

## KEY POINTS

- The study explores the role of labor productivity in explaining interstate disparity in poverty reduction in India.
- The pace of poverty reduction is crucially linked to productivity growth, which is made up of three vital components—“within effect,” i.e., raising productivity in sectors employing a major share of the workforce; “static reallocation effect,” i.e., shifting workers to sectors with above average productivity; and “dynamic reallocation effect,” i.e., shifting workers to sectors where productivity is rising.
- Agriculture employs the majority of India’s population. Engendering “within effect” in the sector involves the need to improve returns through new farming technologies, better water resources and irrigation management, diversification to higher-value crops, better logistics and warehousing, new markets, and improved access to agricultural credit.
- For stimulating “dynamic reallocation effect” in the economy, it is important to bridge the large infrastructure deficit in India, improve investment climate, and make sustainable investments in education and skill development.

## Enhancing Productivity for Poverty Reduction in India

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## INTRODUCTION

After growing slowly for 3 decades from the 1950s through the 1970s, the Indian economy accelerated in the 1980s and sustained the pace through the 3 decades that followed. This growth experience delivered a five-fold rise in per capita income to \$1,500 per annum by 2015, transitioning India to a middle-income country.<sup>1</sup> Concurrently, both the World Bank and the national poverty estimates of this period indicated that the percentage of population living below the poverty line in India in 2011/12 was less than half the levels in the mid-1990s.<sup>2</sup> A broader measure of poverty, the multidimensional poverty index (MPI), which incorporates factors beyond income to include education, health, and living standards, also corroborated this progress, with the incidence of multidimensional poverty nearly halving between 2005/06 and 2015/16.<sup>3</sup> These measures indicate that India has been successful in raising hundreds of millions of people out of poverty in the new millennium. Thus, in sharp contrast to the decades before when the number of poor had expanded rapidly in India, economic growth since the mid-1990s has been broadly inclusive.

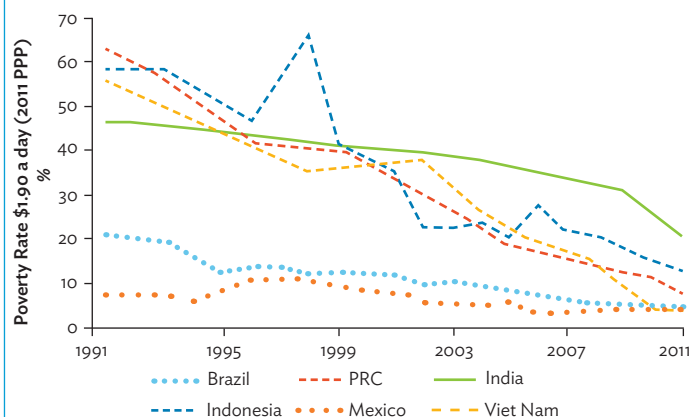
But this extent of poverty reduction impact was neither at par with other developing economies during the same period nor was it uniform across the country. On the one hand, India still lagged behind countries such as the People’s Republic of China (PRC), Indonesia, and Viet Nam in terms of the pace of poverty reduction (Figure 1).

<sup>1</sup> World Bank Group. 2016. World Development Indicators 2016. Washington, DC.

<sup>2</sup> PovcalNet, World Bank, and Government of India. 2012. *Press Note on Poverty Estimates, 2011–12*. Planning Commission. Government of India.

<sup>3</sup> Global MPI Country Briefing 2018: India (South Asia). *Oxford Poverty and Human Development Initiative*. University of Oxford.

Figure 1: Poverty Reduction in India and Selected Economies



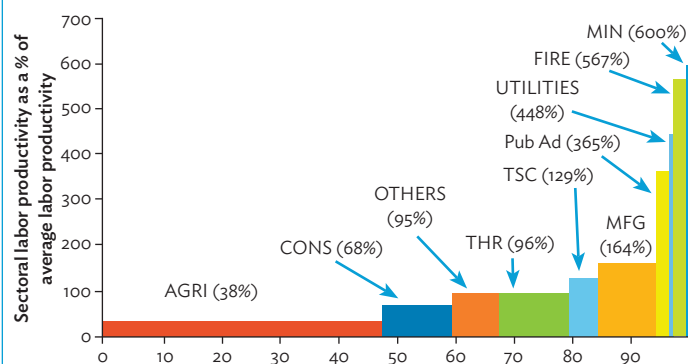
Note: PRC = People's Republic of China  
 Source: World Development Indicators, World Bank (accessed 1 December 2019)

