

Increasing agricultural productivity for sustainable development: challenges and opportunities

Spectacular economic growth has been witnessed in the Asia-Pacific region over the last few decades. Although this growth has been driven primarily by factor accumulation, significant increases in productivity, particularly in labour productivity, have also taken place throughout the region. However, since 2010, both economic growth and productivity growth have shown a declining trend, which is worrying as they both play a vital part in the development process.

To revive economic growth, the region should reduce its excessive reliance on exports to developed economies by shifting to a development approach in which domestic and regional factors play a larger role. In addition to raising public spending, sustained increases in domestic demand will require steady growth in real wages, which ultimately depends on productivity growth. Also, greater focus must be placed on productivity along with commensurate increases in real wages, particularly as growth in real wages has not matched increases in productivity levels. Doing so will be important to enable countries to “end poverty in all its forms everywhere” (Goal 1); “end hunger, achieve food security and improved nutrition and promote sustainable agriculture” (Goal 2) and to “reduce inequality within and among countries” (Goal 10).

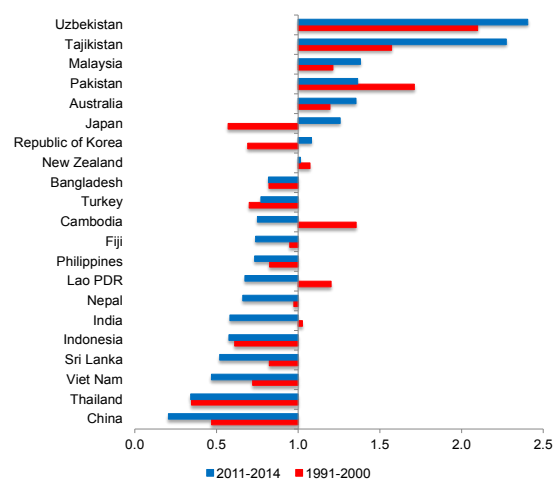
In view of the fact that more than half of the region’s population still lives in rural areas, a crucial component for strengthening domestic demand will be fostering productivity growth in agriculture and strengthening rural industrialization. Indeed, while the value of agricultural production increased from \$276 billion to \$1,185 billion in aggregate terms between 1961 and 2013 in a sample of 23 countries in the region,¹ agriculture’s share in GDP has declined. Moreover, this decline has been much faster than the corresponding decline of agriculture in total employment. Specifically, agricultural value added in GDP declined by almost half from 19.1% for the developing countries in the region as a whole in 1990 to 9.9% in 2013, while the share of agriculture in total employment declined only by about 20 percentage points to 36% of the labour force. This suggests that there has been misallocation of labour in many countries and that they have not been successful in integrating “surplus labour” from agriculture into the rest of the economy. This situation has resulted in relatively lower agricultural incomes.

For instance, the relative position of agricultural incomes, measured by agricultural value added per worker, in comparison with GDP per capita has declined significantly

across a large number of countries. Of the 23 countries surveyed, the ratio of agricultural value added per worker to GDP per capita was the lowest in China. Specifically, the agricultural value added per worker in China in the period 1991-2000 was \$382 when per capita GDP was \$813 (ratio of 0.47), but in the period 2011-2014, the values, respectively, were \$721 and \$3503 (ratio of 0.21). China is followed by Thailand, Viet Nam, Sri Lanka and Indonesia in that order (figure 1). In a number of other countries, the gap has also widened recently, meaning that agricultural workers have become relatively poorer.

Therefore, increasing labour productivity is critical to increase incomes in the agriculture and the rural sector. For one, agriculture, although generally viewed as having little impact on industrialization and the larger economy, provides the basis for many other activities, including manufacturing. In several economies, including Indonesia, Pakistan, the Philippines and Viet Nam, food, beverages and tobacco, for instance, contribute between 20% and 30% of total value added in manufacturing. Also, as poverty rates in the rural sector are significantly higher than in urban sectors in many countries, accelerating productivity gains in the rural sector may have a larger impact on poverty reduction.

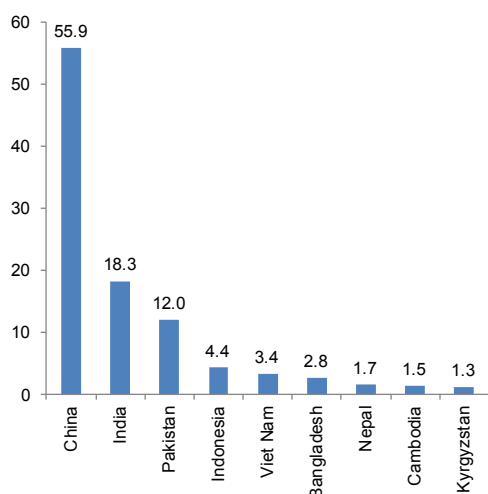
Figure 1. Ratio between agricultural value added per worker and per capita GDP



Sources: Upali Wickramasinghe, “Fostering productivity in the rural and agricultural sector for inclusive growth and sustainable development in Asia and the Pacific”, Background paper prepared for the Economic and Social Survey of Asia and the Pacific (Bangkok, ESCAP, 2016).

