

# INDIA: SYSTEMATIC COUNTRY DIAGNOSTIC

Realizing the promise of prosperity



2018

CURRENCY EQUIVALENTS  
(Exchange Rate Effective as of May  
31, 2018) Currency Unit = Indian  
Rupee (INR) 67.47INR = \$US 1.00

FISCAL YEAR  
April 1 to March 31

## Abbreviations

ASEAN	Association of Southeast Asian Nations
APMC	Agricultural Produce and Market Committee
BRICS	Brazil, Russia, India, China, and South Africa
CSS	Centrally Sponsored Schemes
DBT	Direct Benefit Transfer
eNAM	e-National Agriculture Market
EU	European Union
GDP	Gross Domestic Product
GER	Gross Enrollment Ratio
GNI	Gross National Income
GST	Goods and Services Tax
GW	Gigawatts
HOI	Human Opportunity Index
ICDS	Integrated Child Development Services
ICT	Information and Communications Technology
IDA	Industrial Disputes Act
IHME	Institute for Health Metrics and Evaluation
ISRO	Indian Space Research Organisation
IMF	International Monetary Fund
IT	Information Technology
LFPR	Labor Force Participation Rate
MGNREG	Mahatma Gandhi National Rural Employment Guarantee
MSME	Micro, Small and Medium Enterprises
MSP	Minimum Support Prices
NCAER	National Council of Applied Economic Research
NHM	National Health Mission
NSS	National Sample Survey
OECD	Organisation for Economic Co-operation and Development
PDS	Public Distribution System
PISA	Program for International Student Assessment
PM	Particulate Matter
PMJDY	Prime Minister's Jan Dhan Yojana
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana

PPP	Public-Private Partnerships
PPP	Purchasing Power Parity
PwC	PricewaterhouseCoopers
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RTI	Right to Information
SCI	Statistical Capacity Indicator
SMEs	Small and Medium-sized Enterprises
SSA	Sarva Shiksha Abhiyan
SCs	Scheduled Castes
STs	Scheduled Tribes
TFP	Total Factor Productivity
UDAY	Ujjwal Discom Assurance Yojna
WDI	World Development Indicators
WHO	World Health Organization
WASH	Water supply, Sanitation and Hygiene
WTO	World Trade Organization

	IBRD	IFC
Vice President:	Ethel Sennhauser	Nena Stoiljkovic
Director:	Junaid Kamal Ahmad	Mengistu Alemayehu
Task Team Leaders:	Mandakini Kaul	Jun Zhang
	Richard Damania	Shamsher G. Singh
	Rinku Murgai	



## Table of Contents

Executive Summary.....	1
1. Acting today for a prosperous tomorrow .....	13
2. The promise and the path to middle-class prosperity .....	14
3. Pivoting to a more resource-efficient growth path .....	23
Land use is inefficient .....	23
Water use is inefficient.....	24
Making cities productive and livable .....	26
Managing growth and accelerating agglomeration .....	26
Reducing risks .....	29
Limiting air pollution .....	29
Improving connectivity .....	31
Resourcing cities .....	31
Coordinating across jurisdictions and sectors.....	31
Making agriculture productive .....	32
Reducing subsidies and fertilizer use.....	34
Transitioning to a modern food system .....	35
Making more productive use of water .....	38
Getting the energy sector right .....	39
4. Accelerating inclusion: creating good jobs, building human capital.....	41
Unshackling Indian firms .....	45
Connecting Indian firms.....	51
Embedding India in global trade.....	51
Creating a single market within India.....	53
Financing Indian firms .....	54
Building human capital .....	56
Upgrading skills .....	56
Investing in the foundations .....	58
Protecting the vulnerable .....	65
5. Strengthening the public sector.....	67
Tightening the chain from inputs to outcomes .....	68
Right-sizing and resourcing the public sector.....	72
Securing the financing needs of the state .....	75
The reform process .....	76
6. Risks to India's advance .....	77
7. Prioritization.....	79
Five principles for the priority of the how.....	80
8. Why India matters to the world.....	82
9. References .....	85
Annex 1. Overview of statistical capacity .....	99

## List of Figures

Figure 1: Strong record of growth and poverty reduction .....	15
Figure 2: Abundant labor, scarce natural resources .....	17
Figure 3: Female Labor Force Participation is lower than most comparators .....	19
Figure 4: Large spatial disparities .....	21
Figure 5: High concentration of wealth at the top .....	21
Figure 6: Cities are performing below their potential .....	27
Figure 7: High levels of air pollution are exacting a huge price .....	30
Figure 8: Agriculture growth is slow and highly volatile .....	33
Figure 9: Agricultural labor productivity is low .....	33
Figure 10: Salaried jobs--the most durable path to the middle class—are scarce.....	42
Figure 11: Indian firms do not grow much over time .....	47
Figure 12: India is an outlier on labor dismissal.....	48
Figure 13: Increasing skills premium at the top of the wage distribution.....	57
Figure 14: The Lure of the Public Sector .....	58
Figure 15: Human capital deficits start in childhood .....	60

## List of Boxes

Box 1: Strong growth and poverty reduction .....	14
Box 2: Abundant Labor, Scarce Natural Resources – A Ricardian rather than a Malthusian Constraint .....	16
Box 3: India’s recent growth: Fast but unequal .....	20
Box 4: Three guiding premises for a middle-class India.....	23
Box 5: New support programs in agriculture .....	36
Box 6: Plugging the jobs deficit.....	42
Box 7: Female labor force participation.....	43
Box 8: Letting firms grow to create jobs .....	46
Box 9: Boosting India’s Electronics Industry - What will it take? .....	49
Box 10: The Future of Manufacturing-Led Development .....	52
Box 11: Connecting people to opportunities.....	54
Box 12: Inequality of opportunities .....	59
Box 13: Addressing malnutrition – what will it take?.....	62
Box 14: Three Policy Actions to Address the Crisis .....	64
Box 15: Direct Benefit Transfers .....	66
Box 16: Some technological solutions to improve efficiency.....	69
Box 17: India’s statistical system—Data rich or data poor?.....	71

## Executive Summary

“It is impossible to frame a single picture of India: the reality of India depends on where you stand.”

Nandan Nilekani

(Founder of Infosys, author, philanthropist)

## Acting today for a prosperous tomorrow

With one of the world’s fastest-growing economies, India is a bright spot in a lackluster global environment. In the past three decades, per capita incomes have quadrupled, poverty has retreated, illiteracy rates have tumbled, and health conditions have improved. An expanding economy has provided the much-needed resources to address chronic infrastructure deficits and improve the lives of millions.

India is now poised to transition to a higher and more widely shared level of prosperity: by 2047—the centenary of independence—most citizens could join the ranks of the global middle class. Households in the global middle class can fulfill a range of aspirations, such as safe and affordable housing, health care, education, clean water, sanitation facilities, reliable electricity, a safe environment, and discretionary income to spend on leisure pursuits. Achieving these goals requires incomes well above the extreme poverty line, as well as vastly improved levels of public service delivery. Projections suggest that for this to occur, rapid growth (of 8 percent or more) will need to be sustained for approximately the next three decades.

And while the promise of a middle class India may appear to be tantalizingly close, success is not necessarily pre-ordained. Most countries that grew rapidly in one decade, decelerated in the next. In East Asia, for example, growth traps appear to have emerged from a shortage of low-wage labor, partly a consequence of demographic change. Growth slowdowns in Latin America and Africa’s mineral-dependent economies have mirrored commodity price cycles. India’s economic constraints are different. Unlike East Asia, there is an expanding share of young adults in India, so there is limited risk of sustained wage increases for low-skilled workers. And unlike Latin America, India is a net importer of minerals, timber, and many other commodities, so that India’s growth does not fade with declining commodity prices.

India is distinctive in other ways too. Its size and immense diversity suggest the need for remedies that fit its particular circumstances. Space age industries, high-tech agriculture and elite colleges thrive alongside primitive workshops, subsistence farms and schools that impart little knowledge. Prosperity and poverty also live side-by-side. India is simultaneously home to the 3<sup>rd</sup> largest number of billionaires in the world, together with the highest number of poor people in the world. As a result, policy reforms must navigate this considerable diversity, take into account the scale of the country, and respect a robust administrative culture that requires change to be indigenized and contested in order to be acceptable. The accompanying volume 2 of the SCD provides a summary of the main comments and debates that ensued during the review and consultation process of this document.

Recognizing these differences this Systematic Country Diagnostic suggests that the challenges encountered elsewhere, and the remedies that have been applied in other economies, may be less relevant for India.

Instead there are three principle challenges to the goal of attaining middle class status that need to be addressed.

First, on almost any reasonable metric of abundance, India seems constrained in the availability of natural resources. It is among the most densely populated countries on Earth. It has a per capita water availability that puts it in the most water stressed quintile in the world and yet it remains the world's largest irrigator. At the same time, high and rising air pollution have cascading consequences for health, human capital and the livability of its cities. On these and other measures, India faces the greatest resource constraints among the rapidly emerging BRICS economies (Brazil, Russia, India, China, and South Africa). This suggests that to sustain its growth across generations India will need to pivot to a more resource-efficient growth path. To highlight the role of resource constraints does not imply a Malthusian future; but it does signal risks to growth and development that inevitably emerge when essential inputs (such as say water) become scarce and adverse impacts (such as externalities) on productive sectors of the economy are ignored.