On the other hand, wide disparities across India's states and districts in terms of per capita income and poverty incidence continued to challenge its policy making. For example, close to 40% of the population in Chhattisgarh continued to live in abject poverty in 2011/12 according to national poverty line, while in Bihar the proportion was 33.7%. At the other extreme, Himachal Pradesh, Kerala, and Punjab had less than 8% of the population living below the poverty line.<sup>4</sup> The extent of disparity is even greater when viewed through the lens of MPI with the proportion of population that is multidimensionally poor in 2015/16 ranging from 1.1% in Kerala to 52.2% in Bihar.<sup>5</sup>

## LABOR PRODUCTIVITY AND POVERTY REDUCTION: THE STUDY

A recent study explores the role played by increased labor productivity in explaining the disparity in poverty reduction.<sup>6</sup> Across production sectors, India experiences wide variations in labor productivity, which is a key determinant of earnings. Therefore, creating productive jobs or jobs in sectors which are witnessing rapid labor productivity growth may be expected

Figure 2: Relative Sector Productivity in India, 2015/16



Note: Width of the bar indicates share in employment of the sector. The sectors are classified as follows: AGRI = Agriculture and Allied Activities; CONS = Construction; FIRE = Finance, Insurance and Real Estate; MFG = Manufacturing; MIN = Mining; OTHERS = Other Services; Pub Ad = Public Administration; THR = Trade, Hotel and Restaurants; TSC = Transport, Storage and Communications; and UTILITIES = Public Utilities.

Sources:

- Government of India. Ministry of Statistics and Programme Implementation. Central Statistics Office and National Sample Survey Office.
- Government of India. Ministry of Labor and Employment. Labor Bureau. Report on Fifth Annual Employment-Unemployment Survey 2015/16. New Delhi.

to facilitate poverty reduction. Currently a large proportion of Indian workers are engaged in sectors with very low levels of labor productivity like agriculture and construction (Figure 2).

Taking cognizance of the size and heterogeneity of Indian states, the study examines the relationship between change in productivity and poverty reduction at the substate or regional level.<sup>7</sup> Given data availability, the study focuses on 18 major states of India, which account for nearly 84% of the output, 96.7% of the employment, and 93.7% of the people living below the poverty line. These 18 states are divided into 52 regions and 9 production sectors are examined, viz. agriculture and allied activities; registered or formal manufacturing; unregistered or informal manufacturing; construction; trade, hotel, and restaurants; transport, storage, and communications; finance, insurance, and real estate; public administration; and community, social, and personal services. The study covers the period from 1999/00 to 2011/12.<sup>8</sup>

<sup>4</sup> Government of India. Planning Commission. 2012. *Press Note on Poverty Estimates, 2011-12*.  
<sup>5</sup> Global MPI Country Briefing 2018: India (South Asia). *Oxford Poverty and Human Development Initiative*. University of Oxford.  
<sup>6</sup> A. Sen Gupta, V. More, and K. Gupta, 2018. Why Generating Productive Jobs is Essential for Reducing Poverty in India: Evidence from Indian Regions, *Indian Journal of Labour Economics*, Springer; The Indian Society of Labor Economics (ISLE), 61(4), pp: 563-87, December.  
<sup>7</sup> The districts are aggregated into regions, which are broadly in line with the classification followed by National Sample Survey Office, Ministry of Statistics and Program Implementation, Government of India.  
<sup>8</sup> The study analyzes the 55th (1999/00), 61st(2004/05), and 68th (2011/12) rounds of survey undertaken by the National Sample Survey Office, Ministry of Statistics and Program Implementation, Government of India. The choice of the initial period is driven by the availability of data on district domestic product, while the choice of the final period is based on the most recent data on poverty estimates. This period coincides with the high growth period in India.

**Table: Decomposition of Labor Productivity Growth in India**

	Average Labor Productivity	Within Effect	Static Reallocation Effect	Dynamic Reallocation Effect
1999/00 to 2004/05	3.2%	1.5%	1.8%	-0.1%
2004/05 to 2011/12	8.1%	6.2%	1.6%	0.4%

**Sources:**

- A. Sen Gupta, V. More, and K. Gupta, 2018. Why Generating Productive Jobs is Essential for Reducing Poverty in India: Evidence from Indian Regions, *Indian Journal of Labour Economics*, Springer; The Indian Society of Labor Economics (ISLE), 61(4), pp: 563–87, December.
- Government of India. Ministry of Labor and Employment. Labor Bureau. *Report on Fifth Annual Employment–Unemployment Survey 2015/16*. New Delhi.

