

Structural transformation, backward and forward linkages and job creation in Asia-Pacific least developed countries

As demonstrated in the *Asia-Pacific Countries with Special Needs Development Report: Structural Transformation and its Role in Reducing Poverty*, the least developed countries (LDCs) of Asia and the Pacific have achieved significant development gains in recent decades, most visibly in the reduction of extreme poverty. Structural transformation, which broadly refers to the process of continuously redeploying factors of production to higher value activities, has contributed to the reduction of poverty in these countries as it has led to increases in labour productivity and output, directly raising incomes of workers.

Structural transformation can influence employment creation and poverty reduction through direct and indirect channels. For instance, productivity growth in one sector stimulates employment and wage growth in that sector. It can also impact other sectors through increased demand for labour with similar skill profiles. Higher output in one sector can further spillover to other sectors through increased input demand from other sectors through production linkages thereby increasing incomes. The benefit of such spillovers will be limited if the growing sector does not have strong backward and forward production linkages with other sectors.

However, it is not clear whether Asia-Pacific LDCs have been able to harness the potential backward and forward linkages between sectors to the extent that productivity growth in one sector *indirectly* stimulates demand for goods and services of other sectors. For a country to fully benefit from such indirect impacts, structural transformation should be accompanied by strong backward and forward linkages.

Economic structure of LDCs based on Input-Output matrices

An application of the input-output (I-O) analysis framework reveals several characteristics of the input-output structures of the Asia-Pacific LDCs. First, despite structural transformation, the Asia-Pacific LDCs have been unable to harness potential backward and forward linkages across different sectors. The analysis finds that the degree of production agglomeration through backward and forward linkages is significantly lower than the average of other developing countries

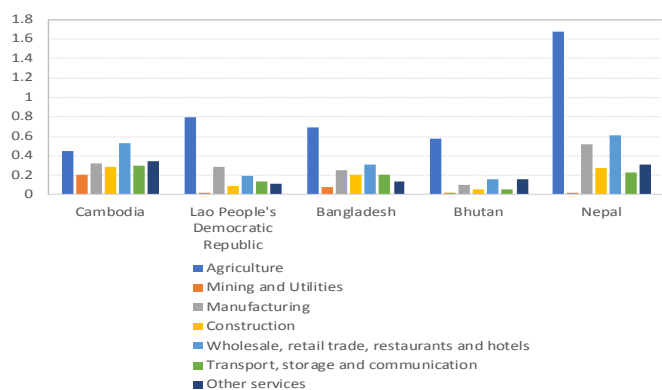
in the region. In addition, the improvement between 2000 and 2016 in LDCs is marginal compared to other developing countries. This suggests that these indirect transmission links from productivity growth to economy-wide job creation are weaker in Asia-Pacific LDCs than other developing economies in the region, further implying that productivity growth has not fully benefited LDCs due to weak domestic production linkages.

Second, an examination of employment multipliers, estimated from the I-O coefficients and corresponding employment statistics, reveals that agriculture still creates more jobs for one additional unit of final demand in agriculture than other sectors (i.e., agriculture has the highest employment multiplier) in Asia-Pacific LDCs. These estimates refer to how many additional jobs would be required to meet an additional \$1,000 increase in final demand for each cluster of economic activities. For example, a \$1,000 increase in final demand for agriculture would be associated with an average of 0.84 additional jobs in Asia-Pacific LDCs. Figure 1 demonstrates that agriculture has the highest employment multiplier in four out of the five LDCs for which relevant data are available, while the mining and utilities sector has the lower multiplier in all five LDCs.

These results are consistent with a number of empirical studies that have found a large growth-elasticity of poverty reduction for the agricultural sector, especially in countries at the early stages of development and those that are resource-dependent. Agriculture growth is two to three times more effective in reducing poverty than an equivalent amount of growth generated in other sectors, irrespective of the method or the poverty metric used to estimate elasticity of poverty.

However, this is largely due to the low average wages of farmers and not because demand for agriculture stimulates other sectors. Indeed, most LDCs have weak backward production linkages for agriculture (figure 2). This may also partly explain low agricultural productivity as the sector absorbs very few inputs and is also characterized by low levels of commercialization. The implication is that additional employment generation in response to a positive demand shock in agriculture is largely limited to the sector itself, while in non-LDCs many jobs are created outside agriculture.