Second, for growth to be sustained over decades it will also need to be inclusive. Countries that have grown consistently over long periods usually display low inequality; while those that have seen growth wane have exhibited higher levels of inequality. In policy terms, this requires a focus on productivity-led economic growth that generates good jobs. It requires easing the bottlenecks to firm growth, and expanding opportunities for all to obtain better services. Inclusion is therefore needed not just to address the wide inequalities in India, but to ensure that growth can be sustained over decades.

Finally, to meet these goals a huge reform and governance agenda confronts India as the country must adapt its institutions and policy frameworks to increase the efficiency of government, tackle entrenched interests and enable a transition to a public sector that can deliver services effectively to its citizens. A key question is whether heightened public aspirations can help propel a consensus for continuing and accelerated reform.

## Pivoting to a more resource-efficient growth path

India's abnormally low per capita endowment of resources, demands an exceptionally efficient use of resources to reach middle-income consumption levels. Sustaining growth will call for using scarce resources more efficiently **within** each sector and allocating them more efficiently **between** sectors. This will require, among other things, that land – an especially scarce resource – is used more productively. Particular attention will have to be paid to the spatial transformation of cities and rural areas, to better harness the benefits of land use through “agglomeration economies” in urban areas, and increase the productivity of agriculture in rural areas where poverty is often concentrated.

### Make cities more efficient

Making land more productive requires making cities more efficient. The most productive locations in India are in its cities. Consequently, a poor household that moves from a small village to a large city can double its per capita household spending. Beyond this, cities are the engines of economic growth and will define the trajectory of India's development, so making cities more efficient is critical to speeding India's economic transformation.



India's cities are growing rapidly though in ways that are unplanned and haphazard. Most large cities in India are sprawling beyond their municipal boundaries, and many once-rural areas are becoming denser and acquiring urban characteristics. The implication is that rural areas in urban peripheries need to be included in the planning process. Sprawling cities are problematic because they generate less growth than compact cities: infrastructure costs are higher, there is greater congestion, higher levels of fuel consumption, more traffic fatalities and greater exposure to environmental hazards. Poor planning also implies that valuable land is used wastefully and in ways that distort and impede the development of a city. By some estimates poorly planned and disconnected urban development could cost the Indian economy between \$330 billion and \$1.8 trillion by 2050, or at least 6 percent of GDP. Livability is also a concern, with air pollution but one illustration of the challenges ahead. In 2016, Delhi was the world's most polluted megacity, while nearly everyone in the country (more than 99 percent) breathed polluted air (as measured by PM<sub>2.5</sub>) above WHO's guidelines, and 70 percent inhaled polluted air that exceeded the less stringent Indian standards for ambient air quality.

To address these problems will require a host of policies that unleash the economic forces of agglomeration, while controlling those of congestion. It will call for improved connectivity among cities and between them and rural areas. Smart solutions in policing and traffic management can help alleviate some of the problems of congestion. Equally important is the need to enhance the efficiency of existing transport infrastructure. Investments in first- and last-mile connectivity to connect the main corridors to the centers of production and consumption and investments to interconnect existing modes of transport can unlock substantial economic potential.

Stronger mechanisms to empower urban local bodies and hold them accountable will be needed to ensure that service delivery commitments are met and that city plans reflect public preferences and are implemented appropriately. This requires not just adequate financing, but sharper incentives for service delivery that reward performance and penalize profligacy. The model of competitive federalism adopted by the Government of India is a promising step in this direction.

With rapid urbanization, "irreversibilities" make the form of city growth especially important. With much urbanization yet to occur there is an opportunity to plan and build in ways that realize the benefits of agglomeration. Getting this "right" is critical because infrastructure choices have long-lived impacts that lock in modes of production that hinder growth and increase exposure to natural disasters.

### Increase agriculture's low productivity

Agriculture is vital for India and its footprint is visible in every corner of the country. About 49 percent of the labor force works in the agricultural sector; the sector uses 61 percent of the country's land and 90 percent of its water. Overall agriculture has made enormous strides in moving the country from chronic food deficits to food surpluses and net food exports since the early 1990s.

But India is changing fast so past policies that were once introduced to overcome chronic food insecurity are less relevant today. Multiple strains are evident, including wider regional disparities in agricultural yields, a degraded resource base (soil fertility, surface water quantity and quality), and depleted groundwater resources. Adding to these strains is an agricultural structure that remains concentrated in low-value, low-yield cereals. The sector is only sluggishly responding to the emerging demands of a

wealthier urban consumer base for high-value and nutrient-rich foods. Agriculture's share in output has fallen steadily, though its share in employment has declined only modestly.

These strains are aggravated by climate shocks, as 55 percent of the agricultural production base is subject to volatile monsoon events. Agro-climatic models suggest that rising temperatures and lower rainfall at the end of the growing season are likely to cause heavy losses in the production of most cereals.

The efficiency and productivity of Indian agriculture needs to improve, and the sector needs to transition from its traditional food security orientation (with a cereal or calorie focus) to a modern food system that is resilient to climate change. This requires a greater emphasis on supply-side issues that address low productivity, risks due to climate change, short-term weather anomalies and natural resource degradation. Farmers also need access to information and decision tools to select crops and manage them better to boost yields and meet the changing consumption patterns of the middle class.

Perhaps the most far reaching challenge for the sector is the need to address the intricate web of subsidies which though well-intentioned when introduced, have become counterproductive and deliver neither distributional benefits nor productivity gains. The network of support is so complex that their fiscal cost and impacts are hard to estimate reliably. Subsidies for inputs such as fertilizers for instance are generally regressive and disproportionately benefit the largest users who also tend to be the more affluent. Fertilizer usage patterns have been so significantly distorted by these subsidies that they have negative effects on crop productivity with impacts that ripple far beyond the farm-gate. Not only is the fiscal cost of fertilizer subsidies vast (estimated at \$11 billion a year), but the nutrient runoff from cropland causes eutrophication in waterways, with damaging consequences on river systems, fisheries and human health.

### Protect water resources

India ranks among the world's water-stressed countries. As competition for water amongst users has intensified, agriculture has turned to groundwater. With more than 27 million privately owned tubewells, India is the world's largest user of groundwater, with estimated withdrawals of 230 billion cubic meters a year. The availability of groundwater at negligible cost (thanks to free or cheap electric power) has done much to transform agriculture and catalyze a green revolution, but at the cost of depleting aquifers. Groundwater management is made especially difficult by the large number of small users with unfettered access to the aquifers beneath their lands. The problem is likely to worsen as cheap and often subsidized solar submersible pumps bring the marginal cost of pumping close to zero.

Water scarcity is exacerbated by deteriorating water quality. Heavy surface water withdrawals combined with pollutants from cities, farms, and factories have turned once mighty rivers into fetid streams. Only a third of the sewage discharged by India's main urban centers is treated, and so the pollution of major groundwater and surface water sources often exceeds safe limits.

Most studies suggest that water stress will worsen considerably as the demand for water rises with population and economic growth; while water supply becomes more volatile with climate change. The country's water management policies therefore need a fundamental reassessment. Water scarcity is largely viewed as an engineering problem in India: if water is in short supply in one region, the common response has been to bring in water from another source. But what may seem obvious may not always be economically prudent. The inescapable laws of demand and supply suggest that when a resource is

provided too cheaply, it is also used wastefully. This is why water-intensive crops such as rice, sugarcane, and cotton, are cultivated in some of the most arid areas, contrary to their natural comparative advantage. As a result, the value extracted from the use of water is much less than its potential contribution to the economy.

As water stress intensifies in areas where water is already scarce, and proliferates to new parts of the country, mechanisms are needed to shift the allocation of water to higher-value uses, along with policies that increase the value of water used within sectors. This will entail a greater emphasis on demand side management policies instead of the current emphasis on supply side remedies, which magnify problems in a context where water allocation has become a zero-sum game. Such a radical shift will entail long-term changes and will require institutions and mechanisms that can facilitate them. While demand side approaches may seem difficult, they are necessary to spur the required rural transformation. It is not too soon to begin a wider policy discourse on how India will address the challenge of growing water deficits.

### Get the energy sector right

India's energy sector plants a vast footprint on the country's budget, economy, environment, and citizens. It also has an outmoded and dirty coal-intensive energy industry. Over the last decade, the sector has experienced impressive growth and improvements. Generation capacity (increasingly through renewables) now exceeds connected demand, several transmission companies have world class capabilities, and there is a competitive electricity market at the wholesale level. Still, 230 million people lack access to electricity, and frequent power outages take a heavy toll on firm performance and economic growth. Energy demand in India is expected to grow faster than in any other country in the world over the next 25 years. How this demand is met will have far-reaching global, national, and local consequences.

Pockets of intractable distortions, especially in electricity distribution and in the indigenous coal sector, continue to extract a heavy toll on the economy. The combined effects of distortions in market structure and inefficient operations (the institutional effects), health impacts of pollution (social effects), and market imperfections (regulatory effects) are an astonishing 8 percent of GDP. Bringing efficiency and reform to a sector like electricity that exhibits strong natural monopoly elements is a challenge. Without complementary measures that tackle performance incentives and the underlying political reality of the power sector, however, they are unlikely to succeed.

### Accelerating inclusion: creating good jobs, building human capital

Between 2005 and 2012, the Indian economy generated about 3 million new jobs per year, while an extra 13 million people entered the working age population each year. With an ever-increasing number of youth needing employment, this jobs deficit has the potential to turn the much-awaited demographic dividend into a demographic curse. A growth strategy that focuses on productivity-led economic growth and good jobs will ensure not only that growth is inclusive but that growth is sustainable.

