit costs due to improvements in processes, technological upgrading etc.

[9] Reindustrialization in developing countries after deindustrialization is more challenging than earlier industrialization (Tregenna, 2015).

[10] For a discussion on coordination and information failures see Rodriquez-Clare (2005) and Lin and Monga (2011).

[11] Based on calculations from the Asian Productivity Organization (2017).

[12] Modern sectors refer to the more dynamic sectors such as manufacturing and services that are characterized by modern production and organizational approaches.

[13] This gap is significantly lower than 1991 when the sector was 77 times more productive than the aggregate in the case of Bhutan and 73 times in Timor-Leste.

[14] See Annex 1 for a non-technical explanation of the methodology.

[15] The country-level details of this decomposition are available in Annex 2.

[16] Foster-McGregor and Verspagen (2016) do not include a demographic component in their decomposition, so it is assumed that some of the contribution captured in the decomposition is subsumed under the employment rate component.

[17] A product space plots a country's exports in different clusters of products, based on similarities required in production. Some clusters are denser, implying that a country that supports production in such areas can also move to nearby areas.

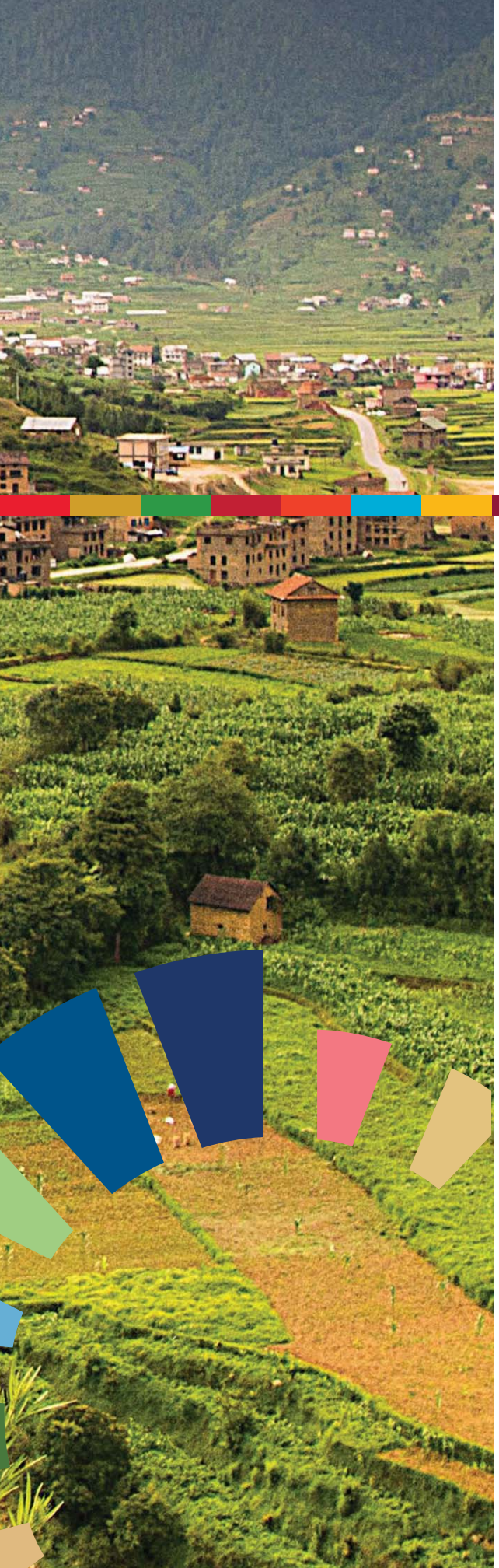
[18] Assimilation theories attribute the success of the Newly Industrializing Countries to entrepreneurship, innovation, and learning, all encouraged by the policy regime, that enabled these economies to adopt new technologies from the more advanced industrial nations; while investment in human and physical capital is necessary, it is far from sufficient. See Collins and Bosworth (1996) for a more thorough account.

[19] A/CONF.219/3/Rev.1.

[20] A/CONF.225/L.1.

[21] A/RES/69/15.

[22] A/RES/70/1.



CHAPTER 2

STRUCTURAL TRANSFORMATION: IMPLICATIONS FOR POVERTY REDUCTION

Poverty is a result of economic imbalances whereby the poor are unable to secure decent jobs or deliver their produce to markets, and social depravations whereby they lack access to basic public services, such as education, health, drinking water, sanitation and electricity. This multidimensionality of poverty undermines human development on multiple fronts.

While general social policies, such as social protection schemes and conditional cash transfers to ensure access to education and health, are essential to addressing poverty effectively, structural transformation is also a key driver of poverty reduction. It can generate productivity growth within sectors and shift labour from lower to higher productivity sectors. In doing so, it creates better remunerated, more formal and higher-productivity jobs, which in turn reduces poverty and income inequality.

This chapter provides an overview of income poverty in countries with special needs and explores the implications of structural transformation for poverty reduction. It identifies types of structural transformation and conditions under which transformation contributes to income poverty reduction, especially in rural areas of the countries with special needs. In doing so, it examines how structural transformation can be made more inclusive and pro-poor. The purpose of this chapter is not to provide a detailed analysis of poverty trends nor policy recommendations for poverty reduction. Such analysis for the Asia-Pacific region is already available (ESCAP, 2018a). Instead, this chapter focuses on the role of structural transformation in reducing poverty as the title of this report indicates.

A. Poverty in countries with special needs

1. Trends in poverty

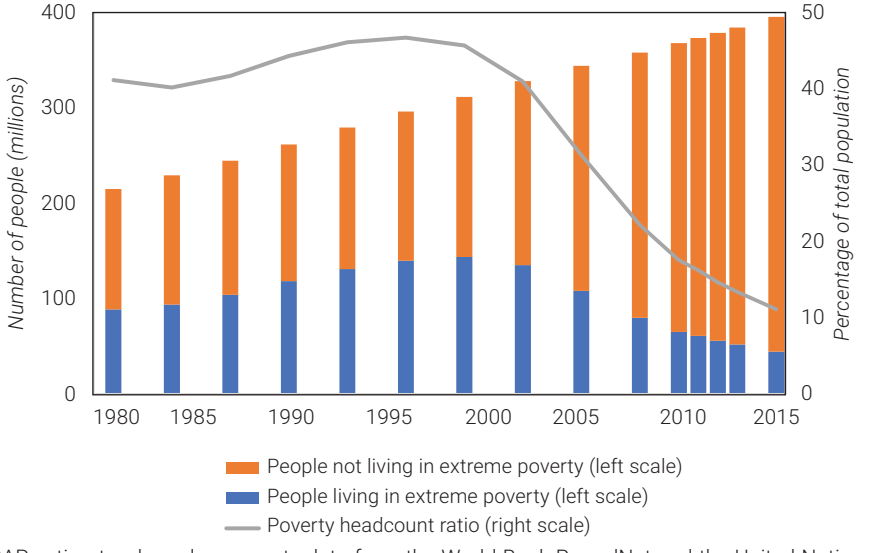
Asia-Pacific countries with special needs have experienced significant declines in the incidence of income poverty since the late-1990s (figure 2.1). The total number of people living in extreme poverty, based on the purchasing power parity (PPP) yardstick of $1.90 per day, declined from a peak of 144 million in 1999 to 44.6 million in 2015. Today, the average poverty headcount ratio in these economies is 11.1 per cent, compared with 45.7 per cent in 1999.

At the country level, rates of extreme poverty have declined in almost all countries with special needs (figure 2.2). In many landlocked developing countries, such as Armenia, Azerbaijan, Kazakhstan and Mongolia, income poverty headcount ratios were less than 2 per cent in 2015. In several least developed countries, including Bangladesh, Bhutan, the Lao People's Democratic Republic and Nepal, the rates of extreme poverty declined by more than 20 percentage points between 1990 and 2015. In Bhutan, the rate of the population living in extreme poverty declined from 50.6 per cent in 1990 to only 1.7 per cent in 2015. Papua New Guinea also recorded a sharp fall in the poverty rate, from 64.5 per cent in 1990 to 28.4 per cent in 2015.

The success in eradicating poverty in several countries with special needs was due in part to high social spending. For example, Bhutan made considerable long-term investments during this period with major reform initiatives in education and health care, spending more than 7 per cent of gross domestic product (GDP) on education alone. Mongolia devoted 21 per cent of its public expenditure, equivalent to 10 per cent of GDP, on social protection, the highest share of all Asia-Pacific countries (ESCAP, 2018a). Most other landlocked developing countries in Asia, such as Armenia, Azerbaijan, Kazakhstan and Kyrgyzstan, have also allocated significant social expenditure – ranging from 4 per cent to 6 per cent of GDP – towards social protection.

Notwithstanding this remarkable progress, income poverty persists, especially in the least developed countries and some of the small island developing States (figure 2.3). On average, 2 in 5 people in the Asia-Pacific countries with special needs still live on

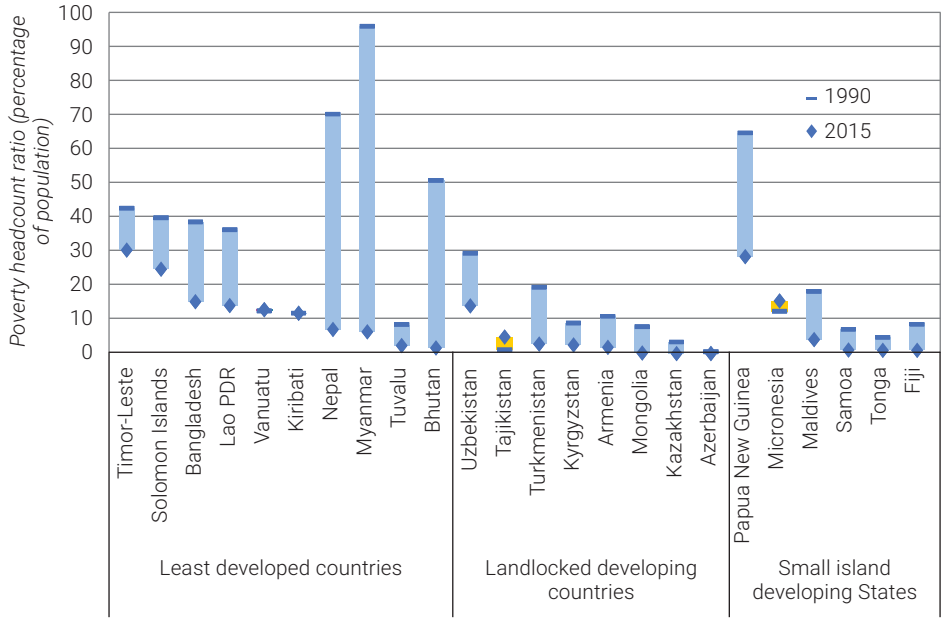
Figure 2.1. Number (left) and share (right) of people living under the $1.90 international poverty line in Asia-Pacific countries with special needs, 1981-2015



Source: ESCAP estimates, based on poverty data from the World Bank PovcalNet and the United Nations World Population Prospects database (accessed 25 January 2019).

Note: The poverty rate at $1.90 a day is the proportion of the population living on less than $1.90 a day, measured at 2011 international prices, adjusted for purchasing power parity (PPP).

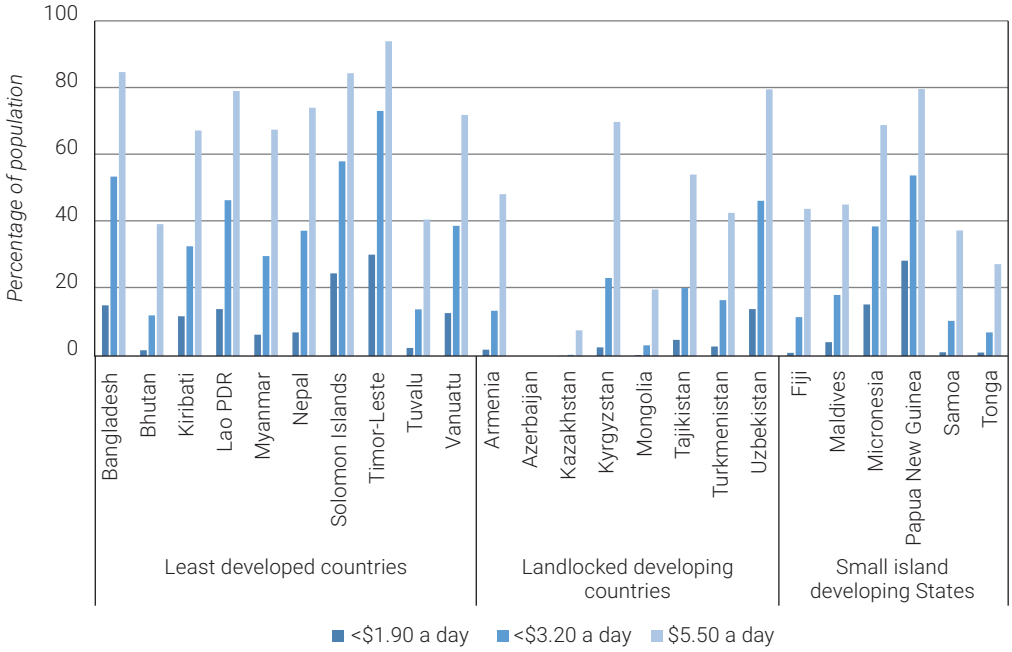
Figure 2.2. Poverty reduction between 1990 and 2015 at the $1.90 international poverty line



Sources: World Bank PovcalNet (accessed 25 January 2019) and World Bank World Development Indicators database (WDI) (accessed 6 February 2019).

Notes: Blue bars indicate a reduction in the poverty headcount ratio. Yellow bars indicate an increase in the headcount ratio. Data for 1990 was not available for Maldives and was therefore replaced with the figure for 1996. Data for 2001 and 2014 were used for Timor-Leste.

Figure 2.3. Poverty reduction at the $1.90, $3.20 and $5.50 international poverty lines, 2015



Sources: World Bank PovcalNet (accessed 25 January 2019) and WDI (accessed 6 February 2019).

Note: Data for 2014 were used for Timor-Leste.

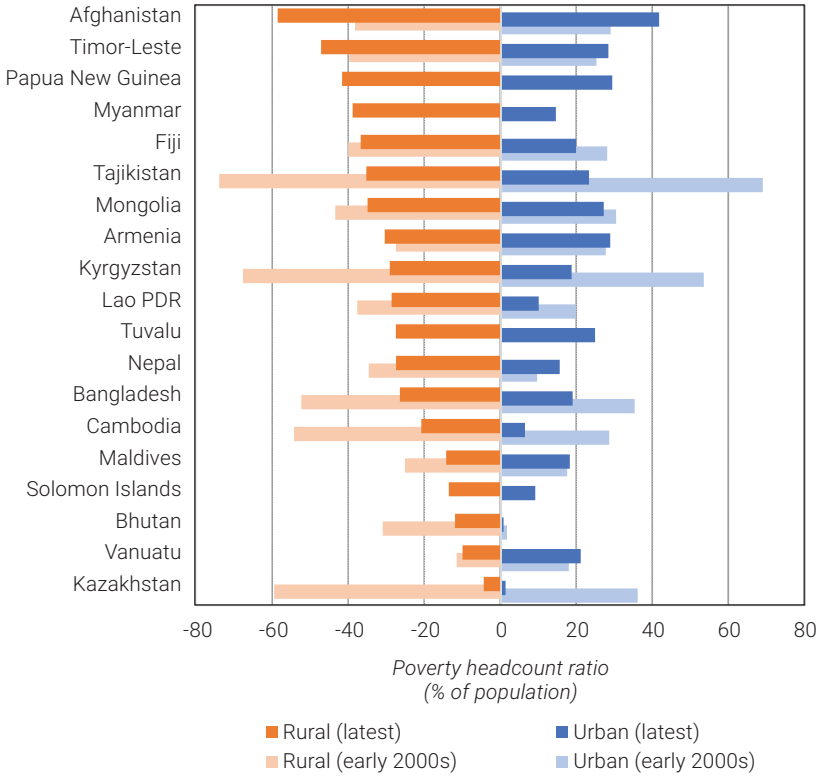
incomes below $3.20 a day (the standard poverty line for lower-middle income countries), compared with 1 in 15 people in other developing Asian economies. At the same time, income inequality has been rising in several countries with special needs. For example, between 1990 and 2014, the income Gini coefficient increased for 7 of the 24 countries with special needs for which data are available, including in Bangladesh, which is by far the largest country with special needs (ESCAP, 2018b).