An economy could experience an increase in labor productivity due to a combination of the following factors:

- (i) within effect – sectors that employed major share of the workforce witnessed productivity growth;
- (ii) static reallocation effect – sectors that witnessed an increase in employment share also reported higher levels of initial productivity; and
- (iii) dynamic reallocation effect – workers moved into sectors where productivity levels were increasing.<sup>9</sup>

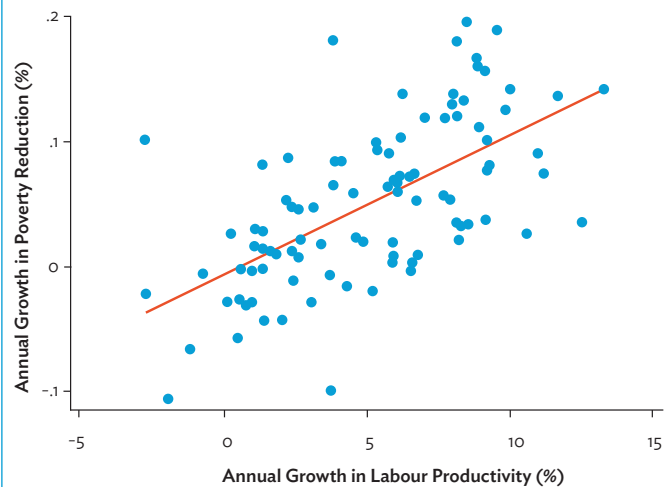
It is evident from the Table that labor productivity in India grew annually by 3.2% between 1999/00 and 2004/05, which was almost equally driven by the within effect and the static reallocation effect. However, during this period, dynamic reallocation effect remained negative implying that workers were not getting jobs in sectors that were experiencing productivity growth. Annual labor productivity growth more than doubled to 8.1% during the period from 2004/05 to 2011/12 mainly due to a strong within effect. There was a small decline in the static reallocation effect compared to the earlier period. Critically, the dynamic reallocation effect turned positive during this period and contributed to overall labor productivity growth.

The Table shows that productivity growth in India was largely driven by the within effect. Static and dynamic reallocation effects, i.e. structural change, played a relatively minor role, especially during the period between 2004/05 and 2011/12.<sup>10</sup> The slow pace of structural change is an outcome of the sector composition of growth that has been driven by financial and business services and transport and communication services, which tend to be less labor intensive and therefore generate

fewer employment opportunities. Furthermore, growth in manufacturing is mainly on account of the skill- and capital-intensive formal manufacturing sector. Informal manufacturing, which employs more than 80% of the manufacturing workforce, experienced listless growth during this period. Thus, employment opportunities in nonagricultural sectors that have the potential for employing low-skilled workers at higher productivity than agriculture grew at a sluggish pace during this period. Engendering dynamic reallocation by creating employment opportunities in nonagricultural sectors witnessing productivity growth is critical for India because, besides absorbing the workers leaving agriculture, India also needs to generate employment for around 8 million youth who are entering the labor force annually.<sup>11</sup>

Given that productivity growth tends to be positively associated with the growth in earnings of the workers, study findings corroborated the expectation that regions that witnessed stronger labor productivity growth also experienced faster poverty reduction (Figure 3).

**Figure 3: Poverty Reduction and Labor Productivity Growth in India, 1999/00 to 2011/12**



**Sources:**

- A. Sen Gupta, V. More, and K. Gupta, 2018. Why Generating Productive Jobs is Essential for Reducing Poverty in India: Evidence from Indian Regions, *Indian Journal of Labour Economics*, Springer; The Indian Society of Labor Economics (ISLE), 61(4), pp: 563–87, December.
- Government of India. Ministry of Statistics and Programme Implementation. Central Statistics Office and National Sample Survey Office.
- Government of India. Ministry of Labor and Employment. Labor Bureau. *Report on Fifth Annual Employment–Unemployment Survey 2015/16*. New Delhi.