In a society with wide inequalities creating productive, regular jobs are perhaps the most urgent priority. The issue is not just the number of jobs but also the type of jobs. A transition into the middle class calls for the creation of salaried jobs, which is a rare privilege in India today where less than a fifth of workers are in salaried employment. Such jobs are essential to also retain women in the workforce—India has among

the lowest female labor force participation rates in the world, well below the expectation for its level of income and that of neighboring countries.

There is growing global recognition that high levels of inequality impede sustained development and growth through numerous channels – economic as well as political. Policies are needed to nurture productivity growth that in turn requires an expansion of capabilities within firms to innovate and among workers to boost their skill levels. As skills expand, worker productivity rises, enabling wages high enough to lift many more Indians into the middle class, likely lowering inequality. This requires an investment environment that is conducive to the growth and development of high productivity firms, coupled with a qualified labor force that can meet the skill demands of globally competitive industries.

In contrast India is shackled with a surprisingly thick “tail” of low-productivity firms that employ less than 6 workers, and an abundance of poorly educated workers who lack the skills needed to propel the growth of modern industry. Most Indian firms start small and grow old, but remain stunted through their lives. And the big ones that exist, have started out as large firms, often associated with family-run businesses in oligopolistic sectors of the economy. Though much progress has been made to stimulate investment, Indian firms remain burdened by regulations that make it safer to remain small and inconspicuous and more profitable to lobby for privileges.

International comparisons based on the “Doing Business” rankings show that India has made much progress with above-average gains in the regulatory regime underpinning its product and factor markets in the past decade. But the agenda is unfinished and reforms are needed across four broadly connected policy areas – addressing obstacles in key factor markets (land and labor); easing access to domestic and global markets; increasing the availability of finance; and the creation of a skilled work force for modern and productive industries.

### Unshackle Indian firms

Reforms in land and labor markets would pay high dividends and have been much discussed over the decades. If distortions in these markets persist, it is because the past weighs heavily on the present and change is exceptionally difficult and complex, requiring intense negotiations across a diverse group of stakeholders and states. Since land is connected to most forms of economic activity, estimates suggest that impacts of land market distortions spread through the economy with surprisingly large economic consequences. Well-functioning land markets require clearly defined property rights, a reliable land registry, and predictable processes for investment and changes in land-use.

In the labor market, regulations intended to protect jobs by imposing high dismissal costs on firms impair efficient labor reallocation, impeding firing and hiring decisions. There is little debate on the need for a new labor contract with standard benefits and simple and predictable dismissal procedures. Reforms ought to protect the interests of **all** workers by creating an environment for labor relations that meets the legitimate social interests in fairness for workers.

### Connect Indian firms

India has much to gain from greater domestic market integration. With a vast population and more households joining the ranks of the middle-class the domestic market can nurture new industries, foster

firm agglomeration and ultimately boost productivity. This requires deepening reforms that support the free flow of goods and labor. Considerable progress has been made on both fronts. The completion of the Golden Quadrilateral (a highway network connecting many of the major industrial, agricultural, and cultural centers of India) and the recent passage of the Goods and Services Tax (GST) law, which aims to remove tax barriers to trade between states, are major steps toward market integration.

Greater integration into global markets is also essential as it can help firms grow and become more productive through more intense competition as well as knowledge spillovers. To create millions of productive jobs will require building a competitive export oriented industrial base. Despite double-digit export growth in the last decade, India's share of world merchandise exports is about 1.65 percent and its share of global services exports 3.35 percent. At the same time, South Asia is the world's least economically integrated region in the world. With its size and potential India can participate more actively in trading blocs and agreements. The rules of the future international economic order are now being shaped by other countries and regions, outside the framework of the World Trade Organization. India has an especially valuable role to play in promoting a global agenda of freer and fairer trade regimes.

### Finance Indian firms

The financing requirements to sustain India's growth acceleration are vast. Infrastructure investments alone could consume an estimated US\$6 trillion before 2030. Cities, expected to accommodate an additional 10 million people or more each year over the next two decades, will require investments estimated at US\$40 billion annually for the next two decades. Growing evidence suggests that despite high returns to investment, access to credit remains unavailable.

A root cause of the problem is the distress of the financial sector stemming from the "twin balance sheet" problem – where companies that have borrowed too much, confront banks with an excessive number of non-performing loans. Equally striking is that most of the bad loans are concentrated among public sector banks, and involve a relatively small number of borrowers. Strains are emerging as corporations are reluctant to invest and banks unable to lend, resulting in a deceleration of private investment.

To reset the fundamentals for future financing, public sector banks will need to be reformed and measures taken to address the nonperforming loans. But caution is warranted as solutions to the twin balance sheet problem could create deep moral hazard problems if fiscal imprudence is condoned. A failure to recover bad debts would inevitably weaken market discipline and signal to debtors that loans can be defaulted with impunity. And solutions which rely on tax payer relief for banks would encourage profligate lending, ignoring the lessons of the past.

As a complementary approach, the country's capital markets need to be further developed and deepened. Easing investment restrictions on domestic institutional investors is one option another is the development of capital market instruments that can support the growth of financially viable enterprises. Together these would ease pressures on banks and unlock the potential for much needed investment in the private sector as well as the market for public private partnerships for infrastructure.

## Skill India: From an abundance of people to an abundance of human capital

Though India is labor abundant, it paradoxically still endures shortages of skilled labor, despite considerable investments in education and health. Undoubtedly there has been much progress. Access to education has been expanding, with near-universal enrollment in primary education, and improvements in secondary and higher secondary schooling. Gender and class disparities in access have narrowed. The quality of school infrastructure has improved. But despite more than a decade of increasing investment in school education, quality as measured through learning outcomes or test scores have shown little improvement and in some cases, have even declined. The task of upgrading India's human capital is therefore urgent to ensure that a more productive workforce is available to meet the demand for labor in globally competitive industries. More fundamentally there is a need to overhaul the system to improve the quality of education especially in public schools where the cost-effectiveness of spending has been worsening over time.

Care in the early years is perhaps an even more important policy imperative. Stresses in infancy resulting from disease, poor hygiene and under-nutrition interrupt the physical and mental development process of a child with long-term negative consequences. Infants who are exposed to such stresses - have poorer health, may be shorter, have impaired cognitive abilities, lower levels of education and eventually lower incomes as adults. Addressing these irreversible risks is an urgent need in India where stunting affects 39 percent of all children and 60 percent of children in poor households. Effective solutions require cross-sectoral interventions that address multiple risks simultaneously by combining improved sanitation and hygiene, with better care and nutrition. Recognizing this challenge, the government has invested heavily in an ambitious sanitation and behavior change project the **Swachh Bharat Mission** (Clean India Mission), together with a host of safety net programs such as a scheme to distribute subsidized food (the Public Distribution Scheme) and the world's largest workfare program that provides guaranteed employment (the Mahatma Gandhi National Rural Employment Scheme). Having established the programs and made the funding available, the residual challenge is to ensure effective implementation – an issue that reflects the overarching constraint to India's development potential.

## Strengthening the public sector

Improving public sector effectiveness is a cross-cutting pathway that will determine whether India can sustain its growth and join the ranks of the global middle class. Middle-class citizens will expect and demand basic public services. While sustaining growth over decades will call for complex policy reforms that tackle inefficiencies and entrenched interests, and for much better enforcement of current laws and regulations designed to address market failures and other distortions in the economy. Graduating from an economy dominated by basic services to one that delivers better jobs, services, and regulations—becoming a middle-class country—will require greater sophistication and depth of government facilitation of economic growth. While many bold and innovative measures have been launched in many sectors and parts of the country, scalable and replicable solutions remain elusive.

Reforms in India are a complex process given the scale, diversity and political architecture in the country. When successful and sustained, Indian reforms have had a domestic impulse, been widely negotiated and

introduced in increments, creating a constituency with a stake in the new system. The outcome is often a patchwork of compromises on the original idea that holds out promise for further adjustments ahead. It is reform in slow motion which begins tentatively and proceeds hesitatingly to deliver durable change through the accommodation of diverse interests.

Three elements are vital for transforming the public sector. First, accountability, efficiency, and effectiveness need to be improved to reduce waste and boost the returns on public spending. Second, the public sector must be adequately resourced and “right-sized”, which depends on resource levels and the predictability of funding. Third, because most core public services are delivered by lower-tier governments, the compact between the layers of government will critically influence what services are delivered to citizens and how front-line service delivery agencies perform.

### **Tighten the chain from inputs to outcomes**

Improving government accountability, efficiency, and effectiveness along the chain from inputs to outcomes is perhaps India’s biggest economic policy challenge. The link between spending and outcomes is weak in many areas of service provision. About half of India’s public spending on basic services does not reach the poor because of inefficiencies in execution. More than a third of the value of food subsidies does not reach the intended beneficiaries because food stocks are either wasted or sold illegally in the open market. Energy subsidies and farm subsidies disproportionately benefit the better off, despite the declared goal of promoting equity. The average Indian state achieves just half the learning outcomes expected for its spending on primary and secondary education. The rates of teacher and doctor absenteeism remain stubbornly high a decade after the problem was first identified and remains a tragedy for a country with low human development. Often, districts with the largest share of poor people have the greatest shortfall in the allocation of funds to meet the needs of the poor. In sector after sector, increasing the efficiency of public spending is likely to yield higher marginal returns than increasing inputs.

A related but even more complex challenge is increasing the effectiveness of regulation. For instance, in the area of environmental regulation, India has largely used ‘command and control’ instruments including technology mandates, bans on production processes, and absolute standards. These systems have been only partially effective since they largely neglect the need to align incentives of the relevant actors with the desired outcomes.