2. Urban-rural divide in poverty

While poverty rates in countries with special needs are falling faster in rural areas than in cities, due in part to the higher base rate (figure 2.4), the incidence of poverty is still highly concentrated in the rural areas. On average, there are four rural poor people for every urban poor person in the countries with special needs. Furthermore, people living in rural areas are 2.4 times more likely to be poor than people living in city areas. The high ratio of rural to urban poverty rates in Bhutan and Kazakhstan are, however, a reflection of successful urban poverty reduction. In the cases of Bhutan, Myanmar and Nepal, the urban-rural divide in poverty rates is partly affected by geographic factors that make poverty reduction increasingly difficult for the remaining poor who are in far-flung locations.

Nevertheless, the situation in urban areas is also changing dynamically. In many countries with special needs the rates of urbanization have increased. At the same time, this urbanization has, in many cases, been accompanied by an increasing share of the urban poor (figure 2.5). This has been most evident in, for example, Maldives, Mongolia, Nepal and Vanuatu. In contrast, the pace of urbanization of poverty was much slower than that of urbanization of the population in Bhutan. In Cambodia, Fiji and the Lao People's Democratic Republic, the share of urban poor declined despite

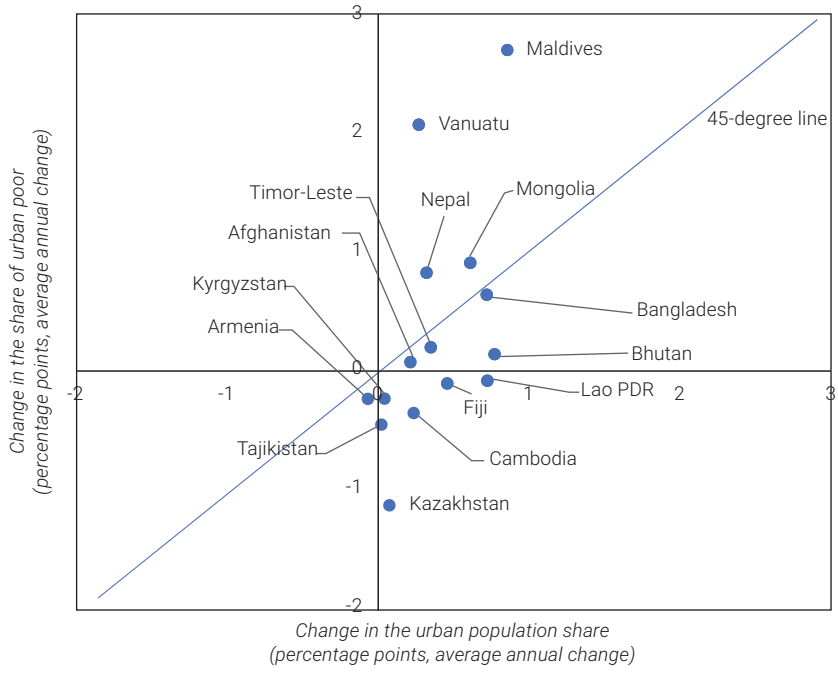
Figure 2.4. Poverty headcount ratios at the national poverty lines, rural and urban, early 2000s and most recent



Sources: WDI (accessed 6 February 2019) and Asian Development Bank Key Indicators for Asia and the Pacific 2018.

Note: Data for the earlier period were not available for Myanmar, Papua New Guinea, Solomon Islands and Tuvalu.

Figure 2.5. Change in share of urban poor (relative to the change in urban population share), annual change, 2000-2016



Sources: WDI (accessed 6 February 2019) and United Nations National Accounts Main Aggregates Database (UN-AMA) (accessed 25 January 2019).

an increase in the share of the urban population. Most landlocked developing countries, except Mongolia, did not experience significant increases in their urban populations nor in their urban poor.

Urbanization can be looked at as a positive factor in overall poverty reduction because production and consumption are integrated, and public spending can be focused on cities rather than in dispersed rural areas. However, if the capacities of cities to accommodate an influx of people cannot keep up with increasing demand for dwellings, infrastructure and public services, it could result in social exclusion, instability and environmental degradation (ESCAP, 2018c).

Rapid and uncontrolled urbanization, coupled with difficulty in transitioning from farms to urban settings, could bring about increasing informality of urban economic activities, especially in the services sector and youth unemployment. While the informal economy contributes to employment growth, informality is not only strongly associated with poverty but also exceptionally persistent as there are constraints to moving towards higher productivity, higher wages and decent work (Ghani and Kanbur, 2013; Kanbur, 2017).

At the macro level, high rates of informal employment reduce public resources available for infrastructure development and redistributive policies. Furthermore, the association between poverty and informality is even stronger for women (Kanbur, 2017). Since women are more exposed to informal employment than men in many countries with special needs (ILO, 2018), particularly in the least developed countries such as Afghanistan, Bangladesh, Myanmar and Nepal, a lack of policy actions to address informality would have a particularly detrimental impact on gender equality.

3. What needs to be done?

To accelerate progress towards ending poverty, having a balanced approach between rural development and broader social policies is vital. Rural development does not only help alleviate rural poverty, but also slow the pace of urbanization and thereby limit the transfer of poverty from rural to

urban areas. At the same time, reflecting the experience of those countries that have reduced poverty so successfully, such as Bhutan and several other landlocked developing countries, the Governments of the countries with special needs should boost investment in people. This can take the form of greater public expenditure on social protection, education and health as these social policies would prevent people, especially women, from being locked into low-paid informal jobs and enable them to find better paid jobs in formal employment. (For a more detailed discussion, see ESCAP, 2018a.)

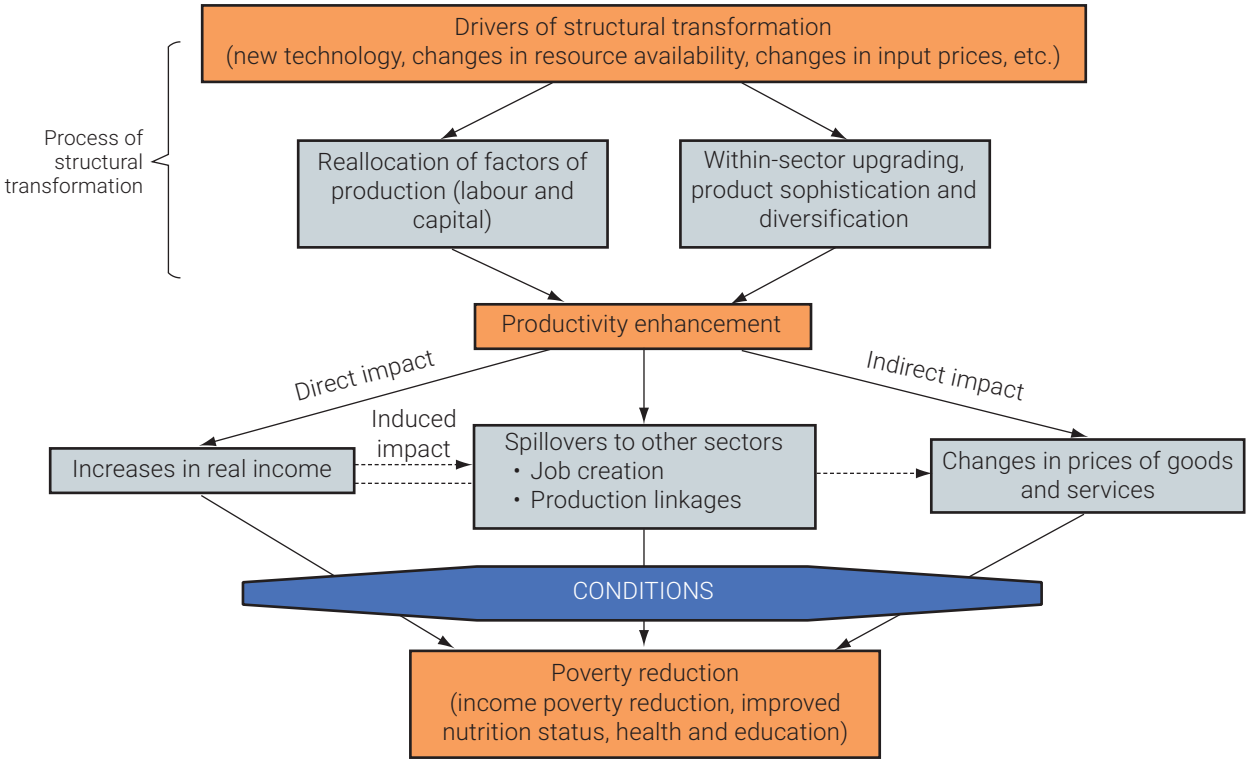
B. Links between poverty reduction and structural transformation

1. Channels and conditions

As explained in chapter 1, structural transformation can enhance labour productivity, either through a reallocation of factors of production or through within-sector upgrading, product sophistication and diversification, thereby boosting income and creating employment. Figure 2.6 shows how structural transformation contributes to poverty reduction and that contextual factors matter in determining whether the poor benefit from enhanced productivity.

First, some drivers of structural transformation, such as new technology, changes in availability of natural resources and input prices of materials, and primary factors would mobilize factors of production, thereby increasing productivity and output, and directly raising incomes of workers. However, these benefits are conditional on the ability of workers or firms to absorb new technology or to adapt to changes in resource availability and prices. In turn, this is essentially determined by levels of education and training as well as access to information. In addition, if capital is distributed too inequitably within sectors to the extent that output growth is fully based on increases in output of only a small number of large firms, overall productivity enhancement will not directly translate into raising income of workers in small and medium-sized enterprises and in the informal sector. In this case, most of the gains from productivity growth will likely

Figure 2.6. Linkages between structural transformation and poverty reduction



Source: ESCAP.

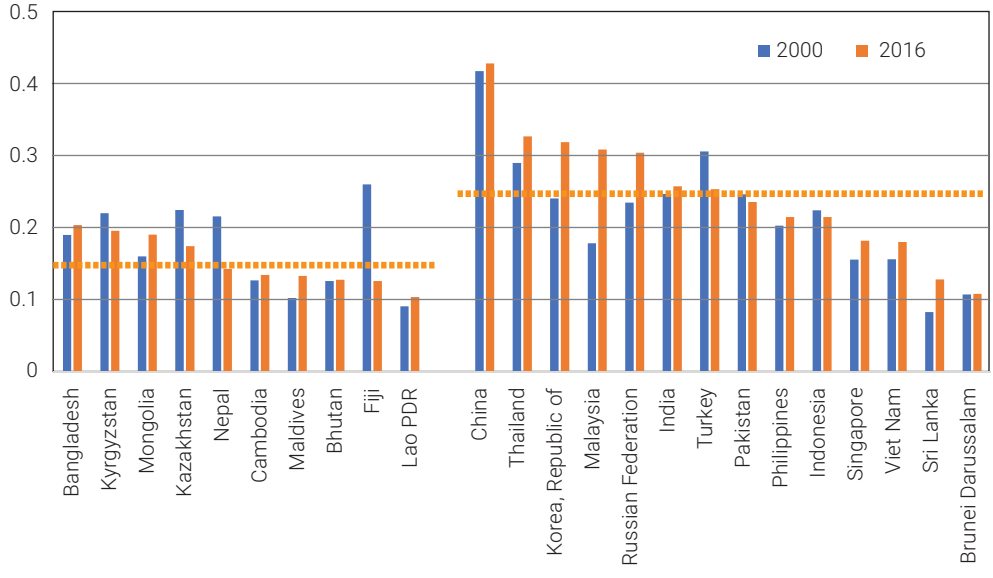
benefit capital owners and a few highly skilled workers with strong adaptive skills, thus not contributing significantly to reducing poverty.[1]

Productivity growth can also influence poverty levels through indirect channels. For example, productivity growth in one sector can stimulate employment growth and raise wages of workers in that sector as well as in other sectors through increased demand for labour with similar skill profiles. Higher output in one sector can also spill over to other sectors through increased input demand for goods and services through production linkages, and thus increase the income of workers in other sectors. However, the benefit of such spillovers will be smaller if the growing sector does not have strong backward and forward production linkages with other sectors. Indeed, the countries with special needs have been unable to harness potential backward and forward linkages across different sectors. An input-output analysis based on data from the Asian Development Bank's Multi-Regional Input-Output Tables Database 2018 (ADB-MRIO) found that for the countries with special needs, for which data are available, the degree of production agglomeration through backward and forward linkages is significantly lower than the average of other developing economies of the region and even lower than the levels in 2000 in some countries (figure 2.7).[2] This suggests that these indirect transmission links from productivity growth to poverty reduction are weaker in the countries with special needs than in other developing economies in the region, further implying that productivity growth has not fully benefited these country due to weak domestic production linkages.

Another indirect channel by which productivity growth can benefit the poor is through lower prices of goods and services that they consume and, therefore, higher real wages. Lower food prices would be particularly beneficial to the poor, especially those living in countries in the early stages of development, due to their high share of food expenditure in their consumption brackets (unless they are food producers whose benefits are offset by lower revenue). However, the benefit will be smaller if consumers face high transaction costs and cannot enjoy higher real wages.

The impact of structural transformation on reducing poverty also depends on whether poor people end

Figure 2.7. Degree of production agglomeration across sectors, 2000 and 2016



Source: ESCAP, based on data from the ADB-MRIO 2018.

Notes: The degree of production agglomeration is measured by the degree and strength of backward and forward linkages of domestic production using ADB-MRIO and based on the methodology developed by Mercer-Blackman, Foronda and Mariasingham (2017). See Annex 3 for the definition and calculation of this indicator. The orange dotted lines represent the simple averages of the agglomeration index for 2016, shown separately for the Asia-Pacific countries with special needs (0.15) and for other developing economies of the region (0.25).