The low level of agricultural productivity in many economies is not only explained by a misallocation of labour but also by the usage of relatively inefficient production methods. An improvement in production methods, proxied by total factor productivity (TFP), could significantly contribute to the alleviation of poverty by increasing agricultural incomes. In fact, at least 110 million people could be lifted out of extreme poverty by 2030 if agricultural productivity were raised, assuming that: (a) the growth rate of productivity (total factor productivity) and yields are considered to be the same as their average of the last available five years for each country; (b) any decline in usage of farm machines at the country level that had been observed in the past is reversed; and (c) growth of fertilizer use remains unchanged. In countries with a high GDP-poverty elasticity, such as China and India, such an increase in agricultural productivity would lift at least 56 million and 18 million, respectively, out of extreme poverty during the period 2016-2030 (figure 2).

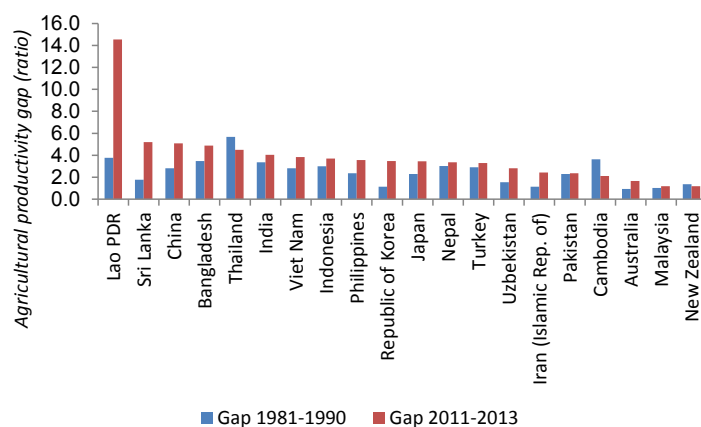
Figure 2. Millions of people lifted out poverty



Source: ESCAP calculations.

An analysis of the *agricultural productivity gap*,² which can be used as a proxy for labour misallocation across sectors, shows that in the region the gap is close to one only in Australia, New Zealand and Malaysia (figure 3). This suggests that in these countries, workers in agricultural and other sectors are paid the value of their marginal product and that firms hire up to the point where the marginal value product of labour equals the wage. In contrast, labour appears to be particularly misallocated in China, Bangladesh, India, the Lao People's Democratic Republic and Sri Lanka (where the gap is larger than one). Moreover, the degree of misallocation has in fact increased since the 1980s in most economies. Thus, for countries where the gap is larger than one, aggregate output would increase even without increasing the amount of inputs employed in production if workers were reallocated out of agriculture – where the value of their marginal product is low – into other activities.

Figure 3. Agricultural productivity gap



Source: ESCAP analysis, based on data from the World Development Indicators database.

To increase productivity in agriculture, appropriate policies and strategies are needed to affect a convergence of labour productivity across agriculture, industry and services. Such policies will, for one, include the removal of regulations that limit the movement of labour and capital across sectors. Importantly, absorbing labour from agriculture will require concerted efforts to improve its employability in other sectors: workers need to be retrained so that they can carry out different functions, can operate more sophisticated machines and can become industrial workers that are better able to utilize technical services in rural areas. This requires the provision of good-quality education and training systems. Furthermore, access to financial services, particularly for small and medium enterprises, needs to be improved, especially in rural areas, to foster rural industrialization.

¹ Australia, Bangladesh, Cambodia, China, Fiji, India, Indonesia, Iran (Islamic Republic of), Japan, Lao People's Democratic Republic, Malaysia, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Sri Lanka, Tajikistan, Thailand, Turkey, Uzbekistan and Viet Nam. See Upali Wickramasinghe, "Fostering productivity in the rural and agricultural sector for inclusive growth and sustainable development in Asia and the Pacific", Background paper prepared for the *Economic and Social Survey of Asia and the Pacific 2016* (Bangkok, ESCAP).

² The agricultural productivity gap is defined as $\frac{(1-y_a)/1-l_a}{y_a/l_a}$, where y_a is the share of agriculture in GDP and l_a is the share of agriculture in total employment. The ratio must be equal to one under the assumption of a competitive labour market, which implies that workers are paid the value of their marginal product and that firms hire up to the point where the marginal value product of labour equals the wage. This measure has some biases coming from various sources and data noise, yet even after considering sector differences in, for instance hours worked and the skill level of workers as well as alternative measures of sector output constructed from household survey data, a puzzlingly large gap remains. See Douglas Gollin, David Lagakos and Michael E. Waugh, "The agricultural productivity gap", National Bureau of Economic Research Working Paper No. 19628, November 2013.

The MPFD Policy Briefs aim at generating a forward-looking discussion 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. This issue was prepared by Steve Gui-Diby and Oliver Paddison. This policy brief benefitted from comments by Hamza Ali Malik, and Vatcharin Sirimaneetham. For further information on this issue, please contact Aynul Hasan, Director, Macroeconomic Policy and Financing for Development Division, ESCAP (escap-mpdd@un.org).