India has found creative ways of addressing the many governance challenges confronting the country through the innovative use of technology. For instance, more than 1 billion citizens are registered under Aadhar, the largest digital identity program in the world for delivering benefits. But while technology can facilitate and enable the delivery of public services, it cannot replace the need for good governance. As an example, biometric identification has increasingly become the norm in several government offices and some health and education facilities to ensure regular attendance, but this does not imply that employees become more productive, nor does it necessarily deliver improvements in attendance. A computer can track an employee’s attendance and even performance, but a machine cannot invoke sanctions or take remedial actions. Industry can comply with technology mandates to control pollution but continue to have high emissions. Missing in these programs is the willingness or ability to **enforce** policies—an issue that goes to the very heart of governance challenges and cannot be addressed through technology.



In sum technologies hold both promise and peril for governance – on the upside, innovation could vastly improve the efficiency of mundane tasks and allows for improved monitoring of outcomes. Remote sensing can be used to build land cadastres, monitor forest loss and air and water pollution. At times the swift rate of change also brings a range of unforeseeable risks. For example, while solar pumps are dramatically reducing the cost of irrigation for smallholder farmers, the increased stress on groundwater tables is rapidly becoming unsustainable across most of the countries. It would be a nearly impossible task for many governments to monitor massive numbers of solar pumps and enforce usage restrictions. Technology may often facilitate governance and may require changes in the roles of public servants, but it cannot always replace the need for human judgement and intervention.

Recognizing these challenges, India has also invested in a variety of rights based approaches that enshrine in law either a right to information or a particular service. Actions have been taken to increase the quality of administrative and monitoring data across several sectors. Accountability institutions such as the Comptroller and Auditor General and the Election Commission have played an important role in maintaining probity. Despite these notable successes, it is reasonable to suggest that these efforts have failed to fundamentally transform the public sector.

A key deficiency of the current system is that it does not adequately monitor the performance of frontline service delivery officials, nor does it adequately recognize and reward or sanction performance of public officials. More significantly public service salaries at the lower levels are often higher than their comparators in the private sector; this would enable the public sector to attract better qualified workers, but does little assure performance and prevent familiar (principal-agent problems of) shirking, since rewards are not linked to performance. One promising initiative links salary increments for civil servants to performance, a key recommendation of the Seventh Pay Commission – which represents a useful start to a more widespread problem.

### Right-size the public sector

There is no doubt that the public sector could use available resources more effectively. A more controversial proposition is that India's public sector eventually needs to grow—spending more and employing more staff—to deliver on its functions now and in a future middle-class India. Notwithstanding caveats that there is no “right size” for a public sector, the state faces crippling staff shortages in some areas of core public responsibility (such as judges and police) and frontline workers in local government. There is likely to be a need for more funding as service provision and infrastructure investments expand.

Relatively high fiscal deficits constrain India from borrowing more to finance expenditures, which adds to the urgency of spending more efficiently and raising more revenue through taxes and fees. There is a heavy reliance on indirect taxes which will likely increase further with the introduction of the new Goods and Services Tax (GST). Tax intake from both direct and property taxes is well below potential.

As resource mobilization proceeds, a greater share of taxes will need to be channeled to local bodies in accordance with recent constitutional amendments that assign mandatory functions (and recommend others to be delegated at the discretion of states) to rural and urban local bodies.



## Deliver resources: The compact among the center, states, and local bodies

A key challenge in any federal system is aligning functions, finances, and functionaries among tiers of government. The move to decentralization has gained further impetus through the allocation of funds to Urban Local Bodies from the Goods and Services Tax. This will also need to be accompanied by measures that strengthen public financial management systems of the lower tiers of government, where capacity is especially weak.

Competitive federalism has emerged as a key innovation of the government. Competition between states is part of a new dynamic to incentivize change by using funding to hold states accountable for progress based upon their own priorities. The move toward increased expenditure flexibility in favor of the states presents both an opportunity and challenge for improving the efficiency of spending. The opportunity lies in the greater freedom to align local development needs and priorities with the resources available. The challenge stems from moral hazard problems. Knowing that bail outs will become available in case of crisis, weakens the fiscal discipline of lower tiers of government and public sector agencies. Investors currently lend to **all** states at the same interest rate, which bears little relation to the underlying debt position of states, suggesting that lenders fully anticipate that states will be rescued by the central government when crises descend.

## Risks to India's advance

While India's fortunes are largely in its own hands, two global risks could jeopardize progress toward global middle-class status; a growing anti-international trade sentiment and climate change. The more immediate risk is from mounting pressures against international trade. The negotiation of regional trade agreements has stalled, protectionist measures are spreading, and current trade agreements may be reconsidered. India's services exports are being challenged by restrictions to the temporary movement of workers, by policy responses to anti-outsourcing sentiment and restrictions that could hurt its burgeoning IT sector.

The longer term global risk is from climate change, which could threaten India's development and growth. Even under optimistic scenarios, the impacts of climate change on India's agriculture, coastal cities, and glaciers are a concern. The consequences in the absence of a meaningful agreement would be much more severe and would slow the pace of development. If global temperatures increase by 4<sup>0</sup> C, India would shift to a new constellation of climate patterns that would be harsher and less conducive to development. Monsoons, already fickle, would become even more variable, so that an extreme "once in a 100 year" flood or drought is projected to occur every 10 years. Yields of all major crops would fall, while food, energy and water security will all come under increasing pressure.

Aware of these perils the Government has been proactive in global and bilateral negotiations on both fronts. Ultimately to hedge against these risks will require building greater internal defenses and economic resilience. The strategies proposed in this document offer partial buffers against some of these challenges, whose magnitude is unknowable. A middle-class India would create a buoyant domestic market, which could partly substitute for declining export markets and trade restrictions. And climate change related risks could be partly mitigated and neutralized through a more resource-efficient growth path that would

enhance adaptive capacity. In sum, the strategies proposed in this document offer a no-regrets path for India today, to reach a more prosperous, tomorrow.

## Why India matters to the world

Developments in India matter to the world as a whole. The dominant narrative of why this is so remains focused on a litany of dismal statistics: such as the number of poor in India, or its burgeoning population, or its intensifying global pollution footprint. But there is another less recognized reason why India matters to the world.

India is set to become one of the top global economic powers within the 21<sup>st</sup> century. How can India possibly catch up in a couple of generations? The answer turns on two powerful forces, one more or less irreversible and the other already unleashed. The irreversible force is demographics. Sheer numbers mean that the average Indian does not need to become very rich for India to become the largest global economic power. On current trends, this would occur if India's GDP per capita reaches about one-third that of the European Union, an outcome that is likely by the 2050s. The unleashed force is convergence - the process that gradually brings an economy's efficiency to the global frontier. Convergence would simply hasten this process and take India to top rank even sooner.

Under most reasonable scenarios, India is set to become the second biggest global economic power toward the middle of the century. It could even reach first place by the third quarter of the century-just a couple of generations away, the time it took China to rise to its current world status. From a geopolitical perspective, this is a very short time. India's size combined with its commitment to multilateralism and the credibility that democratic traditions bring, would give India considerable leverage in global matters and make its economic rise an asset to the world.

This, is why India matters to the world today.

## 1. Acting today for a prosperous tomorrow

With one of the world's fastest-growing economies, India is a bright spot in a lackluster global environment. In the past three decades, per capita incomes have quadrupled, poverty has retreated, illiteracy rates have tumbled, and health conditions have improved. An expanding economy has provided the much-needed resources to address the chronic infrastructure deficit that has long plagued the country and has improved the lives of hundreds of millions.

Alongside its growth, India halved the share of the population in extreme poverty from 45 percent in 1994 to 22 percent in 2012.<sup>1</sup> And the pace of poverty reduction accelerated threefold in 2005–12, relative to the previous decade. Based on the \$1.90 per person a day line (in 2011 purchasing power parity, PPP), India lifted more than 160 million people out of poverty in recent years, surpassed only by China. If this trend continues, India is on track to eliminate extreme poverty by 2026 (to below 3 percent).<sup>2</sup>

In the next stage of its development trajectory, India could aspire to greater and more widely shared level of prosperity. By 2047—the centenary of its independence—at least half its citizens could join the ranks of the global middle class. By most definitions this will mean that households have access to better education and health care, clean water, improved sanitation, reliable electricity, a safe environment, affordable housing, and enough discretionary income to spend on leisure pursuits. Fulfilling these aspirations requires income well above the extreme poverty line, as well as vastly improved public service delivery.

Even though India is the world's third-largest economy in purchasing power parity (PPP) terms, most Indians are still relatively poor compared to people in other middle income or rich countries. Ten percent of Indians, at most, have consumption levels above the commonly used threshold of \$10 (PPP) per day expenditures for the global middle class.<sup>3</sup> Other metrics, such as the food share of consumption, suggest that even rich households in India would have to see a substantial expansion of their total consumption to reach levels of poor households in rich countries.<sup>4</sup>

Back-of-the-envelope projections suggest that raising the incomes of an additional 40 percent of Indian families to the global middle class will require sustained growth of more than 8 percent a year for the next three decades, and growth that is far more inclusive.<sup>5</sup> As the concept of the middle class encompasses monetary and nonmonetary aspirations, so India will need to make an equivalent gain in providing services

---

<sup>1</sup> Estimates are for 1993-94 and 2011-12, based on national poverty lines and data from the National Sample Survey (NSS) consumption expenditure surveys.

<sup>2</sup> Projections are based on India's record between 2004-05 and 2011-12, and baseline poverty rate of 21.2 percent at the \$1.90 a day line in 2011-12. Application of improved methods of collection of consumption data suggest a substantial downward revision of the poverty rate, to 12.4 percent in 2011-12. With that baseline, if past trends are maintained, the goal of elimination of extreme poverty would be achieved in under one decade.