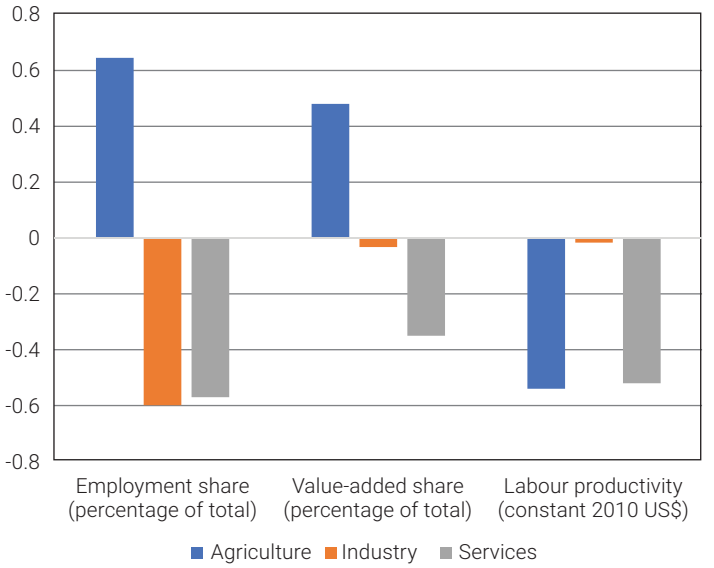
up moving to sectors with higher levels of productivity or not. If it does, it will contribute to reducing poverty. However, if the poor end up in sectors with identical or lower levels of productivity, it will not.

Similarly, labour productivity can improve when the least competitive firms exit the sector, but the aggregate economic outcome will also depend on where the displaced workers are relocated, and on what type of retraining facilities and labour market programmes are available. As highlighted in chapter 1, this was observed in Nepal where manufacturing employment decreased more than output, raising productivity significantly. However, most of the workers ended up in informal services or agriculture, depressing the positive contribution to aggregate productivity.

Figure 2.8 highlights how the association between structural transformation and poverty can vary across economic sectors, by presenting pairwise correlations between measures of structural transformation and poverty headcount ratios at the international poverty line of $3.20 a day. It shows that poverty rates are higher when agriculture accounts for a larger portion of employment and of value-added. Poverty rates are lower in countries with larger services sectors. For both agriculture and services, labour productivity is higher in countries with lower poverty rates.

However, the valued-added share and labour productivity of industry have almost no association with poverty levels. This is because the output per worker in the mining sector is high while its contribution to job creation and poverty reduction is limited. Thus, shifts towards extractive industries that are capital-intensive in some resource-rich economies have resulted in higher average economic growth; however, this has been at the cost of long-term growth in other more labour-intensive sectors. The cost has also come in the form of pollution, greenhouse gas emissions, groundwater scarcity and biodiversity loss in the absence of appropriate environmental management policies.

Figure 2.8. Pairwise correlations between the measures of structural transformation and poverty headcount ratio at the $3.20 per day international poverty line, average for 2012-2016, Asia-Pacific developing countries



Source: ESCAP, based on data from the International Labour Organization Database (ILOSTAT) (accessed 25 January 2019), WDI (accessed 6 February 2019) and UN-AMA (accessed 25 January 2019).

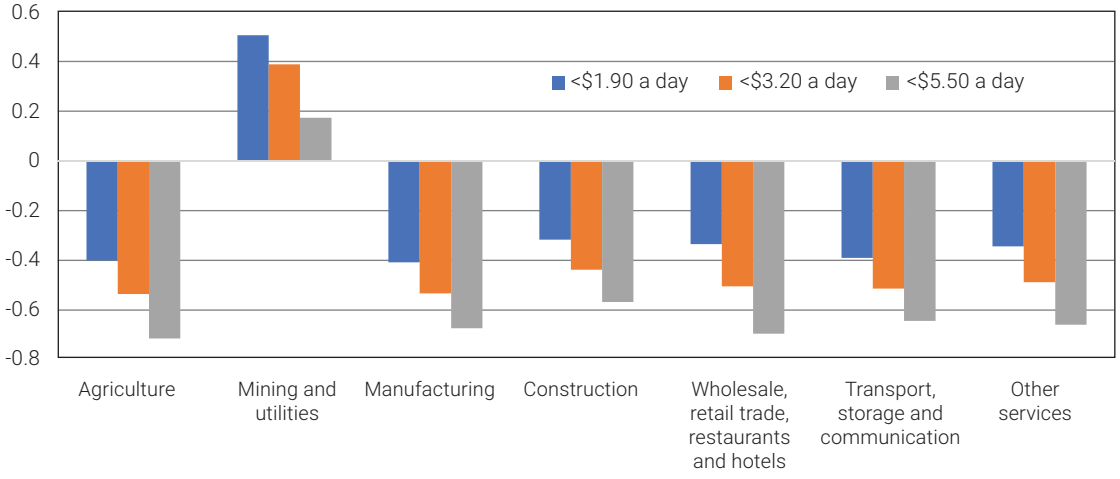
Note: The figures refer to correlation coefficients, calculated based on the averages of employment shares during 2013-2017, and averages of value-added shares and labour productivity during 2012-2016. For poverty, poverty headcount ratios at the $3.20 per day international poverty line for 2016 or the latest available years were used.

These environmental and potential health consequences disproportionally affect the poor and the vulnerable, due to their greater exposure to environmental pollutants and limited capacity to cope with them. It has therefore limited the potential impact on income poverty reduction. Indeed, in the Asia-Pacific region, countries that have high mining output per worker tend to have higher poverty rates (figure 2.9). In addition, in contrast to the other sectors, the correlation between mining productivity and poverty rates is greater, the lower the level of international poverty lines that are considered. Other subsectors of industry (manufacturing and construction) have correlations similar to those of agriculture and services.

A closer look at the experiences of several countries with special needs reveals that structural transformation can take various forms. For example, in Bangladesh (panel A of figure 2.10), employment has shifted from agriculture to manufacturing, where the average earning is slightly higher than that of the agricultural sector (although average earnings of most of these expanding sectors are below the country-wide average earnings) between 2005 and 2015. Fiji experienced a large outflow of employment from agriculture towards various services sectors, in which employees can earn higher average wages than in agriculture (panel B of figure 2.10). Panels A and B of figure 2.10 show a positive association between mean earnings and changes in employment share, highlighting the fact that higher earnings in fast-growing sectors have contributed to a drop in extreme poverty in these countries.

However, structural transformation that relocates people towards sectors with similar or even lower average earnings will not contribute to reducing poverty and tends to lead to increasing urban poverty. For example, the share of urban poor as a percentage of total poor in Mongolia rose from 50 per cent in 2003 to 60 per cent in 2016. During this period, surplus labour released from the rural agricultural sector in Mongolia was absorbed in services sectors, such as the wholesale and retail trade as well as, to a lesser extent, manufacturing. While this pattern of a shift from agriculture to services is similar to that of Fiji, the average earnings of the inflow-receiving sectors were not much higher than the earnings in the agricultural sector (panel C of figure 2.10). In the case of accommodation and food service activities, the average earnings were lower than in agriculture.

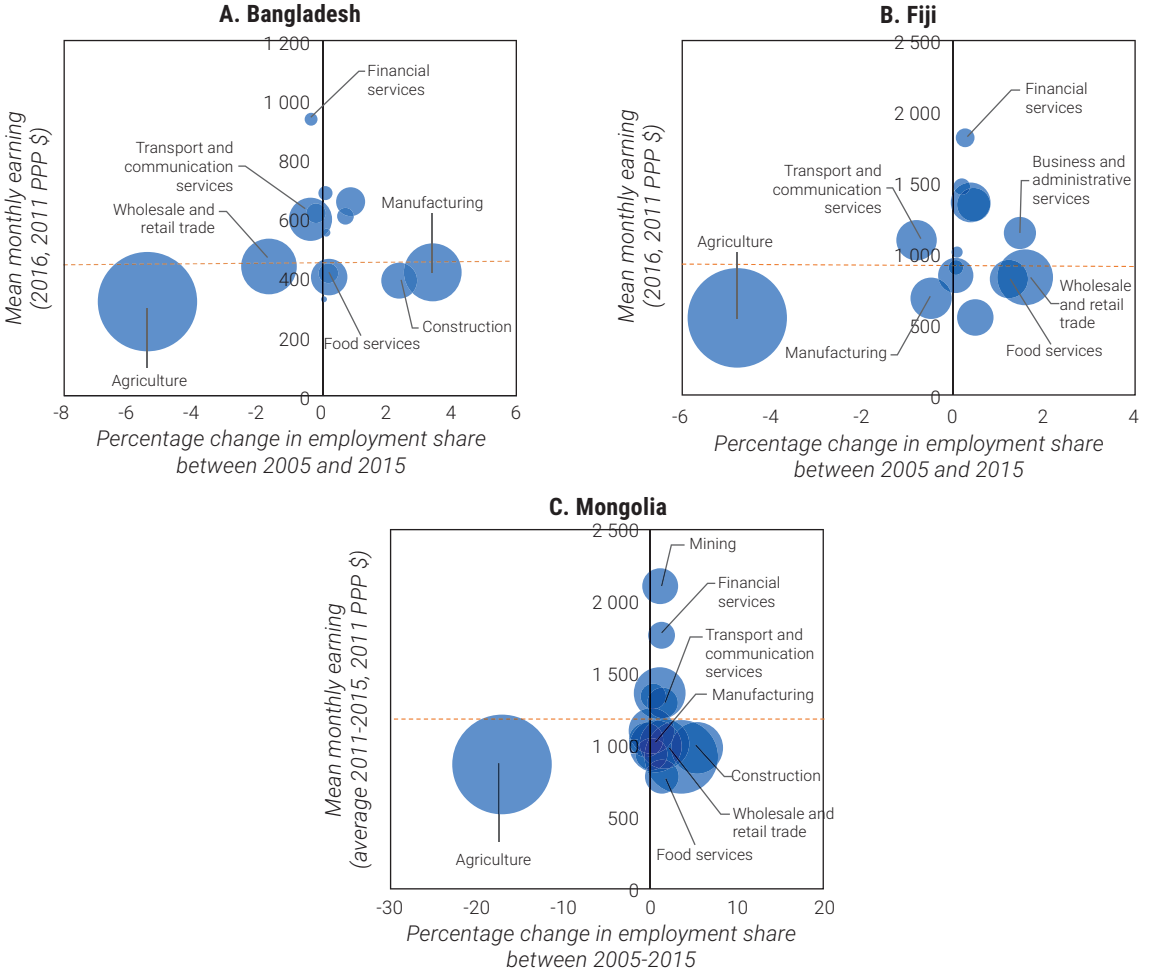
Figure 2.9. Correlations between labour productivity and poverty headcount ratio at the $1.90, $3.20 and $5.50-per-day international poverty lines, average of 2012-2016, Asia-Pacific developing countries



Sources: ESCAP, based on data from ILOSTAT (accessed 25 January 2019), WDI (accessed 6 February 2019) and UN-AMA (accessed 25 January 2019).

Notes: The figures refer to correlation coefficients, calculated based on the averages of labour productivity during 2012-2016. For poverty, poverty headcount ratios at the $1.90, $3.20 and $5.50 per day international poverty lines for 2016 or the latest available years were used.

Figure 2.10. Average monthly earnings and change in employment share in Bangladesh, Fiji and Mongolia, 2005-2015



Source: ESCAP, based on data from ILOSTAT (accessed 25 January 2019), WDI (accessed 6 February 2019) and UN-AMA (accessed 25 January 2019).

Notes: The sizes of the bubbles represent the employment share of respective sectors in 2015. The dotted lines indicate the average monthly earnings, measured at 2011 international prices, adjusted for purchasing power parity (PPP).

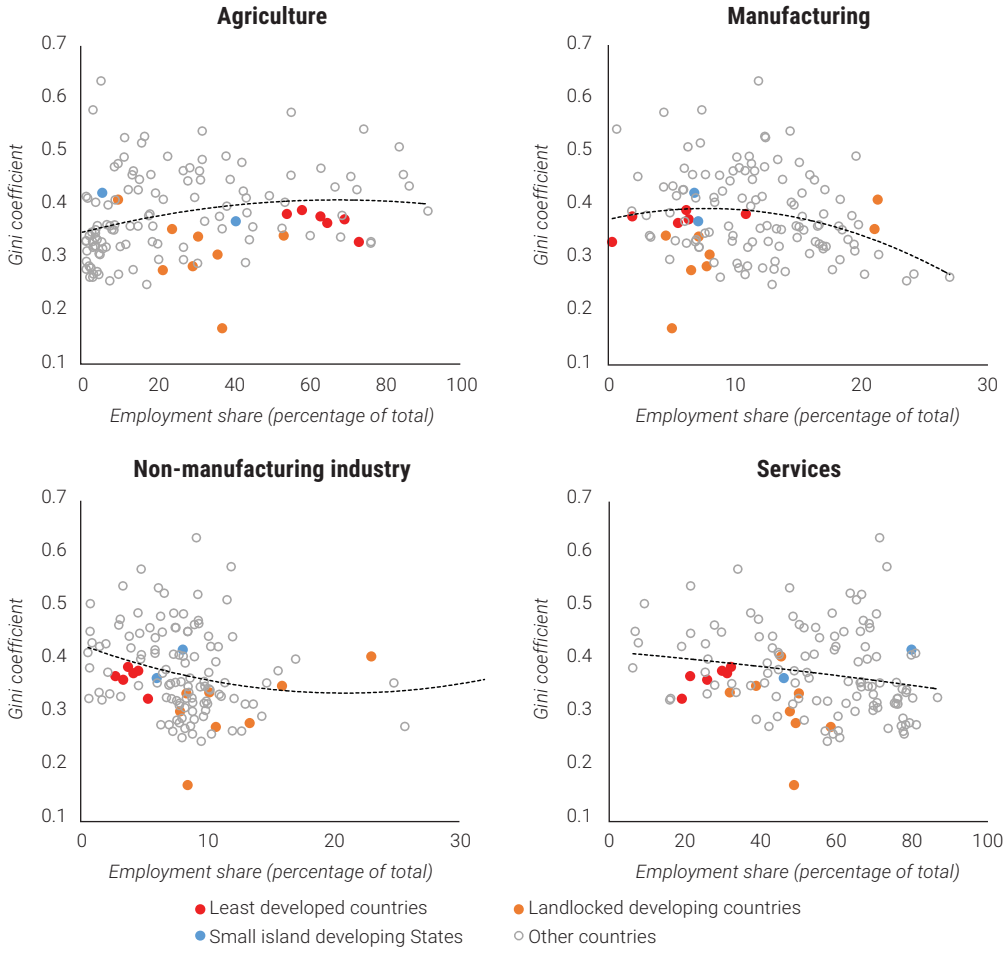
It is therefore clear that, while structural transformation is linked to falling poverty in general, there are differences in the response of poverty to structural transformation, depending on sectors as well as certain existing conditions and patterns of structural changes. Transformation that results in the creation of more jobs in more productive sectors with higher wages will have a greater impact on poverty reduction than will transformation that creates jobs in low-productivity, low-wage sectors. Importantly, transformation that pulls low and unskilled workers from low productivity primary sectors into relatively higher productivity non-primary sectors is likely to have the greatest poverty reduction potential (Aggarwal and Kumar, 2012).

2. Links with income inequality

The link between structural transformation and poverty reduction can be complicated, as it is widely believed that structural transformation can lead to higher inequality, especially in the early stages of structural transformation. This is because traditional industrialization has generally been found to generate unequal income and wealth distribution effects in the short term as workers move from low-productivity agriculture to high-productivity manufacturing (Kuznets, 1955). It is also well-known that the rise in inequality reduces the impact of growth on poverty reduction (Ravallion, 1997; Fosu, 2017; ESCAP, 2018b).