<sup>9</sup> M. Timmer, G. de Vries, and K. de Vries. 2015. Patterns of Structural Change in Developing Countries. In J. Weiss and M. Tribe (eds.). *Routledge Handbook of Industry and Development*. Routledge. pp. 65–83.

<sup>10</sup> R. Hasan, S. Lamba, and A. Sen Gupta. 2013. Growth, Structural Change and Poverty Reduction: Evidence from India. *ADB South Asia Working Paper Series*. No. 22.

<sup>11</sup> International Labour Organization. 2018. Emerging Technologies and the Future of Work in India. *ILO Asia-Pacific Working Paper Series*.

A decomposition of labor productivity growth into its components, viz., within effect, static reallocation effect, and dynamic reallocation effect, yields interesting results (Figure 4). Both within effect and dynamic reallocation effect have a strong positive relationship with poverty reduction indicating that regions which have been either successful in stimulating productivity growth in sectors that provide employment to majority of workers or shifting workers to sectors that have witnessed productivity growth are the ones that have experienced rapid poverty decline (Figures 4a and 4c).

In contrast, static reallocation effect is negatively related to poverty reduction (Figure 4b). A plausible explanation could be that as workers move into sectors with above-average productivity levels at the outset, their lower marginal productivity depresses the productivity growth and wage-earning potential of the sector.

### STUDY FINDINGS

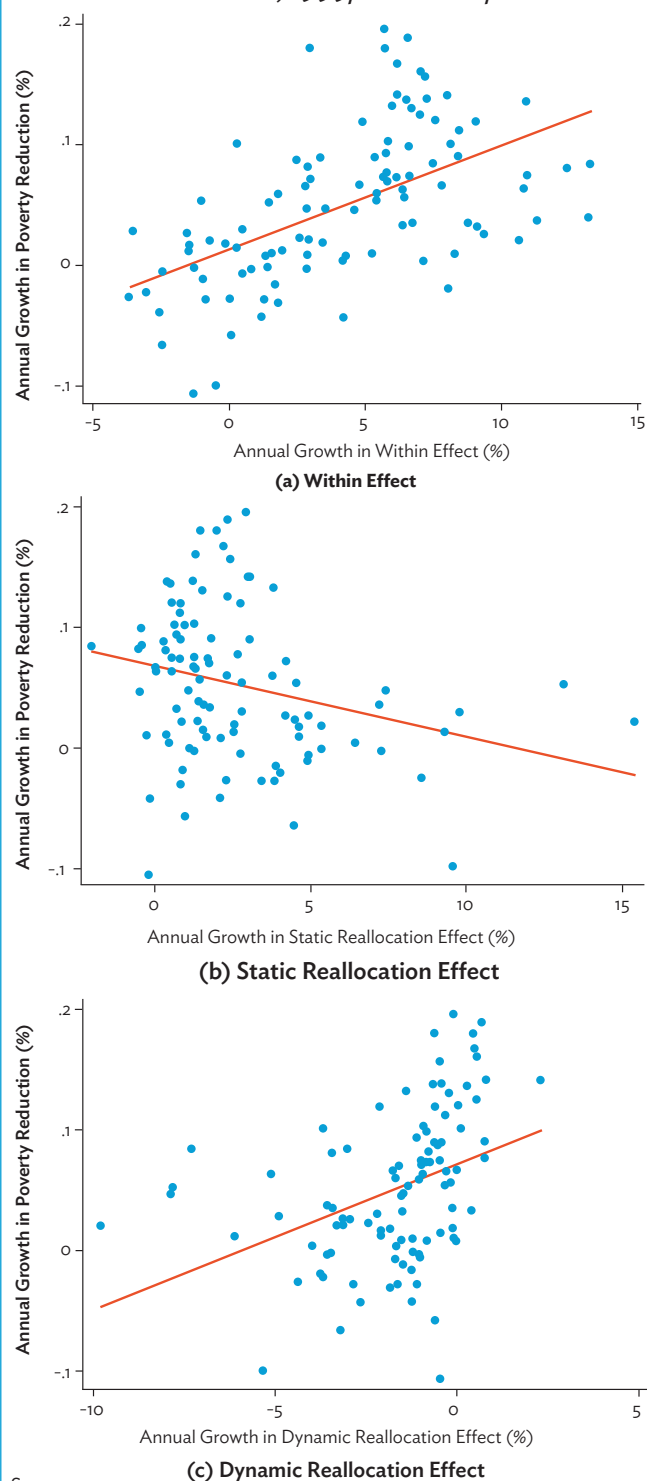
To intuitively understand how various components of labor productivity were influencing poverty rates in India, sectoral productivity aggregates of the six best performing regions in terms of poverty reduction were compared to the worst six (Figure 5).