<sup>3</sup> See Milanovic and Yithzaki (2002) and Birdsall (2010). Based on the 2012 NSS consumption survey, only 4 percent of the population meets this threshold. Doubling this proportion to adjust for the large gap between survey-based and national account estimates of consumption would still suggest that at most 10 percent of Indians are in the global middle class.

<sup>4</sup> Pritchett and Spivack (2013).

<sup>5</sup> Calculations are based on the observation that, while gross national income (GNI) per capita grew by an annual average of 7.3 percent in PPP terms, consumption of the median (typical) household grew by only 1.9 percent.

and public goods that underpin the quality of life. This is particularly important given the challenges of delivering public services and the uneven progress on different dimensions of wellbeing. Moving a majority of India's people into the global middle class will depend on actions taken today to set India on this new path.

## 2. The promise and the path to middle-class prosperity

India enjoys strong fundamentals for inclusive economic growth over a long period. Its top firms are globally competitive, with half the revenues of companies in the Sensex stock index coming from abroad. And its entrepreneurs are “inclusive innovators,” developing products and service delivery solutions for lower-income households. With its high level of technological capabilities relative to its income, India has many of the preconditions to remain the world's fastest-growing large economy for the next decade.<sup>6</sup>

### Box 1: Strong growth and poverty reduction

Since the mid-2000s, India has become a middle-income nation. The average GDP per capita rose from US\$440 in 2000 to US\$1,700 in 2016. This economic momentum can be attributed to the increase in capital accumulation, consistently accelerating total factor productivity, fast export growth, and the movement of people out of agriculture and into manufacturing and services. For example, agriculture's share in India's output declined from 18 percent in the 1990s to 11 percent in 2016, while the share of services rose from 40 percent to 52 percent. India's contribution to global growth has also changed dramatically. In the 1990s, India's contribution to global GDP growth in PPP terms was around 16 percentage points below that of the United States; today, India's contribution is nearly 3 percentage points higher.<sup>7</sup>

Both within-sector productivity improvements and structural change (labor reallocation to higher productivity sectors) have contributed to India's growth.<sup>8</sup> After India's growth take-off, modern services—such as financial, professional, and real estate services—emerged as the primary drivers of growth but absorbed limited amounts of labor. Labor productivity within manufacturing also rose with firms adopting capital- and skill-intensive growth paths.<sup>9</sup> Labor reallocations have lagged changes in value added, but the movement of workers from agriculture to sectors such as construction and trade have nonetheless also contributed to aggregate productivity growth in the economy.<sup>10</sup>

Rapid growth has reduced absolute poverty. After lackluster performance in the 1990s, the pace of poverty reduction has since exceeded that of other middle-income countries as a group (figure 1). Faster poverty decline post-1991 reflects both more rapid growth and a higher elasticity of poverty reduction to growth. Greater integration of the economy meant that rural growth, though still important, was displaced by urban growth as the most important contributor to poverty reduction. From the perspective of household incomes, rising labor earnings due to movement of labor from agriculture to non-farm work and an unprecedented rise in wages for unskilled labor propelled rapid poverty decline between 2005 and 2012. Demographic changes (a declining dependency ratio) and transfers also contributed, but rising labor earnings were by far the most important source of poverty reduction.<sup>11</sup>

---

<sup>6</sup> Hausmann et al. (2011).

<sup>7</sup> Government of India, Ministry of Finance (2016).

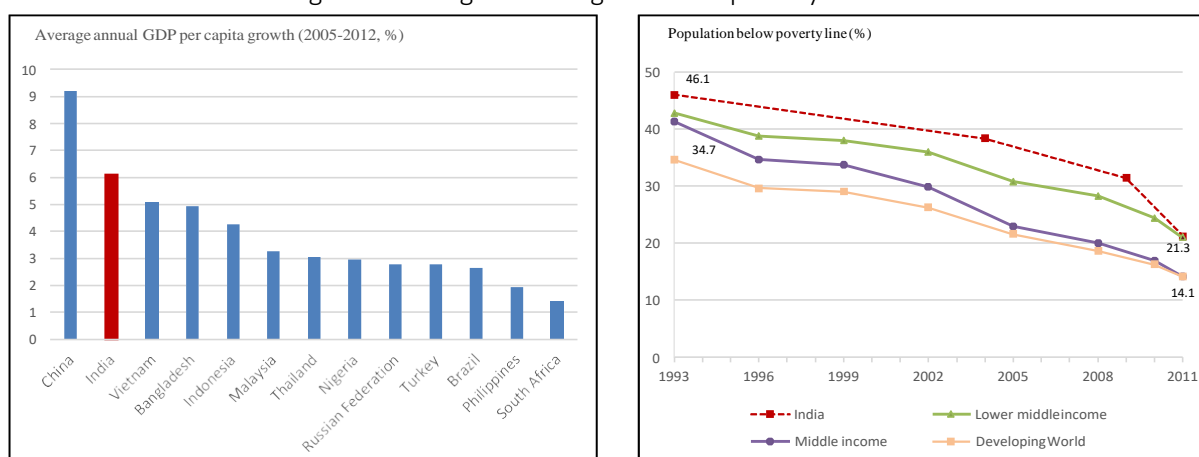
<sup>8</sup> Diao et al. (2017).

<sup>9</sup> Kochhar et al. (2006).

<sup>10</sup> De Vries et al. (2012), Krishna et al. (2017).

<sup>11</sup> Chatterjee et al. (2016).

Figure 1: Strong record of growth and poverty reduction



**Notes and Sources:** Based on the international poverty line of \$1.90 per day (in 2011 Purchasing Power Parity). Figures are available at roughly 3-year intervals during 1990-2008. Data are from the NSS for India, and from World Development Indicators for other countries.

But success is not preordained. India has already had an extended period of fast growth, and most countries that grow fast in one decade decelerate in the next. Cross-country comparisons of growth patterns since the 1950s show that growth rates tend to revert to the mean: there is a tendency for above-average levels of growth to be followed by declines.<sup>12</sup> Recently India's growth rate has decelerated to 7 percent a year since 2009, from 8.8 percent a year during 2003-08. The deceleration has been marked in private investment and exports. While early indicators of economic activity suggest some revival, the slowdown highlights the difficulty of sustaining growth without addressing underlying structural challenges. Continued rapid growth in India for the next three decades would require a rare degree of growth persistence.

Sustaining high growth in middle-income countries is especially difficult. In East Asia, the middle-income growth trap appears to have emerged from a shortage of low-wage labor, partly a consequence of demographic change,<sup>13</sup> while growth slowdowns in Latin America's mineral-dependent economies have mirrored commodity price cycles.<sup>14</sup>

India's challenges are different. The demographic profile, which projects an expanding share of working-age adults for the next three decades, suggests low risks of sustained wage increases for many years, at least for lower skilled workers. And as a net importer of minerals, timber, and many other commodities, and a net exporter of high-tech services, India should not see its growth fade with declining commodity prices.

<sup>12</sup> Pritchett and Summers (2014). The authors point out that "Asiaphoria"—predictions of rapid growth in Asia—proved unrealistic following the rise of Japan, the growth of the Asian Tigers and the emergence of the Asian Dragons.

<sup>13</sup> This has been termed the "middle-income trap." Among the 101 middle-income countries in 1960, only 13 managed to sustain high rates of growth to become high-income economies by 2008. See also Gill and Kharas (2007, 2015).

<sup>14</sup> Gruss (2014).

Instead, on almost any reasonable metric of abundance, India is constrained by the availability of natural resources. It is among the most densely populated countries on earth. Its per capita water availability puts it in the most water stressed quintile in the world. And its air pollution is high and rising rapidly. On these and other measures, India faces the greatest resource constraints among the rapidly emerging BRICS economies (Brazil, Russia, India, China, and South Africa).<sup>15</sup> Moreover, India's pattern of growth over the past few decades has led to significant exploitation of its scarce natural resources, at relatively low levels of productivity (box 2).

#### Box 2: Abundant Labor, Scarce Natural Resources – A Ricardian rather than a Malthusian Constraint

As India aspires to prosperity, it will need to further expand its already large economy by many multiples. Per capita GDP in India stands at about \$1,700, while China's is about \$6,000 (in 2010 dollars). China has three times more land (per person) than India and twice as much water per person than India (figure 2). Despite its lower hydraulic endowment, India uses more water for irrigation, over a larger area of land "equipped for irrigation" than any other country in the world.<sup>16</sup> The implication: for India to achieve a higher per capita GDP, it needs to use fixed resources much more productively – to produce more value added from its smaller endowment of land and water.

Indeed, simple arithmetic indicates that, to reach China's per capita GDP, each unit of land in India would need to generate four times more GDP than it does now. Since China cultivates a smaller area of land (150 million hectares) than India (166 million hectares) but produces more aggregate farm output, India needs to accelerate its productivity to catch up and then overtake the productivity of the other BRICS just to meet the same per capita output.<sup>17,18</sup> And the water used for irrigation (688  $\text{bm}^3$ ) in India would need to produce five times more agricultural GDP to achieve China's water productivity in agriculture.<sup>19</sup>

By contrast, India is distinctly labor abundant. It has a rising share of working age to non-working age population, and will enjoy the potential benefits of this demographic dividend for a longer period than other countries.

---

<sup>15</sup> It is no surprise that India and the other BRICS economies which are significantly more affluent differ in many respects; all benchmarking exercises must be interpreted with caution. When countries (such as the BRICS) aspire to common goals, comparisons can provide the data necessary to assess the magnitude and nature of differences between countries and the feasibility of achieving common objectives.