However, the historical data on income inequality does not show clear evidence of the claim that structural transformation can lead to higher inequality due to a heterogeneous process of structural transformation across the income distribution (Paul, 2016; Baymul and Sen, 2018).[3] Figure 2.11, which presents scatterplots between Gini coefficients and employment shares, suggests that the movement of workers away from agriculture would not increase inequality (top left panel). While manufacturing shares appear to show an inverted U-shape pattern in which Gini coefficients increase in the early stage of structural transformation, a positive association is too weak to be established (top right panel). Instead, a negative correlation seems to appear with the Gini coefficient, especially when employment shares exceed 10 per cent, implying that structural transformation may decrease inequality. In fact, in countries that have witnessed rapid structural transformation in the past two decades, much of the movement of workers was from agriculture to formal labour-intensive manufacturing where there is low variation of wages among workers (Baymul and Sen, 2018). Moreover, such manufacturing activities are mostly factory-based, where the historical presence of unions and collective bargaining often limits the extent of inequality that is possible. The non-manufacturing and services sectors do not show signs of increasing inequality (bottom panels).

Figure 2.11. Employment shares and income inequality, averaged over 2011-2016



Sources: World Bank PovcalNet and ILOSTAT (accessed 25 January 2019).

Notes: Data are averages of annual figures between 2011 and 2016. Non-manufacturing includes construction and utilities, such as electricity, gas and water supply, and excludes mining and quarrying.

Figure 2.11 also reveals that the levels of income inequality in the Asia-Pacific countries with special needs are mostly below the fitted lines, suggesting that they are less unequal than other countries with similar stages of structural transformation. However, concern should remain over the fact that in several countries with special needs the dominant form of structural transformation has changed from agriculture to informal services, rather than manufacturing where more formal employment opportunities are offered. Increasing or widespread informality could exacerbate inequality by locking workers into poverty and reducing the resources available for redistributive policies (Baymul and Sen, 2018; see section 2A for the discussion on informality).

While the relationship between structural transformation and income inequality is not always clear, inequitable access to land and unequal ownership of land, among others, have been identified as key factors in the increase of adjustment costs arising from structural transformation.[4] A concentration of landownership in a small number of elite persons and large firms translates into the benefits of productivity growth being skewed towards them. This is particularly the case in agriculture where land is the most immediate asset for many of the poor, as it will constrain the potential for poverty reduction through the rise of small farmers or micro, small and medium-sized enterprises (MSMEs). Thus, securing property rights and ensuring efficient land administration systems are critical factors in enabling pro-poor growth (Byerlee, Diao and Jackson, 2005).

The historical experience of countries in the Asia-Pacific region has demonstrated that productivity growth can cause rapid declines in poverty, if inequality can be kept at a low level during the structural transformation process (Chowdhury, 2019). In the late 1940s and 1950s, both the Republic of Korea and Taiwan Province of China carried out land reforms through dissolving land elites and conducting large-scale land redistribution. With these reforms, both economies began their high-growth phase in the mid-1960s with a low level of inequality and a Gini coefficient of around 0.30. This saw rapid declines in poverty until about the mid-1980s (for detailed data and discussion see You 2014). Indonesia experienced a similar occurrence with poverty reduction, as that country also had low inequality in the early 1970s when its growth took off. The phenomenon of "shared growth" and rapid poverty reduction lasted until about the late 1980s when the pace of liberalization reforms accelerated, marking a phase of growing inequality that reduced the growth elasticity of poverty reduction (Chowdhury, 2019).

Two corollaries follow from the above observations regarding the link between structural transformation and poverty reduction. First, since earnings are influenced by productivity, differences in levels of productivity across sectors have important implications for cross-sector earnings, and hence inequality. Indeed, average wages tend to be higher (lower) in sectors with higher (lower) productivity. Second concerns the variation of employment shares across sectors. The implication is that differential growth performance of sectors should have implications for the extent of new employment opportunities generated, earnings, inequality and thus poverty. Therefore, growth will have a larger impact on reducing poverty when it is driven by sectors that employ a large proportion of an economy's workers, such as agriculture. However, growth can also be driven by structural transformation involving a reallocation of workers from low productivity (and low earnings) sectors to higher productivity (higher earnings) sectors. Transformation and growth that are driven by such a reallocation should also be poverty-reducing (McMillan and Rodrik, 2011; Aggarwal and Kumar, 2012).

The above review shows that structural transformation for poverty reduction is not without challenges. Indeed, if structural transformation is not matched by a desirable change in the structure of employment, poverty may increase (Aggarwal and Kumar, 2012). Therefore, careful policy formulation is critical to: (a) ensuring the expansion of productive and decent jobs; (b) enhancing productivity of the rural agricultural sector in which the majority of the poor work and live; and (c) preventing inequality from rising during the process of structural transformation.

C. Maximizing the poverty reducing impact of structural transformation

1. Rural development as a strategy for reducing poverty

Structural transformation that involves enhancing agricultural development is more pro-poor in many of the Asia-Pacific countries with special needs than in other developing countries in the region. This is because the agricultural sector still dominates employment in many of the countries with special needs. Workers in this sector tend to live in rural areas, have limited access to markets and to public services, and earn below-average incomes. These conditions make the poor stand to benefit much more from agricultural growth than from non-agricultural growth (Byerlee, Diao and Jackson, 2005; Ivanic and Martin, 2018).

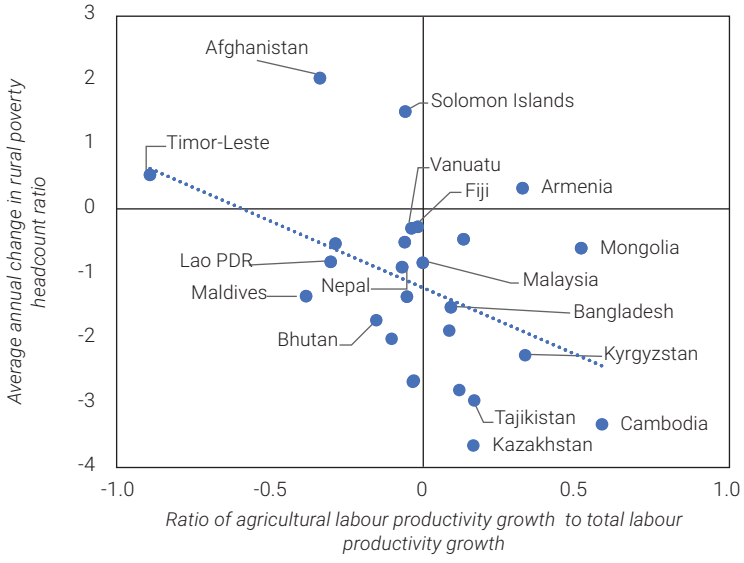
A number of empirical studies have found a large elasticity of poverty with respect to agricultural output, especially in countries at the early stages of development and those that are resource-dependent.[5] Christiaensen, Demery and Kuhl (2011) estimated that agriculture growth was two to three times more effective at reducing poverty than an equivalent amount of growth generated in other sectors, irrespective of the empirical method or the poverty metric used to estimate elasticity of poverty. However, asset inequality or the unequal distortion of land appears to reduce the impact of agricultural growth on poverty reduction (Bourguignon and Morrisson, 1998; Ravallion and Chen, 2007).

Indeed, in most countries with special needs where agriculture is the largest employment sector, faster agricultural productivity growth tends to reduce poverty faster than in countries with limited productivity growth in agriculture (figure 2.12).[6]

Agricultural productivity growth not only increases farm incomes but also stimulates non-farm rural activities such as food processing, packaging and wholesaling as agriculture emerges as a supplier of intermediate inputs through forward linkages to these sectors. Promoting farm and non-farm activities in rural areas can, in turn, have a poverty-reducing effect by increasing the demand for labour, goods and services in urban areas.

Benefits of agricultural growth can also be transmitted through backward production linkages. Furthermore, as agricultural productivity increases, its backward linkages increase by requirement for more machinery, high-quality fertilizers, transport equipment and financial services. An examination

Figure 2.12. Rural poverty reduction and agricultural productivity growth, Asia-Pacific developing countries, 2000-2015



Source: ESCAP, based on data from WDI (accessed 6 February 2019), Asian Development Bank Key Indicators for Asia and the Pacific 2018, ILOSTAT (accessed 25 January 2019) and UN-AMA (accessed 25 January 2019).

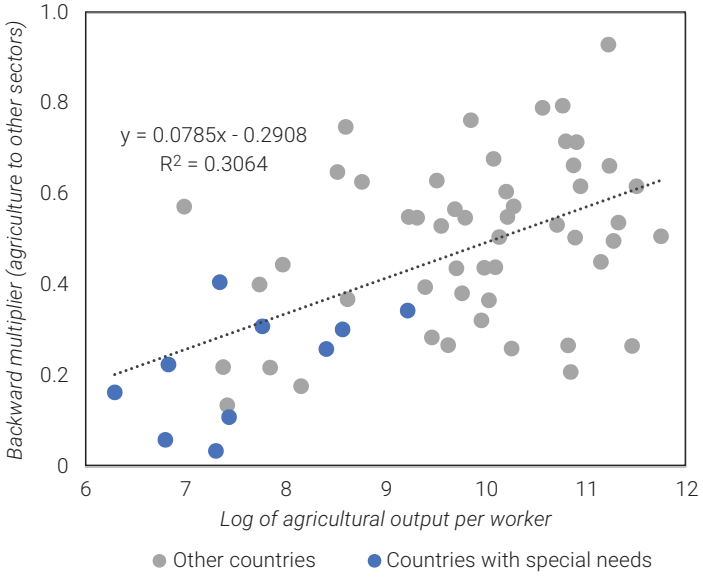
of input-output coefficients of these countries suggests that a spillover potential of agricultural productivity growth to other sectors tends to increase with the level of agricultural productivity. Figure 2.13 shows that a backward linkage from agriculture to the rest of the economy, or the agriculture sector's backward multiplier with other sectors (see Annex 3 for details), is highly correlated with agricultural production. This suggests that the more productive the agriculture sector is, the larger the benefits that other sectors can enjoy, and thus rural development becomes more inclusive and sustainable.

The analysis also reveals that, in Asia-Pacific countries with special needs, the production of agricultural goods currently requires few non-agricultural inputs, compared with other countries. On average, one additional unit of agricultural products requires inputs of only an additional 0.11 unit of non-agricultural products in the least developed countries, a 0.32 unit for the landlocked developing countries and a 0.33 unit for the small island developing States, while an additional 0.44 unit is required in other developing countries in the region.

These weak backward linkages for agriculture imply that the agricultural sector in the countries with special needs is currently not well-integrated with other domestic economic activities and is characterized by low levels of commercialization. The implication is that the generation of additional employment in response to a positive demand shock in agriculture is largely limited to the sector itself, while in other developing countries many jobs are created outside agriculture. This is partly due to the lack of input supply, such as fertilizers and infrastructure services, but is also due to the subsistence nature of agriculture in some of these economies. However, it also means that potential benefits of agricultural productivity growth will be greater than the current production structure suggests, as the backward linkages with other sectors also evolve with agricultural development.

Thus, growth in the agriculture sector and related agro-business activities is more effective in reducing the incidence of income poverty in the countries with special needs, thereby drawing attention to the imperative of sustainable rural development strategies through agricultural upgrading and more value-added and employment activities.

Figure 2.13. Agriculture sector's backward multiplier with other sectors and agricultural labour productivity



Source: ESCAP, based on data from ADB-MRIO, ILOSTAT (accessed 25 January 2019) and UN-AMA (accessed 25 January 2019).

Note: See Annex 3 for definition and calculation of the indictor.

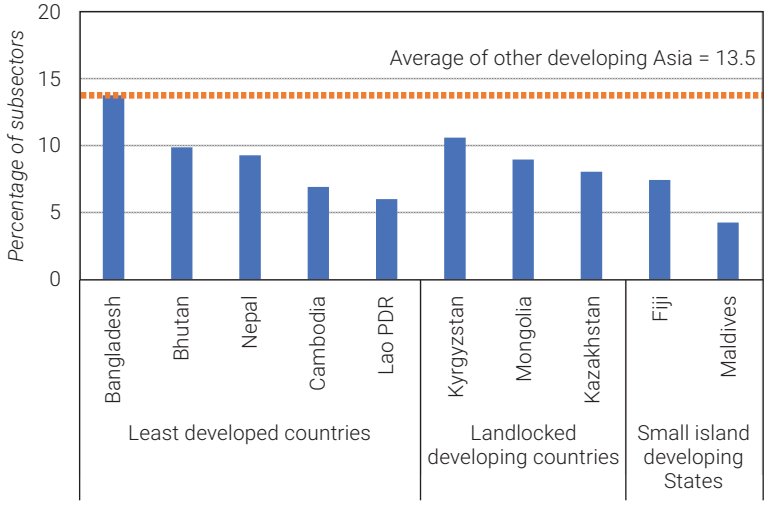
2. Challenges and opportunities

While agricultural has a large poverty-reducing potential, the prospects for increasing the value-addition of the agriculture sector are constrained by factors that include the finite supply of arable land and water, weather conditions and availability of technologies (see chapter 1 for more discussion on this topic). In addition, the type of employment generated within this sector is relatively unskilled. This implies that, while agriculture may have a large employment creation potential in the short term, its contribution to real wage growth would be smaller than that contributed by jobs created elsewhere, and increasingly more so as per capita incomes increase. Therefore, sustaining poverty reduction in the long term requires that agricultural transformation is complemented by dynamism in other sectors; this is particularly the case in manufacturing but also in high value-added services where the synergic effects of new technological advances are higher than in agriculture.

One way to facilitate this transformation is to strengthen backward and forward linkages with existing domestic productive capacities. This entails, in the case of the Asia-Pacific countries with special needs, creating linkages from existing primary production – including agriculture and mining – with manufacturing of export products or services, such as the wholesale and retail trade and infrastructure services in order to increase intersectoral spillovers through input demand. Linkage with the industrial sector, particularly the higher value-added manufacturing sector, is considered most effective in boosting aggregate productivity due to its greater economies of scale, fast learning and potential for the adoption of new and better technologies as well as its deep linkages with the rest of the economy (UNCTAD, 2014; Ocampo, 2005).

Many countries with special needs have not been able to develop strong production linkages that enable a more diversified productive transformation. As discussed in chapter 1, these economies have been unable to upgrade the relative sophistication level of their products, resulting in lower productive capacities. For example, figure 2.14 shows that the manufacturing sector of Asia-Pacific countries with special needs is much less integrated with other sectors of the economy than in other developing countries in the region, and thus less vibrant and diversified. These linkages are particularly weak in Cambodia, the Lao People's Democratic Republic and Maldives, where only around 4 per cent to 7 per cent of the manufacturing

Figure 2.14. Participation in production for manufacturing, 2016



Source: ESCAP, based on data from ADB-MRIO,

Note: The index measures the degree of participation of manufacturing in other sectors and participation of other sectors in manufacturing. It is the share of economic subsectors (out of the 35 subsectors) that have production linkages with at least $0.02 per United States dollar of output from or to manufacturing activities. See Annex 3 for the definition and calculation of the indicator.

activities generate forward and backward linkages with other sectors. This suggests that the manufacturing sector is not well-integrated with the rest of the economy and hence not well-diversified. Domestic value-added in manufacturing exports is also low in those countries.