Across both the high- and low-poverty-reduction regions, agriculture, the largest employer, experienced positive growth in labor productivity i.e. positive within effect, but negative growth in both static and dynamic reallocation effects, indicating that workers moved out of this sector. Moreover, a small fraction of the labor was reallocated to unregistered manufacturing, which was next only to agriculture in terms of low labor productivity. This implies that for poverty reduction to occur at an accelerated pace, improving labor productivity in the agriculture sector and pulling people out of agriculture is not enough. The pace of poverty reduction crucially depends on the productivity of the sectors that are absorbing the workers coming out of agriculture.

While construction, which follows unregistered manufacturing (as the third least productive sector across both region sets), witnessed a strong increase in employment share in the low-poverty-reduction regions, it also experienced a decline in sector productivity resulting in a negative dynamic reallocation effect. In contrast, the high-poverty-reduction regions witnessed positive dynamic reallocation effect where increase in employment share was twinned with improvement in labor productivity.

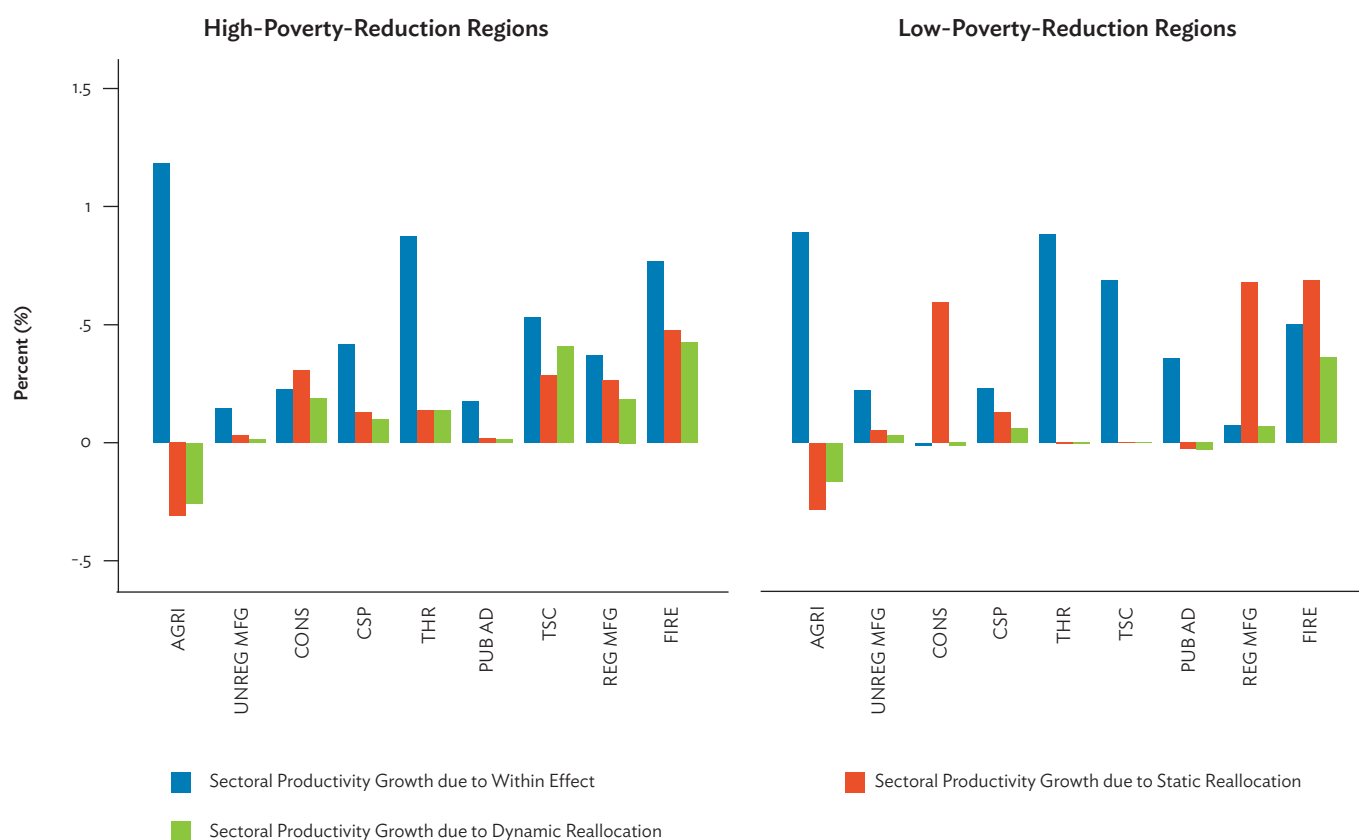
In the remaining six sectors the following salient features stand out. In the high-poverty-reduction regions, these sectors witnessed an improvement in labor productivity, along with an increase in employment share resulting in positive dynamic reallocation effect. In particular, the increase was substantial in the case of registered manufacturing; transport, storage, and communication; and banking, insurance and real estate; the three highest productive sectors in 2011/12. Thus, these regions were able to generate jobs in modern dynamic sectors, which were recording strong increases in labor productivity.