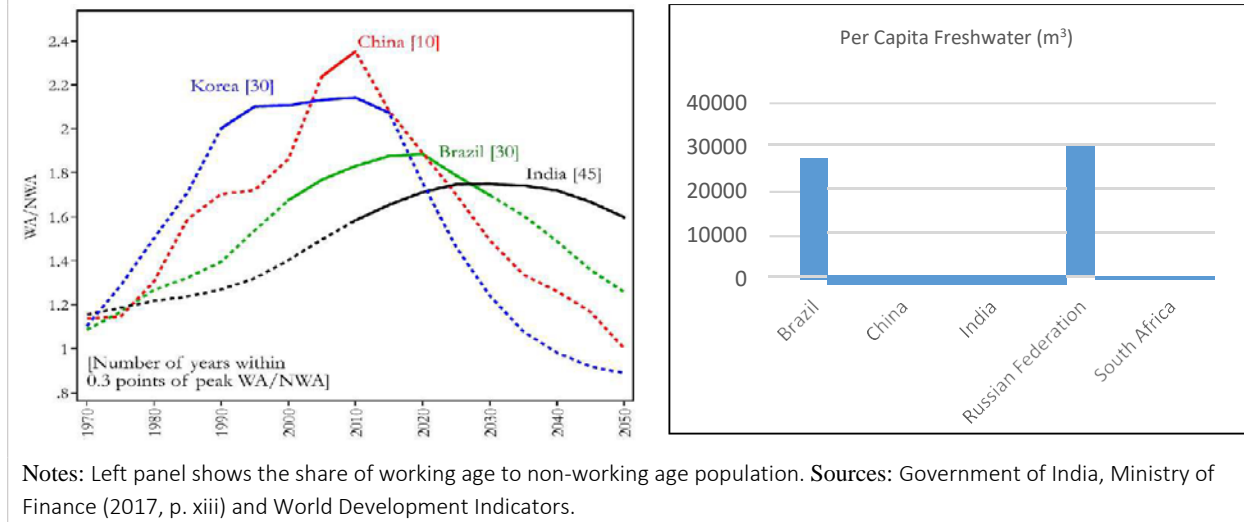
<sup>16</sup> FAO (2016a, 2016b).

<sup>17</sup> Ramankutty et. al. (2014).

<sup>18</sup> Yields of major crops such as rice, wheat and pulses are about half the levels in China (Subramaniam, 2017)

<sup>19</sup> Irrigation uses 688  $\text{bm}^3$  in India and agricultural GDP is 17 percent of an approximate \$2 trillion economy while in China irrigation uses 355  $\text{bm}^3$  and agricultural GDP is about 9.7 percent of an approximate \$10 trillion economy

Figure 2: Abundant labor, scarce natural resources



The first of three guiding premises for this Systematic Country Diagnostic (SCD) is therefore that India needs to pivot to a development path that is exceptionally efficient in the use of its fixed endowment of natural resources. This will require that land be used more productively and that particular attention is paid to the spatial transformation of rural areas and cities, to better harness the benefits of land use through agglomeration.<sup>20</sup> Agriculture, with its large footprint on the land and labor market, and as the predominant consumer of water, will need to become more productive as well. India is also among the countries most vulnerable to the impacts of climate change, which are amplified by the dependence of a large share of the population on climate-sensitive sectors for their livelihoods and by poorly planned urbanization.<sup>21</sup>

The size and economic consequences of resource constraints are often a symptom of policy deficiencies that compound the market failures that are common in natural resource sectors. For instance, most of India's water is used (inefficiently) for irrigation, where demand is buoyed by tacit and explicit subsidies to water-thirsty crops such as rice and sugarcane. The provision of free power and subsidized solar-powered pumps further reduces incentives to use water efficiently. Likewise, restrictions on the allocation of land across sectors magnify the economic costs of land shortages, with consequences that cascade across related factor markets and the wider economy. And where user prices are distorted by market or policy failures and do not reflect economic scarcity, there is little incentive to adopt technological "fixes," such as more water-efficient cropping techniques, even when these are available and effective.

The second guiding premise is that a growth strategy that focuses on accelerating inclusion will not only ensure that growth is widely shared, but will also ensure that growth is sustainable. Countries that have

<sup>20</sup> One may object that an increase in productivity would lower production costs and so lead to an increase in output and consumption of the scarce resource. This is often termed the Jevons Paradox in resource economics, and the increased consumption is sometimes termed the rebound effect. This problem is likely to be of greatest concern where resource prices are distorted and do not reflect true scarcity conditions. In cases where prices signal scarcity, increased demands via the Jevons effect will induce higher prices, which would in turn reduce or even reverse the rebound effect. The Jevons effect is therefore of greatest concern for resources, such as water, that are underpriced or free.

<sup>21</sup> World Bank (2012).

sustained growth over long periods usually display low inequality, and many that have seen their growth wane have high (or growing) inequality.<sup>22</sup>

Economic and institutional channels explain this. The benefits from population growth sooner or later taper and need to be replaced by productivity growth as a driver. Productivity growth, in turn, requires an expansion of capabilities within firms to innovate and among workers to boost their skills. In other words, productivity growth in an emerging economy requires that an increasing share of firms harness higher productivity. High-productivity firms use more sophisticated technology, which requires higher skilled workers. As skills expand, worker productivity rises, enabling wages high enough to lift many more Indians into the middle class, likely lowering inequality.

There is growing recognition that inequality can be an overpowering barrier to growth. It was once believed that high levels of inequality were conducive to rapid growth – by disproportionately rewarding the productive and penalizing the profligate – inequality was deemed to be a necessary price that needs to be paid for rapid progress. Today, however it is widely recognized that this sweeping simplification could be somewhat misleading, if not widely inaccurate. Research from the IMF shows that high inequality hinders growth.<sup>23</sup> There are several reasons why this could occur. For instance, inequality could impair growth if those with low incomes suffer poor health and low productivity as a result, or if, as evidence suggests, the poor struggle to finance investments in education, or if, inequality leads to wide ranging policy distortions when the connected lobby for a greater share of the rents.<sup>24</sup> Any of these features could induce a lock in to an equilibrium of low growth, and high rent extraction with high policy distortions.

Where inequalities are extensive, power imbalances can block the institutional transitions necessary for productivity growth.<sup>25</sup> Some policies, such as universal access to basic services, can reduce inequality and provide opportunities to increase the human capital of future generations. On the one hand, more distortionary redistributive policies, such as subsidies, require levels of taxation that detract from productive activity. Ensuring equality of opportunities to participate in the growth process and implementing efficient social safety nets are critical to fostering economic mobility, reducing market-induced inequalities, and countering demands for inefficient (“populist”) redistributive policies that may dampen overall growth. Conversely when power imbalances are large, lobbying by vested interests is likely to impede reforms that promote competition and that threaten their privileges and protections. Enlarging the middle class is thus both an end in itself and a critical means to sustain growth.

India’s experience over the past few decades shows that growth has been fast but unequally shared. Consumption growth of the bottom 40 percent has lagged that of the rest of the population; and on other

---

<sup>22</sup> Ferreira and Ravallion (2008) show that no country has transitioned beyond middle-income status while maintaining high levels of inequality. Bulman et al. (2014) also show that countries that stagnate at middle-income levels experienced large increases in inequality.

<sup>23</sup> Ostry et. al. (2014).

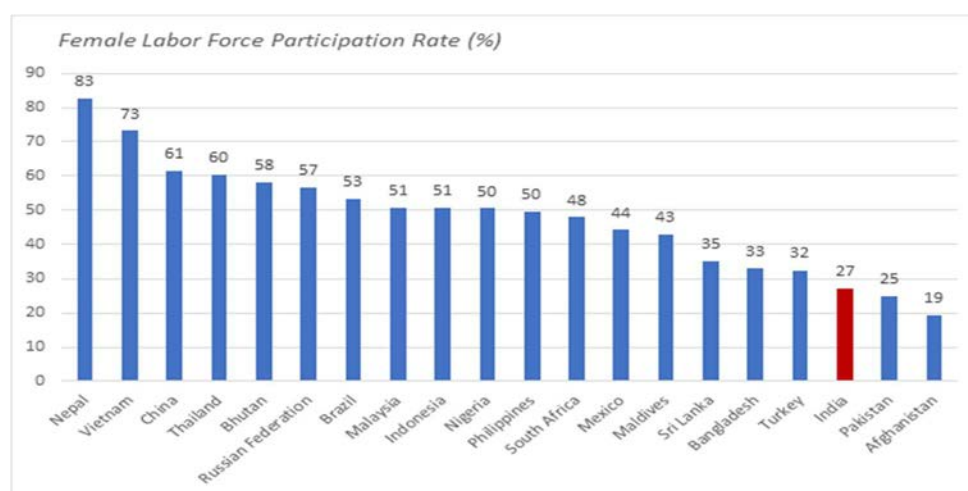
<sup>24</sup> Persson and Tabellini (2002).

<sup>25</sup> World Bank (2016b) argues that this has been an important factor in stagnant or slowing growth in middle-income countries.



metrics of the inclusiveness of growth, India ranks in the bottom third of countries.<sup>26</sup> Income growth in the top 1 percent has surged creating the highest gap between the fortunes of the top 1 percent and that experienced by the rest of the population over the 1980-2014 period.<sup>27</sup> And unlike patterns seen in the US, the European Union or China over the past decade, income gaps between India's states have also been widening. In an even more puzzling development, women have moved out of the labor force in large numbers after 2005, widening the gap in labor force participation between men and women. As a result, India has amongst the lowest female labor force participation rates in the world (figure 3), ranking 168 among the 187 countries with comparable data. Not only does low female labor force participation hold back women's empowerment, it is also an obstacle towards reaching a higher growth path.<sup>28</sup>

Figure 3: Female Labor Force Participation is lower than most comparators



Notes: Modeled ILO Estimates for female population ages 15+. Source: World Development Indicators (2017).