Furthermore, many of the least developed countries in the region will be graduating from their least developed country status in the next few years.[7] Given the challenges that may stem from the withdrawal of specific international support measures for least developed countries, it is necessary to accelerate structural transformation by drawing their large agricultural labour force into high-productivity, non-farming activities in the manufacturing and services sectors. This process would also lift the productivity of the agriculture sector where the vast majority of the poor live and work. In the following section, box 2.1 describes the case of the Lao People's Democratic Republic in order to highlight the need for facilitating structural transformation for advancement and smooth transition.

In countries with a limited scope for industrialization, the creation and promotion of high value-added services would allow them to take advantage of the dynamic nature of technological advancements. In the countries with special needs, production linkages within and across services are still rather weak, compared to those in other developing economies, partly reflecting the slow labour productivity growth of their services sector. The services sector, especially in the least developed countries, also faces the challenges created by the informal nature of many service activities, which could perpetuate poverty and increase the vulnerability of the poor.

Box 2.1. The Lao People's Democratic Republic graduation from least developed country status and structural transformation

The Lao People's Democratic Republic is on track to graduating from its least developed country status. The country passed the thresholds for gross national income per capita and the human assets index at the 2018 review. If that country sustains its development gains and meets the criteria again in 2021, it will qualify for removal from the list in 2024.

While meeting the criteria for graduation is a remarkable achievement, graduation can bring about challenges stemming from the withdrawal of specific international support measures for least developed countries, including access to concessional finance and preferential market access. In the context of structural transformation, the Lao People's Democratic Republic may have to face more intense competition from other labour-surplus countries in low-end, assembly-type production than that confronted by the early industrializers, especially in a more globalized economy. The Lao People's Democratic Republic cannot compete in the shifting of labour-intensive activities for long with its small labour force – labour surplus Cambodia, Myanmar and Viet Nam will have an edge, especially as the labour force of the Lao People's Democratic Republic is among the least literate and numerate in the South-East Asia subregion.

The economy of the Lao People's Democratic Republic still lacks the structural transformation and economic diversification required for smooth transition. The major part of recent GDP growth has stemmed from low-productivity agriculture and the capital-intensive natural resources sector. Although the Lao People's Democratic Republic's share of agriculture in GDP declined from 35 per cent in 2000 to 18 per cent in 2016, its share in employment did not decline commensurately, still accounting for more than 60 per cent of the economy's total working hours. The fast-growing mining, electricity and gas sector accounts for only 1 per cent of total working hours. The manufacturing sector's share in total employment stagnated at around 5 per cent during 2009-2017.* Thus, the Lao People's Democratic Republic's growth has not been inclusive and broad-based.

Backward and forward linkages in the Lao People's Democratic Republic's manufacturing sector are weak. About 51 per cent of manufacturing value-added generated within the country is composed of inputs from the primary sector. Domestic value-added (49 per cent) in exports from the Lao People's Democratic Republic's manufacturing

sector is below that of other countries such as Bangladesh (88 per cent), Cambodia (76 per cent), Thailand (80 per cent) and Viet Nam (64 per cent).

In addition, the Lao People's Democratic Republic has not met the economic vulnerability threshold for graduation from least developed country status, suggesting that the country remains highly vulnerable to external shocks. The country's exposure to economic vulnerability remains high due to overdependence on primary products. About 80 per cent of the Lao People's Democratic Republic's exports are primary products, with labour-intensive clothing and footwear manufacturing accounting for only 13 per cent of total exports. Three countries – Thailand, China and Viet Nam – absorb close to 70 per cent of the Lao People's Democratic Republic's exports. The country's narrow export base and high susceptibility to natural disasters also contribute to high economic vulnerability.

In this regard, the Lao People's Democratic Republic needs to prepare and implement an adequate transition strategy to mitigate potentially adverse impacts of graduation, especially in view of the large and growing need for financing the development needed to support the implementation of the 2030 Agenda for Sustainable Development.

Considering the challenges that may stem from graduation, the Lao People's Democratic Republic needs to leapfrog and create competitive advantage in high-value-added niche products. This is necessary for its large rural agricultural labour force to rapidly be drawn into high-productivity, non-farming activities in the manufacturing and services sectors as well as to lift the productivity of the agriculture sector, where the vast majority of the poor work. Creating backward and forward linkages among manufacturing, agriculture and services sectors by linking MSMEs to the supply chain and production network is a key criterion. In addition, improving the access to low-cost finance is vital for MSMEs. Measures are also needed to raise agricultural productivity.

The Lao People's Democratic Republic must also harness its resource sector in a sustainable manner in order to minimize vulnerability to natural disasters. This will require the country to strengthen its capacity to assess the environmental impact of mining and hydroelectric projects.

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* Based on data from ILOSTAT (accessed 25 January 2019).
Sources: The Government of the Lao People's Democratic Republic and UNDP (2017) and Chowdhury (2019).

D. Conclusion

To rapidly reduce poverty, greater public expenditure on social protection, education and health will be essential as these social policies will prevent people from being locked into low-paid informal jobs and enable them to find better-paid jobs in formal employment.

In the context of structural transformation, what matters for poverty alleviation is not only the rate of economic growth but also its composition. It is important that the largest contributions of growth stem from sectors that are relatively unskilled labour-intensive. In most countries with special needs this means the rural sector, particularly agriculture. Indeed, without substantial structural and rural transformation, it will be difficult to achieve sustainable and inclusive growth.

Agricultural productivity growth can drive rural growth and catalyse a pro-poor development process, as it benefits poor and landless farmers by increasing production and employment. Promoting farm and non-farm activities in rural areas can, in turn, have a poverty-reducing effect by increasing the demand for labour, goods and services in urban areas.

The impact of structural transformation on reducing poverty will be greater if increases in agricultural productivity are accompanied by greater production linkages with other sectors. Promoting policies that provide poor households with training in, and knowledge of utilizing modern and innovative technologies to improve their productivity will provide an additional boost to poverty reduction and make structural transformation more pro-poor and sustainable.

ENDNOTES

[1] See, for example, UNCTAD (2017).

[2] "Agglomeration" is measured by the degree and strength of backward and forward linkages of domestic production using ADB-MRIO and based on the methodology developed by Mercer-Blackman, Foronda and Mariasingham (2017). See Annex 3 for definition and calculation.

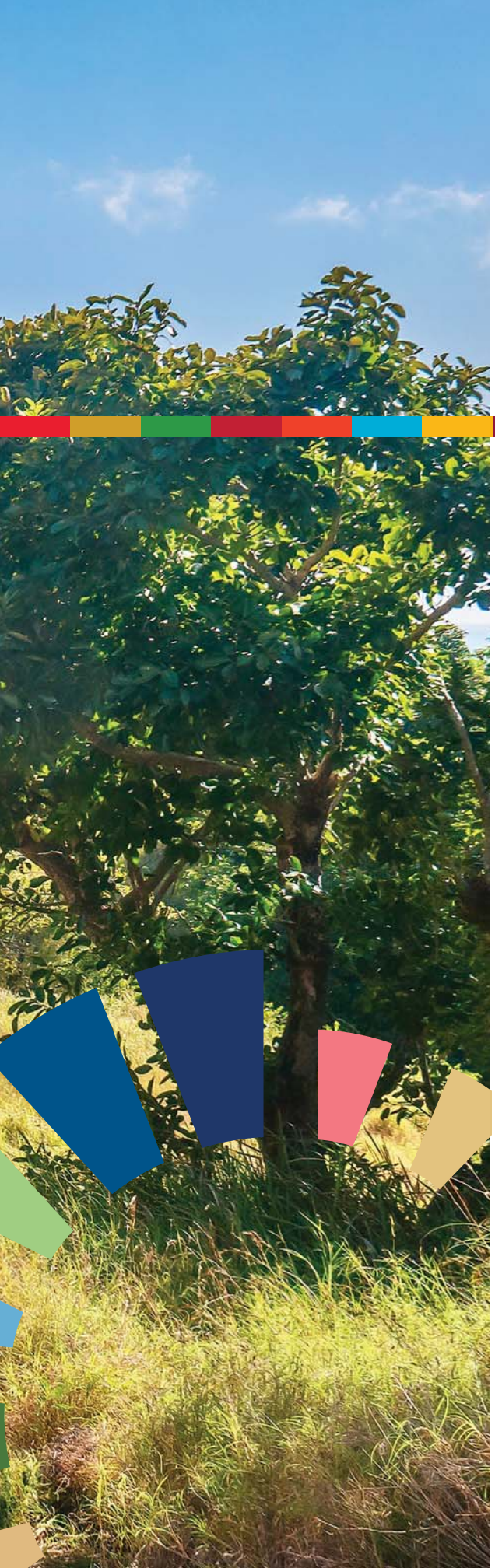
[3] Using a panel for a large number of developing and developed countries for 1960-2012, Baymul and Sen (2018) examined the Kuznets postulate and found that the movement of workers to manufacturing decreased income inequality.

[4] See, for example, Chowdhury (2019), Lundberg and Squire (2003) and Stigliz (2015).

[5] See, for example, Ravallion and Datt (1996), Byerlee, Diao and Jackson (2005), Christiaensen, Demery and Kuhl (2011) and Ligon and Sadoulet (2018).

[6] Similarly, a review of 12 countries case studies, including four Asian countries (Bangladesh, India, Indonesia and Viet Nam) shows that the highest agricultural labour productivity growth experienced the greatest rate of rural poverty reduction.

[7] Ten of the region's 12 least developed countries met the graduation criteria in the 2018 review of the United Nations Committee for Development Policy. Bangladesh, Myanmar and the Lao People's Democratic Republic met the criteria for the first time in 2018 and, if their development gains can be sustained up to the next review in 2021, they will be able to be graduate as early as 2024. Kiribati, Nepal, Timor-Leste and Tuvalu have met the criteria for graduation in two or more consecutive reviews, and the Committee for Development Policy has already recommended two of them for graduation status. Bhutan, Solomon Islands and Vanuatu are scheduled for graduation in 2023, 2024 and 2020, respectively.



CHAPTER 3

POLICY CONSIDERATIONS

Asia-Pacific countries with special needs constitute a unique as well as diverse group of nations. This diversity is not only related to the differences among least developed countries, landlocked developing countries and small island developing States, but also includes resource endowment and transformation patterns. Therefore, effective policy recommendations for structural transformation to reduce poverty cannot be generic and must be tailored to the specific needs and circumstances of each country.

The set of policy recommendations that can align structural economic transformation more closely with poverty reduction in Asia-Pacific countries with special needs is extensive. For example, macroeconomic policies can play an important role in supporting structural transformation; fiscal policy is a key tool, given its role to stabilize fluctuations in economic output (and can therefore influence the number of jobs available). Monetary policy is also pertinent to connecting structural transformation and poverty reduction. This is because credit policies can influence the supply of credit to productive sectors and thereby foster structural transformation, especially in those sectors that are usually the most constrained (such as agriculture and micro, small and medium-sized enterprises (MSMEs)). Social policies concerned with social protection, health-care availability and education also have an impact on structural transformation. For example, health care and education contribute to the formation of human capital, while social protection may aim at securing legal provisions related to health and income security (ESCAP, 2018a).

Structurally transforming countries with special needs requires significant financing. While several countries with special needs have made significant progress in mobilising resources domestically, particularly in the area of tax revenues, there is considerable untapped potential to increase financing through greater involvement of the private

sector through public-private partnerships (PPPs) and MSMEs financing. Promising external mechanisms to generate additional financial resources include South-South cooperation and the productive use of remittances.

However, macroeconomic and social policies as well as financing of structural transformation constitute a generic set of recommendations that are valid for all developing countries, not only countries with special needs. Overcoming the particular challenges facing Asia-Pacific countries with special needs requires a more tailored and focused needs-oriented approach. The key to this approach is the role and the positioning of the State. Its industrial policy – which creates an enabling environment – can guide the development of the national economy, and ensure the social and environmental sustainability of the process. Thus, structural transformation should be guided by a competent, engaged State with adequate transformative capacity rather than being left entirely to market forces (Bolesta, 2015).

Inevitably, the centrality of the State in the process of structural transformation evokes memories of the East Asian development miracle. However, while some general lessons from the East Asian development miracle may indeed be useful for countries with special needs, policy recommendations drawn from the experiences of those countries may not be entirely replicable today.

Many industrialized economies of the region, including Japan, the Republic of Korea, Taiwan Province of China and Singapore, have achieved a high level of development through export-orientated industrialization. In their development model, the State guided development through structural transformation, in which import-substitution industrialization was introduced and eventually replaced by export-orientated industrialization. State intervention in market mechanisms contributed to the creation of a domestic manufacturing base. By "picking winners" within the private sector and various industries, the State provided extensive support to the private sector's engagement with international markets, creating a type of "state-business alliance".[1]

However, the East Asian development miracle took place during a time when economic interdependencies were more limited, the forces of globalization less advanced and consequently the availability of protectionist and interventionist measures perhaps greater. Moreover, Japan, the Republic of Korea and China were then, and are today very different from the Asia-Pacific countries with special needs, in terms of size of populations, national economies and capabilities.[2]

It is also worth emphasizing that the East Asian development model ignored environmental considerations and that its economic success was accompanied by significant environmental degradation. In the era of the 2030 Agenda for Sustainable Development, sustainability is an indispensable element of development, bringing to the fore environmental and social concerns of development outcomes, as opposed to mainly economic concerns.

Nevertheless, the historical experiences of East Asian economies illustrate the importance of Governments questioning comparative advantage alone as well as highlight the role of the State in development. This point is still valid today in many countries with special needs.

A. The decisive role of the State and industrial policy

The importance of the State in structural transformation to reduce poverty in Asia-Pacific countries with special needs necessarily brings about a debate on the State's positioning in the development process. This is arguably one of the most country-specific considerations in terms of desired economic policy and institutional arrangements.

There are various ways for a State to influence structural transformation. Building on lessons learnt from the past, countries may either extensively interfere in the market through "picking the winners" or can promote a "new" industrial policy. Rather than the former "top down" approach, where a Government would push for the development of specific sectors, a more relevant approach today would be "bottom up", i.e., to pull up its industries. In this approach, a Government responds to private sector needs, facilitates its development (by creating an enabling environment), and mitigates and eliminates barriers and obstacles to economic

interaction, trade, investment and innovation. This would be akin to what Szirmai and others (2013) categorized as selective industrial policy and functional industrial policy, respectively, where the functional type involves a more general and less intrusive approach. Such an approach seeks to improve the business climate and promote competitiveness through; for example, property rights, access to credit, enabling infrastructure, and labour market flexibility. In contrast, the selective type involves a more interventionist stance with the State explicitly facilitating the growth of certain sectors. Such approaches typically attempt to defy a country's comparative advantage and harness its latent comparative advantage. They therefore go beyond existing strengths, by picking sectors that hold potential.

The process of structural transformation is characterised by radical changes in the pattern of interdependence between various social actors, and the State is the only institution that has the ability to legalise the new property rights and relations of power (Chang and Rowthorn, 1995). When doing so, the State does not only react to market outcomes but also tries to influence the direction of the structural changes. This happens, for example, when it introduces regulations in the labour market or restricts the mobility of financial assets (Chang, 1993). The role of the State as the creator of institutions is particularly important in those countries with special needs that have been undergoing a systemic transformation from a state-command model towards a market-based economy. This is because the process requires the State to establish an entirely new set of rules and regulations as well as enforcing bodies in the emerging new order.