Figure 1. Employment multipliers of final demand by economic activities, 2016



Source: ESCAP calculation, based on data from ADB-MRIO and ILO-STAT.

Furthermore, the large employment multiplier for agriculture is mostly explained by a large employment multiplier for unskilled labour. This implies that, while agriculture has a large employment creation potential, its contribution to real wage growth would be smaller than that of jobs created elsewhere, increasingly more so as per capita incomes increase.

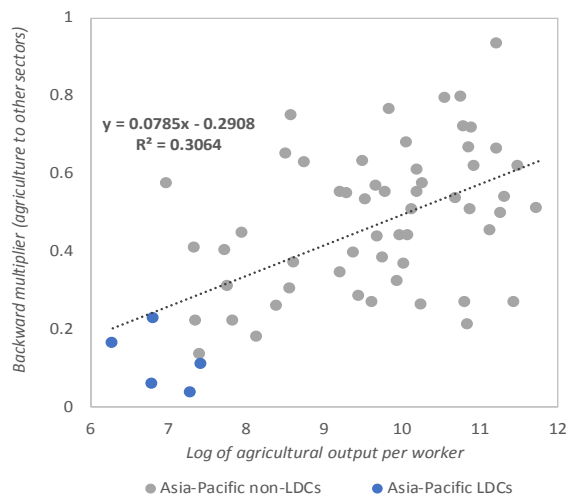
However, an encouraging observation from figure 2 is the strong positive association between agricultural productivity and its backward linkage with other sectors. Indeed, as agricultural productivity increases, its backward linkages usually increase by requiring more machinery, high quality fertilizers, transport equipment and financial services. This suggests that the more productive the agriculture sector is, the larger the benefits that other sectors can enjoy, and thus the more inclusive and sustainable rural development becomes.

Conclusion

For LDCs agriculture is still the key sector. Given the current production structure of these countries, the agriculture sector has a higher job creation potential than other sectors, based on the employment multipliers estimated at the sectoral level. If increases in agricultural productivity are accompanied by stronger production linkages with other sectors, as experienced by other countries, the impact of structural transformation on job creation will be greater.

A better understanding of the evolution of production linkages is vital to identify the economic activities or sectors that further facilitate structural transformation. It is particularly important for Asia-Pacific LDCs as most

Figure 2. Agriculture sector's backward multiplier with other sectors and agricultural labour productivity



Source: ESCAP calculation, based on data from ADB-MRIO and ILO-STAT.

of these economies still have lots of room for structural transformation. Leveraging the spillover benefits of productivity growth from one sector to the rest of the economy, particularly from agriculture where the vast majority of the poor live and work will be instrumental in sustaining the process of structural transformation, job creation and thus sustainable development.

In addition to increasing farm incomes, agricultural productivity growth 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. Thus, sustaining poverty-reducing initiatives requires a growing economy that successfully integrates factors markets in the rural and urban sectors and stimulates productivity growth in both.

Growth in the agriculture sector is more effective in creating jobs in Asia-Pacific LDCs, thereby drawing attention to the imperative of sustainable rural development strategies through agricultural upgrading and more value-added and employment activities in rural areas. Nevertheless, even with increased backward linkages of agriculture, there is a limit to absorbing high-skilled labour in agriculture or in the rest of the economy, as illustrated by its low employment multiplier for skilled labour. In the medium to long run, production linkages should shift from agriculture to manufacturing or high value-added services.

The MPFD Policy Briefs aim at generating forward-looking discussions among policymakers, researchers and other stakeholders to help forge political will and build a regional consensus on needed policy actions and pressing reforms. Policy Briefs are issued without formal editing. The content of this issue, prepared by Yusuke Tateno, Nyngtob Pema Norbu and Andrzej Bolesta. It is based on material from *Asia-Pacific Countries with Special Needs Development Report: Structural Transformation and its Role in Reducing Poverty* (Sales No. E.19.II.F.5). This policy brief benefited from comments by Oliver Paddison and Jose Antonio Pedrosa Garcia. For further information, contact Hamza Ali Malik, Director, Macroeconomic Policy and Financing for Development Division (escap-mpdd@un.org).