Moreover, India is emerging from three decades of growth with a human-capital base that is inadequate for sustaining rapid growth in future. While children are increasingly likely to go to (private) school, learning outcomes show no improvement. Less than a third of India's households have convenient access to piped water, showing very little improvement since 2005. On the sanitation front, India has made considerable progress in improving access, and increasingly, use of toilets.<sup>29</sup> Sustaining progress is critical. One consequence of inadequate sanitation is the high incidence of diarrheal diseases which are directly implicated in the large number of undernourished children that are found even in relatively affluent households. Universal access to high quality basic services is thus a core challenge.

<sup>26</sup> For 2005-12, India's elasticity of poverty reduction to economic growth ranked in the 35<sup>th</sup> percentile among the 116 developing countries with data.

<sup>27</sup> Chancel and Piketty (2017).

<sup>28</sup> Less than a third (27 percent) of women 15 years or older are working or actively looking for a job. Costs to growth are estimated to be large. By one estimate, closing half the gap with the level of female labor force participation rate expected for its level of income (like that of Indonesia) could increase India's potential GDP growth by up to a full percentage point (World Bank, 2017d).

<sup>29</sup> Estimates based on a 2017 household survey by the Quality Council of India suggest that roughly one-third of rural households lack toilets, and 2 of 5 rural households practice open defecation.

### Box 3: India's recent growth: Fast but unequal

The average Indian is on a trajectory to higher living standards. But in many respects, divergences are widening. Nearly all states recorded faster GDP growth between 2005 and 2015, but richer states grew faster. As a result, regional disparity in India is higher than in other BRICS (figure 4).<sup>30</sup> The state of Goa has an income per capita higher than a middle-income country like Mexico while Bihar's is comparable to that of Benin, a low-income country. Some population groups, such as the Scheduled Tribes (STs) have fared worse, increasingly lagging other social groups on a range of welfare outcomes. At 0.36, India's Gini index (an index of inequality, from 0, perfect equality, to 1, perfect inequality) may appear low, but the measure is tainted because of the large gap in consumption captured by the household survey and the national accounts.<sup>31</sup> Other metrics, such as the wealth share of the top 1 percent, or income Gini index suggest that inequality is indeed much higher (figure 5).<sup>32</sup>

India's rapid productivity growth reflects large pockets of excellence in the country. For its income per capita and education levels, India has high technological capability.<sup>33</sup> Its globally competitive firms, sectors, and universities are on the vanguard of these pockets of capability. A look at the space sector shows what India can do—ISRO has launched satellites for 12 countries, competing with the European Space Agency. India's capabilities in the IT sector are also well recognized, and the top echelon of its higher education institutes enjoys a globally acknowledged reputation. In 2016–17, the Times of Higher Education rankings showed 31 Indian universities among the top 980 worldwide, in contrast to nine in Thailand, two in Indonesia, and none in Vietnam.<sup>34</sup>

While these pockets of excellence prove that India has the capabilities for knowledge-based growth, its widening disparities loom large.

Take education, the building block of a modern knowledge economy. Although most children now go to primary school, the quality of education a typical student receives is a far cry from that imparted at the better institutes. Even students in the well-performing states of Himachal Pradesh and Tamil Nadu ranked toward the bottom of the global scores in the Program for International Student Assessment in 2009.<sup>35</sup> In 2016, the nationally-run Annual Status of Education Report (ASER) found that only 43 percent of children in Standard III could read a Standard I textbook.

---

<sup>30</sup> IMF (2017).

<sup>31</sup> Chancel and Piketty (2017) estimate over a quarter of the gap between survey and national accounts estimates of income can be attributed to the absence of top earners in the survey data.

<sup>32</sup> The income gini index based on the 2011-12 India Human Development Survey puts inequality in India slightly higher than Brazil, China, USA and Russia. Wealth is increasingly concentrated (Anand and Thampi, 2016). India's richest 1 percent owned 37 percent of the country's wealth in 2000 but held 58 percent of it in 2016 (Credit Suisse, 2016).

<sup>33</sup> Hausmann R, et al. (2011). For instance, India has filed 4 times more patents per capita than Indonesia, 2.5 times more than Vietnam, and almost the same number as Thailand, a country with per-capita income nearly three times that of India (World Intellectual Property Organization).

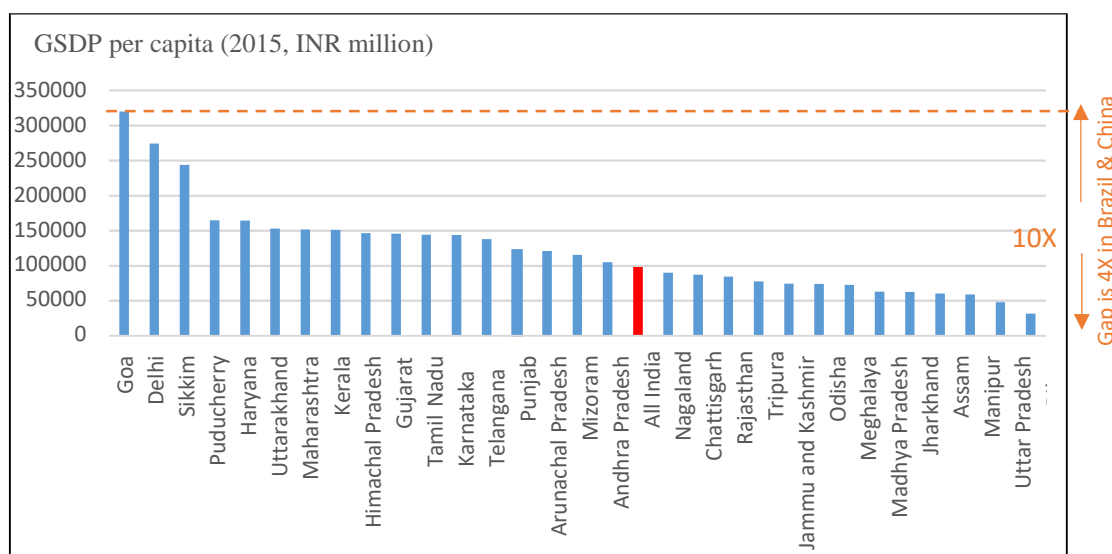
<sup>34</sup> The World University Rankings. Retrieved from <https://www.timeshighereducation.com/world-university-rankings>

<sup>35</sup> Walker (2011).

Reading levels among Standard V government school students have remained stagnant at 42 percent since 2014; in fact, they have fallen since 2010, when 50 percent of students could read a Standard II text.<sup>36</sup>

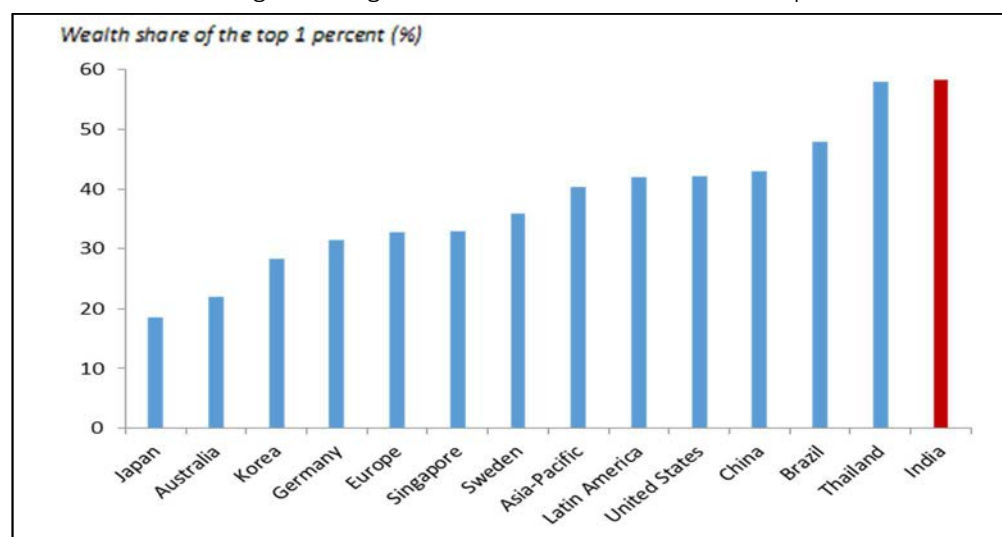
Of greater concern is that two-fifths of India's children under five are stunted and do not develop the cognitive skills that will enable them to tap their full human potential.<sup>37</sup> They have a higher probability of remaining poor throughout their lives.<sup>38</sup>

Figure 4: Large spatial disparities



Sources and Notes: GSDP using latest methodology is not available for West Bengal. Central Statistical Office.

Figure 5: High concentration of wealth at the top



Source: Global Wealth Report, 2016. Credit Suisse AG.

<sup>36</sup> Pratham (2017).

<sup>37</sup> Steckel (2009); Case and Paxson (2008).

<sup>38</sup> Maccini and Yang (2009).