The State has a fundamental responsibility to design development strategies. Strategies for creating competitive advantage through integrated policies for agriculture, manufacturing, trade, finance, human resources and technology are crucial to accelerated and successful structural transformation. However, although the State has the sole responsibility for initiating and implementing policy reforms, it must not act alone. Rather, policy reforms will have maximum political feasibility if they are nationally owned. For this, a participatory approach, involving various stakeholders and facilitation of a social dialogue, is necessary. The State requires supporting stakeholders in industrial policy, as "Governments and the private sector must work together closely in the design and implementation of an industrial policy strategy" (UNCTAD, 2018b).

Moreover, structural transformation "requires more than choosing from a pre-existing choice set. It requires formulating the choice set itself, namely, providing a vision for the future" (Chang, 1994, p. 298). The productive structure of an economy is not pre-determined by comparative advantages derived from its current factor endowments. Creating competitive advantages is a substantial component of a process of development (Evans, 1995) and implies a decision on what sectors are strategic for the economy. This selection has to consider factors such as a sector's "backward" and "forward" linkages with other sectors (or the extent of its sectoral interdependence), and its potential for further technological innovations.

1. Industrial policy

Industrial policy concerns government policies directed at altering the structure of an economy (Rodrik, 2004). More specifically, industrial policy can be a package of interactive strategies and measures aimed at (a) building enabling industrial systems (infrastructure and financial system) and productive capacity (including productive assets, technology and skills), and (b) supporting the development of internal and export markets. Indeed, since 2013 alone, at least 84 States – both developed and developing – have adopted formal industrial development strategies (UNCTAD, 2018a).

At the same time, the private sector remains a key actor in an effective industrial policy. Similar to the East Asian development miracle, the private sector has a crucial role to play by collaborating with the Government in ensuring the sustainability of the development trajectory, thus forming a "state-business alliance". Such an alliance requires "three key design attributes that industrial policy must possess: embeddedness, carrots-and-sticks, and accountability" (Rodrik, 2018). Embeddedness concerns how close state-business relations should be while carrots and sticks refers to the combination of incentives and discipline that industrial policy should seek, and accountability refers to the need to monitor bureaucrats and hold them responsible

for how they spend public money. The crucial requirement for successful industrial policy therefore is that private enterprises and economic elites play a role in its formulation and implementation (Evans, 1995). Thus, while the State should be a proactive partner with private sector and non-governmental bodies, it must also resist being captured by particular interests of various stakeholders in order to ensure that society's needs are also adequately addressed, rather than exclusively serving the needs of private entities.

Industrial policy strategies can be classified into three types: build-up, catch-up and new industrial revolution (NIR)-based strategies (UNCTAD, 2018a). Build-up strategies tend to put more emphasis on the improvement of physical infrastructure, roads, ports, airports, power and telecommunications infrastructure as an integral part of industrial policy. In addition to focusing on the build-up of a number of specific industrial sectors, they often push enterprise development and aim to improve access to finance for MSMEs. Catch-up strategies put relatively more emphasis on skills development, MSMEs support and promotion of linkages, export promotion and strategic public procurement as a tool to promote domestic enterprise development. NIR-based strategies emphasize the strengthening of industrial ecosystems, with innovation-driven PPPs, research and development institutions and soft infrastructure common elements. While they are somewhat linked to stages of development, they need to link with build-up policies encompassing competitiveness-enhancing measures. Catch-up models thus promote innovation and the adoption of new technologies, while NIR-based models use build-up mechanisms for new industries.

Investment and trade policy packages, which are an integral component of industrial policy, are used across the three models, and with similar instruments: incentives, special economic zones (SEZs), performance requirements, investment promotion and facilitation, and screening mechanisms. However, their focus and intensity differ, e.g., conditions are used much more at the build-up stage, while incentives are pervasive at the highest stages of industrial development (table 3.1).

Special economic zones can indeed be useful to kick-start industrial sectors' development or promote technology transfer to local economies (UNCTAD, 2018a). The most common SEZs include industrial zones, export processing zones (EPZs), free zones (e.g., free industrial zones or free trade zones), science and technology parks, special pilot zones, border special economic zones and regional economic corridors (UNCTAD, 2018a).[3] The contribution of SEZs can be significant, especially if they favour the creation of clusters of interconnected firms and institutions. When such clusters are large enough, they can have clear benefits in terms of economies of scale, and can affect ancillary services such as education or research.

2. Targeting

Targeting is a mechanism of selective industrial policy. Targeting for structural transformation to reduce poverty in countries with special needs must be tailored to their specific circumstances. For example, for small island developing States, particularly Polynesian and, to a great extent, Melanesian States, targeting manufacturing may not be a viable option due to their lack of potential economies of scale. Similarly, reducing poverty through structural transformation may prove challenging in landlocked, resource-rich countries – natural resource wealth reduces incentives

Table 3.1. Investment policy tools used by different industrial development models, by type

(Percentage of sample)

Industrial policy model	Incentives	Special zones/ incubators	Investment facilitation	Entry and establishment		Performance requirements
				Liberalization	Restriction	
Build-up	87	85	85	20	7	30
Catch-up	93	76	88	17	2	5
NIR-based	100	74	48	4	0	4

Source: UNCTAD, 2018a.

for structural transformation and, at the extreme, can bring the natural resource curse, inducing governance deficiencies, currency overvaluation and excessive external indebtedness. In least developed countries targeting must involve rural modernisation.

B. Least developed countries

Targeting in least developed countries is intricately linked to creating productive capacities, which include productive resources (natural, human, financial and physical), entrepreneurial capabilities and production (backward and forward) linkages (UNCTAD, 2018c). Industrial policy aimed at achieving structural transformation must therefore focus on strengthening domestic productive capacities, which are usually missing in least developed countries due to a weak private sector, over-reliance on primary commodity exports and an undiversified economy (UNCTAD, 2018c).

To reduce poverty, structural transformation must not only mean a move towards higher value-added activities and increased productivity, but also a substantial shift of labour from agriculture to more productive employment, as highlighted in chapter 2. In doing so, various challenges need to be tackled, including: (a) overcoming capital accumulation challenges (i.e., getting firms to invest in the upgrading of productive capacities); (b) addressing financing challenges (related, for example, to the effectiveness of the financial sector); (c) dealing with the challenge of accumulating knowledge (i.e., acquisition of new skills and technologies); (d) tackling the employment challenge (i.e., achieving faster output of growth coupled with new employment opportunities); and (e) addressing the demand growth challenge (i.e., the consequence of widespread poverty) (UNCTAD, 2018b).

1. Foreign direct investment and special economic zones

Attracting foreign direct investment (FDI) is directly related to strengthening the role of least developed countries in the global economy and fostering their participation in international trade. To enhance structural transformation, FDI must promote, rather than inhibit, domestic sector development. This can be achieved through, for example, local content requirements, technology transfer requirements and selective FDI support that is attractive for local businesses (UNCTAD, 2018b). As local content policies are effective only if they strike a balance between constraints and incentives, linkages and value chains between foreign investors and local businesses are important for fostering employment and developing local capacities.

As in most least developed countries the capacity for domestic consumption to drive structural transformation is quite limited, due to low levels of income per capita, FDI in least developed countries should target export diversification. This will make economic growth more sustainable by reducing vulnerability to external shocks. By providing meaningful employment, economic diversification will also contribute to reducing poverty. Export-oriented industrial policy is therefore an important element of the development strategy of these countries.

However, targeting must go beyond factors of comparative advantage. While it should be accompanied by measures that promote exports through various domestic incentives (e.g., an accommodating sectoral business environment) as well as promotion abroad via designated agencies and projects, social and environmental sustainability is a core concern that needs to be taken into account. For least developed countries to meet the Sustainable Development Goals, they must avoid repeating historical examples that have taken place in Asia and the Pacific that illustrate the negative effects of neglecting the environment and the resulting developmental losses caused by, for example, pollution (Bolesta, 2015). Building and expanding a manufacturing base that is oriented towards exporting must therefore consider possible social implications and environmental degradation, and must include measures to mitigate such negative effects.

There are various ways of fostering FDI through incentives. One way is by creating sectoral parks and SEZs. This approach makes particular sense for those least developed countries that are unable to effectively establish an enabling business environment on the territory of the entire country. For example, in Myanmar there are currently three SEZs: Thilawa – a zone located near Yangon that

caters predominantly to Japanese companies; Dawei – a zone in the south of the country, whose location caters to the Bangkok market; and Kyaukphyu in Rakhine state – a zone with 12 registered companies, including 11 from China, created in the vicinity of an oil and gas pipeline to China. In addition, the Government of Myanmar plans to create several new zones, such as in Pathein and Myawaddy. Eighteen industrial parks have been established in Myanmar, with a further 10 being planned (Bolesta, 2018).

Similarly, between 2003 and 2016, the Lao People's Democratic Republic established 12 special economic zones. There are 503 foreign and domestic firms investing in the country's SEZs, with activities divided between the service sector (39.3 per cent), industry sector (28.4 per cent) and trade sector (32.3 per cent). Real invested capital already exceeds $3.28 billion and has generated more than $28.40 million of revenue for the Government of the Lao People's Democratic Republic (2018). This has led to significant improvement of the infrastructure, both inside the zones and in surrounding areas, and has created more than 24,890 jobs. SEZs have attracted several world-leading companies such as Aeroworks, Essilor, Nikon, Toyota, Hoya, Mascot, which have been exporting their products globally with a total value of approximately $1.28 billion (2003-2018). In 2016, the contribution of SEZs to national GDP of the Lao People's Democratic Republic was about 0.85 per cent.

For least developed countries, FDI should also be aimed at strengthening integration into regional value chains (RVCs) and global value chains (GVCs). As about 60 per cent of global trade today is in intermediate goods, global and regional value chains can provide an important avenue for diversification and job creation in least developed countries. Indeed, GVCs and RVCs are important for determining a country's positioning in global production networks and gradually increasing its role in the global economy. Such FDI must not have a negative impact on the natural environment.

2. Rural modernisation

As the economies of many Asia-Pacific least developed countries are dominated by the rural sector, and in view of their higher poverty rates (as outlined in chapter 2), modernising the rural economy, expanding growth in agricultural output and increasing agricultural productivity in a sustainable way are key factors associated with poverty reduction.

To increase levels of productivity (and hence incomes) in agriculture, the sector should primarily be seen through the prism of business activities (UNCTAD, 2018c). It is thus necessary to improve the sector's links to market opportunities and supply and GVCs and to strengthen agricultural enterprises. Key aspects concern technological upgrades and mechanization. This includes the introduction of improved varieties of seeds, pest-resistant crops and plants. Such policies must be supported by improved agricultural research and development. Moreover, investment in rural infrastructure, including in irrigation, is necessary, as is the availability of services for rural entrepreneurs such as access to credit as well as skills training programmes for rural residents. All these actions can significantly boost agricultural production, labour productivity and agricultural wages, and promote accelerated transfer of production factors from the agricultural sector to the industry and services sectors.

These solutions require urgent action in least developed countries, where it is important to reduce inequalities and ensure that gains achieved in agricultural development are sustainable and widely shared. For example, degradation of arable land has become a major problem while rural hydraulic capacity has not been fully exploited.

Progress has been made towards tackling these challenges, however, and several least developed countries have undertaken policies to boost agricultural productivity and reduce rural poverty. For example, Bhutan has adopted the Rural Economy Advancement Programme to boost the rural economy and reduce poverty, while the Government of Nepal aims to double agricultural production in the next five years through modernisation, diversification, commercialization and marketing in the agricultural sector. The Government of the Lao People's Democratic Republic has embedded in the Eighth Five Year National Socio-Economic Development Plan (2016-2020) efforts to "promote green and sustainable agro-processing to supply food for domestic

consumption and exports by establishing agricultural production centres and laboratories, commercial seed production centres" in different regions throughout the country (Government of the Lao People's Democratic Republic, 2016). As part of the initiative, the Lao Farmers Network assists young farmers in increasing income through the processing of agricultural products from their farm.

In short, policies to boost agricultural productivity in a sustainable manner and reduce poverty should be the foundation for rural sector development, as such policies ensure sustainable poverty-reducing structural transformation.

3. Human capital for decent employment

A lack of adequate human capital is a persistent feature of Asia-Pacific least developed countries. To facilitate structural transformation, these countries should aspire to have a labour market where skilled individuals are abundant and can find decent jobs. Broadly, this requires policy elements from both the supply and the demand of the labour market.

First, in the short term, absorbing labour from agriculture requires concerted efforts to improve its employability in other sectors. This requires that workers be retrained so that they can carry out different functions in alignment with newly available jobs, e.g., operating more sophisticated machines and becoming industrial workers who are more capable of utilizing technical services in rural areas.

Second, if countries are to climb the value-added ladder, in the medium-to-long term they will need to continuously improve human capital that can apply knowledge to productive processes. This is crucial as a lack of highly-skilled workers can easily be a binding constraint to attracting foreign investment and thus preclude access to GVCs. Moreover, for countries to benefit from FDI in the form of knowledge transfer, a critical mass of highly-educated professionals is required.

Improving levels of human capital and moving up the value-added ladder and away from low-skilled employment is particularly relevant in view of the fourth industrial revolution, as decreasing costs of automation may threaten the existence of low-skilled mass production. In Asia-Pacific economies, jobs of 785 million workers or 51.5 per cent of total employment in the region could be automated (ESCAP, 2018f). Consequently, in the medium term and long term the education sector should ensure that the curricula provide students with the necessary training to undertake the jobs that countries wish to promote. There is no universal blueprint as to how much countries with special needs should allocate to education, for a good reason – the level of countries' spending by sector must be tailored to their specific realities. However, through the Education for All (EFA) initiative, UNESCO has suggested a benchmark of a minimum 20 per cent of countries' government budgets.[4]

Third, the supply of decent jobs must also grow. These should primarily be created in the private sector, underlining the need for private sector development. Increasing the number of national entrepreneurs and firms in a country requires a business-friendly environment and an investment climate that eliminates obstacles to its development. This includes addressing hurdles to setting up a company, shortening the periods required to register property, and accessing services such as electricity and financing. These "doing business indicators" (World Bank, 2018), are important in the context of attracting foreign companies.

Fourth, the labour market should have legal institutions to ensure that workers' conditions and the jobs created are of particular standard, especially with regard to protecting vulnerable segments such as women and people with disabilities. Labour market institutions can vary greatly depending on the political systems and history of countries. Nevertheless, minimum wages, unemployment benefits and collective bargaining have widely been identified as mechanisms that should be in place to improve workers' conditions. Similarly, public authorities should make efforts to promote the formalization of jobs (e.g., law enforcement through labour inspections), as formal jobs are associated with better working conditions and provide benefits for the State overall, notably through tax revenue.

Finally, it should be noted that these policy choices may not involve trade-offs among themselves – indeed synergies are possible. For example, upgrading a burdensome system to become an easy, fast and efficient Single Window for registering a business and paying taxes online will encourage

foreign investment, national entrepreneurship and formalization of the economy; this, in turn, may facilitate financial inclusion and foster better working conditions.

C. Landlocked developing countries

Asia-Pacific landlocked developing countries are a heterogeneous group exhibiting various institutional features, policy necessities and development needs. Some of them are economies that have transformed from a centrally-planned state-command model; many are resource dependent with very concentrated production. Targeted industrial policies need to take these intrinsic features into consideration. For example, in many cases industrial policy aimed at economic diversification must target development of the manufacturing sector and productive services. This policy needs to facilitate the domestic business sector's development and its engagement with RVCs in order to increase access to global markets. In resource-rich countries, environmental degradation caused by extractive industries must be addressed through effective policies, which may include tougher environmental laws and regulations, more thorough licencing procedures, the introduction of new technologies and, perhaps, planning for an eventual phasing out of some mining activities.