**Figure 4: Relationship Between Poverty Reduction and Components of Labor Productivity Growth in India, 1999/00 to 2011/12**



Sources:  
 • Government of India. Ministry of Statistics and Programme Implementation. Central Statistics Office and National Sample Survey Office.  
 • Government of India. Ministry of Labor and Employment. Labor Bureau. Report on Fifth Annual Employment-Unemployment Survey 2015/16. New Delhi.

Figure 5: Productivity Growth Decomposition by Sector in High- and Low-Poverty-Reduction Regions, 1999/00–2011/12



Note: AGRI = Agriculture and Allied Activities; CONS = Construction; CSP =Community, Social, and Personal Services; FIRE = Finance, Insurance and Real Estate; PUB AD = Public Administration; REG MFG = Registered Manufacturing; THR = Trade, Hotel and Restaurants; TSC = Transport, Storage and Communications; UNREGMFG = Unregistered Manufacturing.

Sector classifications are same as Figure 2. The sectors are based on (ascending) order of sectoral productivity in 2011/12.

Source: A. Sen Gupta, V. More, and K. Gupta, 2018. Why Generating Productive Jobs is Essential for Reducing Poverty in India: Evidence from Indian Regions, *Indian Journal of Labour Economics*, Springer; The Indian Society of Labor Economics (ISLE), 61(4), pp: 563–87, December.

Contrast this with the performance of the low-poverty-reduction regions. Among the high productivity sectors, only registered manufacturing and finance, insurance, and real estate witnessed an increase in employment share. Of these, in the case of registered manufacturing, there was very little improvement in productivity, resulting in the dynamic reallocation effect of the sector being a fraction of that in the high-poverty-reduction regions. While the other high productivity sectors viz. trade, hotel and restaurant; public administration; and transport, storage, and communication witnessed an increase in labor productivity, they experienced a decline in the share of employment and consequently recorded a negative dynamic reallocation effect.

The importance of dynamic reallocation effect in fostering productivity growth and facilitating poverty reduction is borne

out by the experience of other emerging countries. Comparing the experience of emerging economies in Africa, Asia, and Latin America, a study by the United Nations Conference on Trade and Development finds that Asian economies witnessed the strongest dynamic reallocation effect between 1960 and 2010, whereas the effect was marginal in African countries and negative in Latin American countries.<sup>12</sup> As shown in Figure 1, many Asian countries including the PRC, Viet Nam, and Indonesia experienced very rapid decline in poverty rates.

Evaluating the experience of some Asian economies in this case can be instructive. In the Republic of Korea, the share of agriculture in employment declined from 62% in mid-1960s to 17.0% in 1990, while the share of manufacturing more than tripled from 8.6% to over 28%, thereby aiding productivity growth.

<sup>12</sup> United Nations Conference on Trade and Development. 2016. *Trade and Development Report: Structural Transformation for Inclusive and Sustained Growth*. Geneva. [https://unctad.org/en/PublicationsLibrary/tdr2016\\_en.pdf](https://unctad.org/en/PublicationsLibrary/tdr2016_en.pdf).