The discussion on strategizing FDI and ensuring continuous improvements for the domestic sector examined in the section on least developed countries also applies to the landlocked developing countries group, as uncontrolled investment may cause as much harm as sectoral inaction. This is true particularly in resource-rich landlocked developing countries, where FDI in extractive resource sectors has tended to lock the economy into a low-value, often environmentally harmful, segment of production. Notwithstanding the fact that experiences in many landlocked developing countries suggest that state-owned enterprises can also be seen as supportive actors that possess important and relevant technology, capital and managerial structures that can be utilised in the process (Bolesta, 2015), the private sector is usually a key factor in ensuring effective industrial policy. Indeed, economies that have undergone an effective structural transformation have had a robust and thriving domestic business sector.

Early de-industrialization and primivitization of the industrial base

As outlined in chapter 1, premature de-industrialization is a phenomenon that needs to be addressed in several landlocked developing countries. Thus, whereas the share of employment in manufacturing tended to peak at around 30 per cent of the workforce in early industrializers, this share has declined in economies that industrialized later (Rodrik, 2018). Indeed, manufacturing has been found to peak at a much lower share of around 16 per cent of employment shares (Felipe, Mehta and Rhee, 2018). As a result, these economies have moved towards services at a much earlier stage of development, with much lower levels of per capita income (ESCAP, 2015a). Although in some particular cases, as in Bhutan, this indeed might be the only direction possible as various factors, such as geographical predicaments, will persistently limit opportunities to develop a thriving manufacturing base, in general, this process has not only inhibited the creation of productive jobs, but also slowed the pace of poverty reduction.

In Asia-Pacific landlocked developing countries that have undergone a systemic transformation from a centrally-planned, state-command model, another phenomenon occurred, i.e., "industrial primitivization" (Popov and Chowdhury, 2016), in which industrial sectors with more value addition gave way to those with less value-added. One reason that this happened is because of the "development illusion", in which state-command economies invested significant resources in the development of capital-intensive sectors (such as heavy and chemical industries), omitting low-tech, labour-intensive industries in their development paths (Naughton, 2007; Bolesta, 2015). By doing so, they created a temporary illusion that the stage of labour-intensive development had already been surpassed. Yet, once their economic systems were transformed and the post-state-command economies engaged with the global economy following market rules, the inefficient and ineffective heavy and chemical industries were unable to compete in global markets and in many cases had to be gradually dismantled. Moreover, while these economies desperately needed to decrease unemployment (a widely spread side-effect of early systemic reforms), low-tech, labour-intensive sectors became attractive. The

shift of the labour force to low-tech, low capital-intensive sectors consequently had a negative impact on labour productivity, which contributed to a lowering of standards of living.

In addition to the development of labour-intensive sectors based on some comparative advantages, structural transformation in landlocked developing countries that have undergone systemic transition needed to involve a restructuring of existing capital-intensive industries – usually heavy and chemical industries and machinery. The various ways of addressing the issue have been – (a) through FDI with technology requirement, aimed at sectoral modernisation to increase productivity and improve environmental sustainability; (b) by closing down the heavy and chemical industries (HCI) and machinery plants, and abandoning those sectors; and (c) through domestic reconstruction efforts and substantial investments in the HCI sector – in order to achieve the same goals as in the case of attracting FDI with adequate technology content (Bolesta, 2015). The first option appears to be the most adequate as it allows for sectoral modernisation, preservation of workplaces, and improvement in human capital, building capacity to compete in the global economy at relatively minimal costs.

Some countries have been able to successfully address their resource dependence and thereby avert industrial primitivisation. In Uzbekistan, for example, transitioning from a state-command economy was a three-step process, comprising: (a) a reduction in cotton production and exports, which was accompanied by an increase in food production; (b) an increase in fuel exports and achieving energy self-sufficiency; and (c) an increase in the share of industry in output, and the share of machinery and equipment in industrial output and exports (Popov and Chowdhury, 2016; see also box 1.1 in chapter 1). The diversification of industry and expanding manufactured exports were largely due to protectionism and the use of a low exchange rate policy by the Government/central bank. Indeed, by maintaining a low (i.e., undervalued) exchange rate, Uzbekistan was able to stimulate the export of processed and manufactured goods. This policy of supporting infant industries is estimated to have allowed Uzbekistan to start manufacturing 80 new industrial products at an estimated value of $2.1 billion in 2016 (TCA, 2017).

Kazakhstan was also able to avert industrial primitivisation. Its 2050 Strategy (launched in 2012) is explicit about industrial transformation. Four broad priority areas of this strategy are: (a) focusing on extractive, heavy and energy industries (i.e., oil and gas, mining and metallurgy, chemical and nuclear); (b) strengthening export-oriented industries (e.g., agriculture, light industry and services such as tourism); (c) fostering innovative, technology-intense industries (such as ICT, biotechnology, pharmaceuticals, space, alternative energy); and (d) supporting the development of "facilitating" industries (such as construction and infrastructure development) (Bolesta, 2019). As part of the support measures for small and medium-sized enterprises, more than 70,000 businesses have received financial assistance (Konkakov and Kubayeva, 2016).

Tajikistan is another example of averting industrial primitivisation. In that country's National Development Strategy 2005-2015, the Government focused on diversifying exports and changing its economic structure. This was done by supporting exporters and accelerating development of light industry.[5] At the same time, the aluminium industry continued to enjoy preferential treatment in the form of subsidized banking loans and special measures to limit imports (Bolesta, 2019). This policy of "picking winners" resulted in favouring aluminium and cotton, thus improving the existing strengths based on historical factors (Miramonov, 2014).

D. Small island developing States

In small island developing States it may be more relevant to target specific subsectors (or even products), as opposed to entire sectors as a lack of economies of scale limits the potential of these small economies to undergo economic diversification and to benefit from economies of scale. Yet, policy considerations to align structural transformation with poverty reduction differ, depending on the subgroup of small island developing States.

First, while small land masses constrain the economic growth of small island developing States, the vast area of ocean that falls within their jurisdiction can potentially provide them with immeasurable resources. For 12 Asia-Pacific small island developing States, the total area of their

exclusive economic zones (EEZs) amounts to 16.8 million square kilometres, 31 times more than their landmass. Many governments of Pacific small island developing States have already started to focus on sustainable ocean management, programmes and policies (Keen and others, 2018). This concept, known as the "Blue Economy", focuses particularly on the potential of the fishery sector for small-scale fisheries, urban fish markets and onshore tuna processing. This approach, however, must ensure that the interests of local populations are adequately served, the natural environment is protected and the sector's development is sustainable.

Due to opposing interests and, at times, contradictory dynamics between the search for growth, economic profit and conservation from various stakeholders involved, sustainability and sovereignty are two critical components that have to be put forward (Barbesgaard, 2018). Moreover, there is a significant disparity between the licence fees paid to small island developing States for using their EEZs and the value of fish caught. In 2014, the 12 small island developing Pacific Governments' revenue received from access fees was approximately $331 million (Gillett, 2016), whereas the value of the extracted tuna therein was approximately $2.5 billion in 2016 (Pacific Islands Forum Fisheries Agency, 2017). Sustainable fishery is more relevant for States in Micronesia and Polynesia, often atoll countries such as Kiribati, Marshall Islands, Nauru, and Tuvalu, whose small landmass and geographic isolation prevent the development of other sectors such as tourism.

Second, environmentally sustainable tourism may be the main sectoral target among larger Asia-Pacific small island developing States. Tourism is already a key component of several national development plans, and several States have increased their tourism capacity significantly. Despite their remoteness and isolation, which translates into costly transport and development (Connell, 2010), revenues from tourism account for up to 30 per cent of GDP in Fiji, Samoa and Vanuatu, while in Palau they reach 58 per cent (Kronenberg and Khor, 2016). However, in the other Pacific countries, tourism is still in relatively early stages of development. Structural transformation towards tourism as the main sectoral target must ensure productivity gains, hence the necessity to perhaps make the tourist industry a high-value, high-end focused, and environmentally sustainable endeavour, similar to that in landlocked Bhutan.

Third, high productivity gains could be achieved through development of sea-bed resource extraction, including deep-sea mining. Some activities have already been taking place. For example, Fiji, Papua New Guinea, Solomon Islands, Tonga and Vanuatu have granted permits for deep-sea mineral exploration (World Bank, 2017). Sea-bed resource extraction might indeed become a viable option for sectoral development. This idea, however, should be treated with caution. Several factors may influence its viability, including environmental considerations and possible complications to develop other sectors simultaneously (World Bank, 2017) as well as conflicting interests of various stakeholders, resulting in inadequate attention to the local needs.

Fourth, for the larger of the Pacific small island developing States based in Melanesia, commercialized, high-value agricultural niche products for export could further be explored. Good examples include beef production in Vanuatu and sugarcane in Fiji. However, the environmental aspects need to be better mainstreamed into agricultural practices to ensure sustainability of production. Increased investments in irrigation infrastructure and soil fertility conservation are also urgently needed. Overall, the challenges facing Asia-Pacific small island developing States are especially grave given their fragility and their vulnerability to natural disasters and climate change.

E. Regional and subregional cooperation

Given the resource and capacity constraints of countries with special needs, the role of regional and subregional cooperation must be underscored in complementing domestic initiatives. In this regard, subregional integration initiatives increase the opportunities for least developed countries to participate more in the global economy. For example, the ASEAN Economic Community (AEC) established in December 2015 supports structural transformation and thus development of three least developed countries – Cambodia, the Lao People's Democratic Republic and Myanmar – as it enhances access to a large consumer market and creates the

potential for integration of these countries into regional value chains. Indeed, the Lao People's Democratic Republic integration within the AEC has led to the establishment of a thriving manufacturing base, notably in SEZs adjacent to Thailand (AEC's second-largest economy). Thailand and Viet Nam are among the leading AEC investors in the Lao People's Democratic Republic. Myanmar has also leveraged its position as a member of AEC and of the Asia-Pacific region, becoming a destination of manufacturers from China, Japan, Singapore, Thailand and other countries.

Cambodia, the Lao People's Democratic Republic and Myanmar are also part of the Regional Comprehensive Economic Partnership, which is aimed at establishing a large free trade area encompassing parts of Asia and the Pacific. Cambodia, the Lao People's Democratic Republic and Myanmar are among the members of the Greater Mekong Subregion (GMS) initiative that is aimed at subregional integration. As far as China's Belt and Road Initiative (BRI) is concerned, Bangladesh and Myanmar are situated along the Bangladesh-China-India-Myanmar corridor, whereas the Lao People's Democratic Republic is on the China-Indochina Peninsula corridor.

Moreover, as far as the Asia-Pacific least developed countries are concerned, the international community's role in facilitating structural transformation should be seen in the context of their graduation from the least developed country category. In a way, structural transformation is an indispensable element of the process, as graduation requires acceleration of economic growth, which in the majority of cases must be sustained by increased productivity.

Subregional mechanisms and structures aimed at regional integration and cooperation are important instruments for facilitating structural transformation and contributing to poverty reduction among landlocked developing countries. They improve access to international markets, allow easier integration into the RVCs and GVCs, and improve the physical and non-physical infrastructure for economic interaction.

The Eurasian Economic Union (EAEU) and the BRI are indeed very relevant for Asia-Pacific landlocked developing countries. The EAEU, which is an ambitious plan to create a single market that promotes the free movement of goods, capital, services and people, common transport, agriculture and energy policies with provisions for a single currency and greater integration, will benefit landlocked developing countries such as Armenia, Kazakhstan and Kyrgyzstan. Moreover, some of the Asia-Pacific landlocked developing countries are situated along one or more of the six BRI corridors: (a) Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan along the China-Central Asia-West Asia Corridor; (b) Kazakhstan along the New Eurasian Land Bridge; (c) Mongolia along the China-Mongolia-Russian Federation corridor; and (d) the Lao People's Democratic Republic along the China-Indochina Peninsula Corridor. ESCAP estimates that the additional potential output attributable to the BRI is within the range of $152 billion to $372 billion per corridor, which includes at least one Asia-Pacific landlocked developing country (ESCAP, 2017b). Although measurable benefits have yet to be assessed, undoubtedly the activities within the framework of the BRI have been contributing to the deepening of subregional cooperation and integration through, for example, creating greater levels of connectivity. This will contribute to the process of structural transformation.

The international community also has an important role to play in the structural transformation of landlocked developing countries. This is particularly the case with the transit countries upon which the landlocked developing countries depend for access to the sea. Indeed, being "landlocked" has impeded structural transformation, as it has contributed to greater trade and transport costs that, in turn, have inhibited the incentive for economic diversification. International organizations can play an important role in facilitating cooperation between landlocked developing countries and transit States with a view to enabling easier access to international sea routes. For example, Asia has already become a host to several international initiatives for facilitating landlocked countries' access to markets and improving cooperation between them and relevant transit countries. They include: the Intergovernmental Agreement on Dry Ports, developed in 2016 under the auspices of ESCAP; ESCAP's Regional Strategic Framework for the Facilitation of International Road Transport of 2012; and ESCAP's Regional Cooperation Framework for

Facilitation of International Rail Transport of 2015. These initiatives illustrate the importance of the international community's role in facilitating improvements in connectivity and in assisting the enhancement of economic interaction.

Perhaps the role of the international community is most critical for small island developing States that are particularly susceptible to the impacts of climate change, which can hamper their efforts for achieving sustainable development and structural transformation. Concerted actions to address climate change can, for example, take the form of supporting the take-up of carbon pricing instruments and energy subsidy reforms, promoting public and private partnerships for low-carbon climate-resilient infrastructure investments as well as improving transboundary climate data collection.

The international community must also help small island developing States to mitigate and adapt to the consequences of climate change by scaling up finance for climate action, and providing disaster risk transfer and financing instruments. The Green Climate Fund is an example of climate financing mechanisms created under the United Nations Framework Convention on Climate Change to support a paradigm shift in the global response to climate change. Providing a range of financial instruments, such as grants, loans, equity and guarantees to build climate resilient infrastructure and increase the resilience of vulnerable communities, the fund pays particular attention to societies that are highly vulnerable to the effects of climate change, particularly in least developed countries and small island developing States.

Climate change is having a profound impact on small island developing States and threatens the very existence of many of these countries. The international community therefore has an obligation to help to coordinate actions by small island developing States to address the issue and enforce the coordination of policies. Concerted efforts will not only help to mitigate climate change but will also accelerate structural transformation of the region's economies towards becoming more low-carbon, resource-efficient ones.

F. Conclusion

Structural transformation to reduce poverty is a multilayered, long-term process, which requires resources and policy guidance. The Asia-Pacific countries with special needs are a diverse group with various needs for policy recommendations to successfully undergo this transformation and effectively reduce poverty. Consequently, policy recommendations must take into consideration this diversity. They have to be tailored and well-targeted towards the specific circumstances of individual countries. Nevertheless, Asia-Pacific countries with special needs also exhibit extensive similarities, whether due to being part of a particular grouping of countries (such as least developed countries, landlocked developing countries or small island developing States) or due to common characteristics (such as being resource-rich or sharing a common history of systemic transition from central planning to a free market). Moreover, although policy recommendations must often be country-specific, "the library of experiences" can be selectively utilized. This library offers some specific recommendations, which go beyond one-country needs.

This chapter illustrates the necessity for a broad approach to designing policy recommendations, insofar as structural transformation to reduce poverty in Asia-Pacific countries with special needs is concerned. It emphasizes the centrality of the State in presiding over changes and guiding the transformational efforts. It advocates for industrial policy and its various features differentiating between least developed countries, landlocked developing countries and small island developing States. This chapter also underscores rural development as an indispensable element of structural transformation, particularly among least developed countries. It explains the role of creation of productive employment and decent jobs and emphasizes the strategizing of foreign direct investment. Finally, it also illustrates how the international community and regional integration initiatives could contribute to efforts to accelerate structural economic transformation for reducing poverty.

Only concerted and coordinated efforts by various stakeholders, using broad multidisciplinary policy and institutional options, will result in successful structural transformation and effective poverty reduction in Asia-Pacific countries with special needs.

ENDNOTES

[1] Using a similar set of policies and institutional arrangements, this developmental success was then emulated by China and some South-East Asian economies.

[2] Clearly, China must be treated separately from smaller and more vulnerable economies of countries with special needs due to its size and achieved economic clout.

[3] For a specific definition of each type of SEZs, see UNCTAD, 2018a.

[4] See https://en.unesco.org/news/key-milestones-reached-new-education-goals-0.

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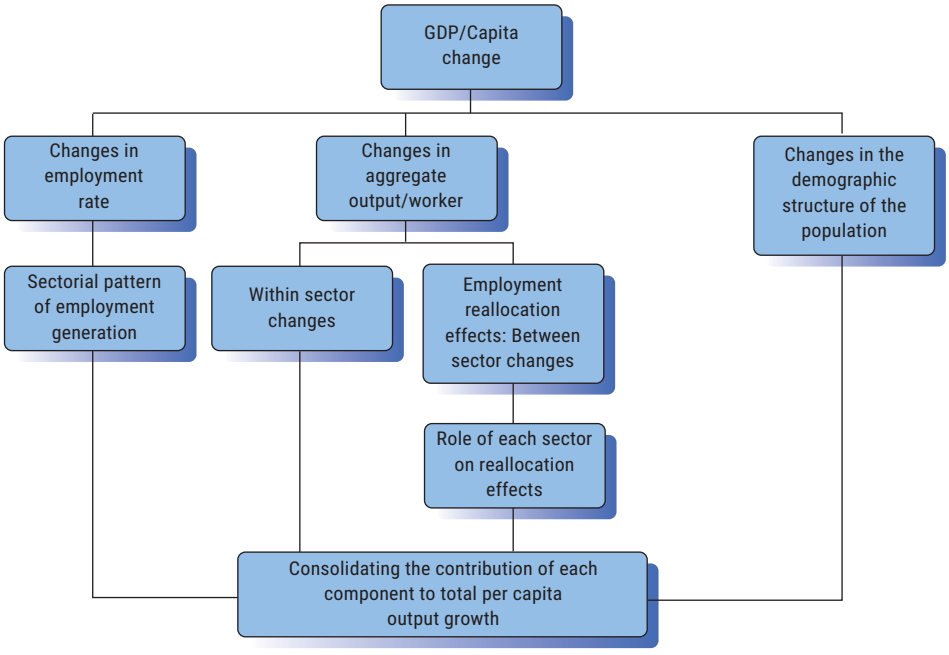
ANNEXES

Annex 1: Methodology for decomposing labour productivity growth

To decompose the sources of these changes, a variety of approaches exist. Some studies (McMillan, Rodrik and Verduzco-Gallo, 2014) distinguish between only two components, the within-sector improvement and between-sector reallocation sources of growth in productivity; others sources (World Bank, 2012a) estimate the contributions of these two sources of growth to productivity, together with additional parameters such as demographics and employment to determine the ultimate contribution to output per capita. While the former uses the more straightforward "shift-share" approach we adopt the "shapely decomposition" proposed by the World Bank.



Source: Adapted from World Bank.

Essentially, the change in per capita GDP can be linked to three components – changes in employment rate, productivity and the demographic structure of the population. While the demographic structure is an exogeneous contribution, the changes in productivity as well as employment rate are significantly influenced by structural transformation. The three components have varying implications for changes in per capita incomes.

1. **Employment rate:** This component uses the employment growth relative to working age population in various sectors in order to assess the aggregate impacts of employment changes within each sector. For example, the absolute number of people employed in a sector may increase. However, the contribution to change in per capita output will depend on whether the employment growth in the sector has been able to keep pace with the increase in working age population.

2. **Labour productivity:** This component can be further decomposed into the two components of within-sector and between-sector transformation. The within-sector component simply captures changes

in aggregate productivity due to growth within individual sectors, whereas the between-sector component captures the change in aggregate productivity due to employment shifting to more productive sectors. An increase in output per worker within a sector intuitively leads to an increase in average productivity, with the magnitude of the effect depending on the size of each sector. In the case of a shift across sectors with differing productivity levels, average productivity will increase if a larger share of people are employed in higher productivity sectors.

3. **Demographic structure:** This component captures an important source of growth for developing countries, especially those experiencing a demographic dividend. When the working age population increases, the opportunities for increasing per capita income expands, and when the dependency ratio increases it creates a drag on per capita income.

Annex 2: Results of decomposition analysis

	Country	Sources of gross value-added/capita change (1991-2001)				Total change in gross value-added per capita
		Within-sector improvement	Inter-sector shift	Employment rate	Demographic change	
Least developed countries	Afghanistan	-57.56	-3.45	0.89	-0.66	-60.78
	Bangladesh	-100.86	87.72	32.84	10.18	29.88
	Bhutan	29.56	24.04	4.35	9.21	67.15
	Cambodia	7.19	14.16	3.29	8.58	33.23
	Lao PDR	8.71	14.78	-0.58	3.11	26.02
	Myanmar	71.69	11.49	-4.38	11.63	90.43
	Nepal	-36.47	57.02	3.16	3.01	26.72
	Solomon Islands	-28.13	4.33	4.29	4.94	-14.58
	Timor-Leste	39.62	4.81	-10.36	-21.95	12.11
	Vanuatu	-2.82	-4.32	-2.01	3.96	-5.19
	Average	***-6.91***	***21.06***	***3.15***	***3.20***	***20.50***
Landlocked developing countries	Armenia	7.34	-9.35	-15.83	6.85	-10.99
	Azerbaijan	-53.79	-2.06	1.43	3.59	-50.83
	Kazakhstan	-18.06	10.34	-10.11	6.58	-11.24
	Kyrgyzstan	-28.79	-11.97	0.06	5.39	-35.30
	Mongolia	-15.73	-3.05	9.65	10.57	1.43
	Tajikistan	-66.17	6.00	-1.74	3.08	-58.83
	Turkmenistan	-47.63	8.07	0.99	7.18	-31.40
	Uzbekistan	-37.29	-1.96	-0.37	6.67	-32.95
	Average	***-32.51***	***-0.50***	***-1.99***	***6.24***	***-28.76***
Small island developing States	Fiji	2.51	10.18	-7.93	6.57	11.34
	Maldives	-23.58	13.67	12.45	16.46	19.00
	Papua New Guinea	-5.20	6.21	0.18	3.61	4.80
	Samoa	39.59	-1.33	-1.51	-2.82	33.94
	Tonga	10.91	5.60	7.54	1.91	25.97
	Average	***4.85***	***6.87***	***2.15***	***5.15***	***19.01***

	Country	Sources of gross value-added/capita change (2001-2016)				Total change in gross value-added per capita
		Within-sector improvement	Inter-sector shift	Employment rate	Demographic change	
Least developed countries	Afghanistan	74.04	36.65	12.18	14.20	137.06
	Bangladesh	44.08	43.34	-4.33	16.81	99.89
	Bhutan	-9.63	89.87	-1.38	30.32	109.18
	Cambodia	55.08	39.37	4.64	21.87	120.96
	Lao PDR	47.23	80.08	-2.18	26.61	151.73
	Myanmar	225.82	57.65	-20.71	15.04	277.81
	Nepal	195.92	-168.68	-3.36	17.09	40.97
	Solomon Islands	51.71	2.55	-4.70	5.83	55.39
	Timor-Leste	164.33	117.74	-72.00	27.74	237.81
	Vanuatu	1.35	1.49	1.52	8.90	13.27
	Average	***84.99***	***30.01***	***-9.03***	***18.44***	***124.41***
Landlocked developing countries	Armenia	127.50	17.18	0.16	10.94	155.78
	Azerbaijan	157.75	0.34	20.69	15.66	194.44
	Kazakhstan	71.50	24.03	9.80	-1.36	103.98
	Kyrgyzstan	34.84	13.66	-4.41	2.20	46.28
	Mongolia	92.76	27.22	-7.44	10.35	122.89
	Tajikistan	73.71	8.72	3.58	15.77	101.78
	Turkmenistan	190.88	-23.26	6.89	12.96	187.47
	Uzbekistan	98.20	10.08	7.69	16.71	132.69
	Average	***105.89***	***9.75***	***4.62***	***10.40***	***130.66***
Small island developing States	Fiji	1.16	7.84	4.58	9.06	22.63
	Maldives	5.52	9.83	15.77	28.87	59.99
	Papua New Guinea	-26.79	47.91	-3.20	6.10	24.01
	Samoa	43.60	-14.26	-10.43	8.28	27.19
	Tonga	2.06	3.23	0.89	4.08	10.26
	Average	***5.11***	***10.91***	***1.52***	***11.28***	***28.82***

Annex 3: Indicators of backward and forward linkages

Several summary measures of production linkages, such as the backward multiplier, participation in production, total agglomeration and employment multipliers, are computed for 35 sectors in 7 economic clusters and for 61 economies, including 10 Asia-Pacific countries with special needs (Bangladesh, Bhutan, Cambodia, Fiji, Kazakhstan, Kyrgyzstan, Lao People's Democratic Republic, Maldives, Mongolia and Nepal). These indicators, also known as input-output multipliers, are calculated based on input-output coefficients from the Asian Development Bank's Multi-Regional Input-Output Tables Database (ADB-MRIO) and employment statistics from the International Labour Organization's ILOSTAT. The methodologies are based Mercer-Blackman, Foronda and Mariasingham (2017).

The following notations are used: n is the number of sectors included in the input-output tables; Z^c is the $n \times n$ intermediate input flow matrix for country c. Each element of the matrix, $Z^c_{i,j}$, represents the value of the intermediate inputs flowing from sector i to sector j; y^c is the $n \times 1$ output flow vector for country c, where y^c_i is the total output of sector i; e^c is the $n \times 1$ employment vector for country c, where e^c_i is the number of people employed in sector i.

The technical coefficient (direct input requirements) matrix is defined as $A^c \equiv Z^c \; diag(y^c)^{-1}$ where $diag(y^c)$ denotes a $n \times n$ diagonal matrix with the elements of vector y^c on the diagonal. Each element of this matrix, $a^c_{i,j}$, is the value of inputs to be produced by sector i to produce an additional unit of products by sector j, and called the technical coefficient (or direct input) of sector i into sector j.

The Leontief inverse matrix is defined as $L^c \equiv (I - A^c)^{-1}$ where I is a $n \times n$ identity matrix. Each element of the matrix, $l^c_{i,j}$, is the value of the additional outputs that would be required from sector i to produce the necessary outputs for one unit of final demand of sector j. The j-th column total $\sum^n_{i=1} l^c_{i,j}$ shows the total increase in output that would be required to supply the necessary inputs for an additional unit in increase in sector j. This is the measure of the strength of backward production linkages for sector j and often referred to as the backward requirements multiplier. The backward linkage of economy cluster k of country c is defined as $BL^c_k \equiv \frac{1}{k}(\sum_{\text{for all } j \text{ in } k} \sum^n_{i=1} l^c_{i,j})$. Similarly, the forward linkage of economy cluster k is defined as $FL^c_k \equiv \frac{1}{k}(\sum_{\text{for all } i \text{ in } k} \sum^n_{j=1} l^c_{i,j})$.

P^c is the $n \times n$ participation in production matrix for country c. Each element of the matrix, $P^c_{i,j}$, takes the value of 1 if the technical coefficient, $a^c_{i,j}$, is greater than 0.02 and zero otherwise. The j-th column total $\sum^n_{i=1} p^c_{i,j}$ measures the degree of backward participation in production of sector j, while the i-th row total $\sum^n_{j=1} p^c_{i,j}$ represents the degree of forward participation in production of sector i. The backward participation in production of economic cluster k in country c is defined as $BPP^c_k \equiv \frac{1}{k}(\sum_{for\ all\ j\ in\ k} \sum^n_{i=1} p^c_{i,j})$. Similarly, the forward participation in production of economic cluster k is defined as $FPP^c_k \equiv \frac{1}{k}(\sum_{for\ all\ i\ in\ k} \sum^n_{j=1} p^c_{i,j})$. The *participation in production of economic cluster k* is defined as $PP^c_k \equiv \frac{1}{2}(BPP^c_k + FPP^c_k)$. This indicator measures the degree of production linkages that cluster k has with all sectors in the economy.

The backward agglomeration index for cluster k is a product of the degree and strength of backward production linkages and defined as $BA^c_k \equiv BL^c_k * BPP^c_k$, while the total agglomeration for country c is $TA^c \equiv \frac{1}{n^2}(\sum_{for\ all\ j} \sum^n_{i=1} l^c_{i,j})(\sum_{for\ all\ j} \sum^n_{i=1} p^c_{i,j})$.

Finally, the employment multiplier matrix M^c is defined as $M^c \equiv diag(e^c)\ diag(y^c)^{-1}\ L^c$ where an element $m^c_{i,j}$ is the number of additional jobs in sector *I* that would be associated with one additional unit of final demand in sector *j*. The *j*-th column sum $\Sigma^n_{i=1}\ m^c_{i,j}$ is the total number of additional jobs associated with an additional unit of final demand in sector *j*. The employment multiplier for economic cluster *k* of country c is defined as $EM^c_k \equiv \frac{1}{k}\ (\Sigma_{for\ all\ j\ in\ k}\ \Sigma^n_{i=1}\ m^c_{i,j})$.

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This *Asia-Pacific Countries with Special Needs Development Report* highlights the role of structural transformation in reducing poverty in the Asia-Pacific least developed countries, landlocked developing countries and small island developing States, collectively referred to as "countries with special needs".

While the countries with special needs in Asia and the Pacific have made considerable development gains in recent decades, two in five people still live on incomes below $3.20 a day, which is the standard poverty line for lower-middle income countries. Poverty is high in many countries as real wages remain low. In part, this is because a transition to services has bypassed the relatively higher-productive, employment-generating dynamism of the manufacturing sector in many countries. Also, little progress has taken place in within-sector upgrading in the agriculture sector, failing to facilitate value added activities in rural areas.

Increasing productive employment is therefore critical to increase real wages and thus facilitate reduction in levels of poverty. Indeed, realizing the socioeconomic-related aspects of the Sustainable Development Goals is dependent on the ability of countries with special needs to provide decent employment through structural transformation. This *Asia-Pacific Countries with Special Needs Development Report: Structural Transformation and its Role in Reducing Poverty* examines the link between structural transformation and poverty reduction and puts forward relevant policy considerations to align structural transformation and poverty reduction, highlighting the importance of targeted industrial policies and rural development.

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