This was a result of the multifaceted reform process, which included flexible labor markets, redistributive land reforms, focus on primary education and skill development, and export-oriented industrialization. In particular, government-driven skills development policy played a vital role in supporting economic development. Over the period between 1967 and 1996, nearly 2.5 million workers in the Republic of Korea were trained to meet the demand of advancing industrialization, and this technically-skilled workforce fostered rapid growth in labor productivity, which formed the base for rapid overall growth for nearly 4 decades.<sup>13</sup> In contrast, in South East Asian economies like Malaysia and Thailand, the extent of labor productivity growth was more muted and these countries are at risk of being caught in the middle-income trap.

## CONCLUSIONS

The pace of poverty reduction is crucially linked to within effect (raising productivity in sectors employing a major share of workforce) and dynamic reallocation effect (shifting workers to sectors where productivity is rising) by creating more job opportunities in different sectors. Given that productivity levels in sectors employing the bulk of the workforce such as agriculture, construction, and unregistered manufacturing in India remain below many other developing economies, there is scope for improvement. However, as previously shown, this is not enough to reduce poverty at an accelerated pace. What is critical is that the high productivity sectors witness a growth in productivity as they absorb the workforce coming into these sectors. Thus, equal attention needs to be given to inducing positive dynamic reallocation effect. This is especially important as the dynamic reallocation effect is positive only for a small proportion of regions—6 during 1999/00–2004/05 and 14 during 2004/05–2011/12.

## POLICY RECOMMENDATIONS

First, to spur the within effect, with a major part of the workforce remaining in agriculture in the foreseeable future, there is a need to improve returns to farming which would include adoption of new technologies to raise farm productivity, improvement in water resources (more crop per drop) and irrigation management, facilitation of agricultural diversification to higher-value commodities, improvements in logistics and warehousing, development of new markets, and improvement in access to agricultural credit.

Second, to facilitate positive dynamic reallocation, i.e., to bolster labor productivity in nonfarm sectors and generate job opportunities in these sectors, a multipronged approach with several distinct elements is needed. Foremost, it is vital to bridge the large infrastructure deficit that India faces. Resolving infrastructure bottlenecks in logistics, power, and urban sectors would augment productivity by reducing the cost of production and create productive economic opportunities by generating new jobs.

Reforms aimed at improving ease of doing business through better functioning credit markets, competitive business regulations, and flexible labor regulations would bolster competitiveness and expedite dynamic reallocation. In this context, development of economic corridors comprising three complementary components: a trade and transport corridor, industrial production clusters, and urban centers, which act not only as markets for the goods produced but are also source of labor and knowledge, can help to overcome infrastructure and regulatory bottlenecks, and aid dynamic reallocation.<sup>14</sup> Under the ambitious “Make in India” program, the Government of India identified five industrial corridors across India to boost inclusive development by bolstering industrialization and planned urbanization. The Asian Development Bank (ADB) is partnering with the Government of India to develop the Vizag–Chennai Industrial Corridor with a loan of \$631 million to (i) improve ease of doing business and strengthen corridor management; (ii) develop corridor infrastructure including internal and external roads, water supply, drainage, logistics, effluent treatment, and power transmission and distribution system; and (iii) build institutional capacity.

Finally, sustainable investments are required in education and skill development for making the present and future workforce productive and employable. Bridging the skills gap would support industrialization and right-skilling would allow the youth mobility to higher productivity sectors. In ADB’s sector program, skill development is a strategic pillar for boosting economic competitiveness and job creation to support higher and inclusive growth. Since 2013, ADB has approved loans worth \$510 million and provided technical assistance worth \$10 million. ADB will continue to support Technical and Vocational Education and Training (TVET) to improve employability and productivity of the growing workforce, by focusing on scaling up TVET infrastructure and capacity along systematic skills paths, uplifting the quality of TVET in line with emerging and future industrial demands, and strengthening the skills ecosystem by reinforcing national priorities and introducing international benchmarking.

<sup>13</sup> Y. Ra and K. W. Shim. 2009. The Korean Case Study: Past Experience and New Trends in Training Policies. *World Bank SP Discussion Paper 0931*. <http://siteresources.worldbank.org/SOCIALPROTECTION/Resources/SP-Discussion-papers/Labor-Market-DP/0931.pdf>.

<sup>14</sup> S. Mitra, R. Hasan, Manoj Sharma, H.Y. Jeong, Manish Sharma, and A. Guha. 2016. *Scaling New Heights: Vizag–Chennai Industrial Corridor, India’s First Coastal Corridor*. Manila: Asian Development Bank. <https://www.adb.org/sites/default/files/publication/183392/scaling-new-heights-ind.pdf>.

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### Notes

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