In policy terms, accelerating inclusion requires a focus on productivity-led economic growth that generates good jobs. Rising labor earnings due to higher wages for the unskilled in rural areas and a transition out of farming has supported India's rapid poverty reduction observed in recent years.<sup>39</sup> But the economy has created very few regular jobs, and since skilled labor is scarce there has been a rising skills premium. India is also shackled with a surprisingly large density of small firms that employ less than six workers and tend to be much less productive and competitive than larger firms. Compared with other fast growing Asian economies, within manufacturing, India has emphasized skill-intensive rather than labor-intensive manufacturing.<sup>40</sup> Together these have under-utilized India's most abundant resource – low-skilled labor—and limited transitions into the middle class. A vibrant jobs engine will require easing the bottlenecks to firm growth and an expansion in capabilities of workers to boost their skills. India's social protection programs will need to be integrated into a coherent support system to enable mobility, protect against risk, and offset disadvantages.

The third guiding premise of the SCD is that improving public sector effectiveness will determine whether India can sustain its growth and join the ranks of the global middle class. Middle-class citizens will expect and demand basic public services. Sustaining growth for decades will call for complex policy reforms that tackle inefficiencies and entrenched interests—and for much better enforcement of current laws and regulations. Moving from an economy dominated by basic services to one that delivers better jobs, services, and regulations will require greater sophistication and government facilitation of economic growth. International experience shows that countries that have sustained growth over long periods have improved accountability of their institutions, enabling a transition from “deal-based transactions” to a “rules-based regime.”<sup>41</sup>

India has found creative ways of addressing the many governance challenges confronting the country through the innovative use of technology. For instance, more than 1 billion citizens are registered under Aadhar, the largest digital identity program for delivering benefits. But while technology can facilitate and enable the delivery of public services, it cannot resolve all problems of governance. As an example, biometric identification has increasingly become the norm in several government offices, and some health and education facilities to ensure regular attendance. But this does not mean that employees become more productive. Missing in these programs is the ability to enforce policies—an issue that technology cannot address.<sup>42</sup>

More generally, in sector after sector, there is evidence that rising public expenditures have not led to commensurate improvements in outcomes. Today, it is easy to be optimistic about India's economic prospects, but there is growing concern that the institutions for delivering public goods and services are failing—especially for those at the bottom.

---

<sup>39</sup> Chatterjee et al (2016).

<sup>40</sup> Kocchar et al (2006).

<sup>41</sup> See Spotlight on “The Middle-Income Trap” in World Development Report on Governance (World Bank, 2016b).

<sup>42</sup> Dhaliwal and Hanna (2017).

#### Box 4: Three guiding premises for a middle-class India

- **Pivot to a more resource-efficient growth path:** by making cities productive and livable, using scarce land and water more efficiently, and raising agricultural productivity.
- **Accelerate inclusion:** by generating more and better jobs and investing in human capital.
- **Strengthening the public sector:** by augmenting resources and improving accountability mechanisms.

### 3. Pivoting to a more resource-efficient growth path

Getting cities and farms to work, and to work more efficiently, will be key to India's continuing transformation. India has an abundance of unskilled labor, but faces growing constraints on many natural resource dimensions. It has among the lowest endowments of land per person among the BRICS, and among the lowest per capita water availability. It also has an outmoded coal-intensive energy industry.

Sustaining India's growth will call for using scarce resources more efficiently within each sector and allocating them more efficiently between sectors, such as making land more accessible for industry and infrastructure development. Many of the constraints to improved utilization of resources are a consequence of policy deficits or regulatory deficiencies that fail to tackle market failures or collective-action problems.

#### Land use is inefficient

India's low land productivity (discussed in box 2) may well reflect constraints in other factor markets (capital or labor). But while labor and financial capital may find possibly costly workarounds to become mobile, land is fixed and immobile. Distortions in the land market tend to spill into other sectors, slowing overall growth.

Problems in the land market spread to other parts of the economy, often with cumulative consequences. As the economy and population grow, the demand for land will inevitably increase, adding to its scarcity and making land-intensive forms of economic activity even less attractive. Because land is connected to most types of economic activity, it is no surprise that the impacts of land market distortions spread to other markets. What seems surprising is the large estimated size of the impacts found in global research, perhaps indicating that there is limited scope for substituting land for other factors of production.<sup>43</sup> Estimates for India suggest that links with financial markets may be especially important because land, due to its immobility, is often the safest form of collateral for a loan. Hence a significant positive correlation is found between measures of land misallocation and access to finance.<sup>44</sup> A policy implication is that though factor **accumulation** is important, improved factor **allocation**, particularly of land, is likely to be an even bigger driver of growth.

Land market distortions, with their cascading impacts on the allocation of labor and financial capital, can also accentuate regional inequalities. The pronounced differences in labor earnings and productivity across

---

<sup>43</sup> Hsieh and Moretti (2015) estimate that land market distortions have a cost of more than \$2 trillion a year, or nearly \$10,000 per person, in the United States. Duranton et al. (2015) also estimate large costs for India.

<sup>44</sup> Duranton et al. *op cit*.

India suggest that constraints to spatial mobility restrict opportunities for convergence.<sup>45</sup> One-third of the difference in labor earnings across Indian households can be explained by their location. An Indian household moving from a small village to a large city can double its per capita household spending.<sup>46</sup> The most productive locations tend to be large cities, though some of the most productive locations are secondary cities, and others are still administratively classified as rural. These productive locations are, however, unevenly distributed, with considerable clustering of both the most and least productive locations.

Land market imperfections take many forms. Matters related to land and property ownership disputes occupy two-thirds of civil court cases in India.<sup>47</sup> Obsolete tenancy laws keep a large part of urban real estate off the market, and in rural areas dampen the incentives to invest in improving productivity.<sup>48</sup> Stringent land use regulations (such as floor space index requirements) have encouraged urban sprawl, with impacts on productivity and household welfare.<sup>49</sup> The need to obtain official approvals for land-use changes and land-related scams are major sources of corruption.<sup>50</sup> Widespread land acquisition through eminent domain for infrastructure development, rather than negotiated purchase, has become a way to “cleanse” titles obscured by ineffectual land records.<sup>51</sup>

### Water use is inefficient

India is among the world’s most water-stressed countries.<sup>52</sup> In 1950, it had 3,000–4,000 cubic meters of water per person a year; today, the endowment is around 1,000 cubic meters, largely due to population growth. Among the other BRICS, South Africa is on a par with India (980 cubic meters per person), but its water is cleaner than in any other developing country. China has about 2,000 cubic meters per person, while Russia and Brazil are water abundant with vast endowments of water resources.

The bulk of water withdrawn (about 90 percent) in India is used for agriculture.<sup>53</sup> It is also the world’s largest irrigator, followed by China which withdraws around half as much for agriculture, and the US in third place.<sup>54</sup> As India develops, it will need much more water for energy, and industry and for its burgeoning cities. But water balances are precarious in most basins. The National Commission on Water has predicted that under a business-as-usual scenario, water demands will exceed all available sources of supply by 2050.<sup>55</sup>

---

<sup>45</sup> If some other factor (such as labor) is imperfectly mobile, spatial inequalities will be further accentuated.

<sup>46</sup> Li and Rama (2015).

<sup>47</sup> Based on Access to Justice Survey 2015-16 (Daksh India, 2016).

<sup>48</sup> Government of India, NITI Aayog (2016).

<sup>49</sup> In Bengaluru, sprawl induced by regulations on urban development densities imposes welfare losses due to higher commuting costs (Bertaud and Brueckner, 2004).

<sup>50</sup> Kapur et al. (2014).

<sup>51</sup> World Bank (2016c).

<sup>52</sup> See World Resources Institute (2015) for future water stress. Available at <http://www.wri.org/resources/data-sets/aqueduct-projected-water-stress-country-rankings>.

<sup>53</sup> Food and Agriculture Organization (2016a).

<sup>54</sup> Food and Agriculture Organization (2016b).

<sup>55</sup> Government of India, Ministry of Water Resources (1999).

As demand and competition for water has intensified, agriculture has turned to groundwater as an alternative to surface water for irrigation. With more than 27 million privately owned tubewells, India is the world's largest user of groundwater, with estimated withdrawals of 230 billion cubic meters a year on average.<sup>56</sup> In comparison, China and the United States withdraw about 100 billion cubic meters of groundwater annually. The availability of groundwater at negligible cost (thanks to free or cheap electric power) has done much to transform agriculture and catalyze a green revolution, but at the cost of depleting aquifers. As a perverse consequence, water-intensive crops, like rice, sugarcane, and maize, are cultivated in arid areas, contrary to their natural comparative advantage. Groundwater management is made especially difficult by the large number of small users with unfettered access to the aquifers beneath their lands. The problem is likely to worsen as cheap and often subsidized solar submersible pumps bring the average cost of pumping close to zero.

Water scarcity is exacerbated by deteriorating water quality. Heavy surface water withdrawals combined with pollutants from cities, farms, and factories have turned once mighty rivers into fetid streams. Only a third of the sewage discharged by India's main urban centers is treated,<sup>57</sup> and so the pollution of major groundwater and surface water sources exceeds safe limits, with often irreversible health impacts. The consequences are borne disproportionately by the young and other vulnerable groups, with significant impacts on infant mortality, neonatal mortality, and stunting.<sup>58</sup>

Recent work suggests that water pollution regulations in India, largely unimplemented, have been ineffectual. One possible reason for regulators' unresponsiveness is the lack of public pressure. Wealthier households with greater voice on policy matters have long since adopted self-protection measures such as using bottled water and boiling and filtering water.<sup>59</sup> Consistent with this result an assessment of pollution in the pulp and paper industry found that public disclosure programs were most effective in wealthier areas and amongst the dirtiest plants, suggesting that public pressure could play an important role in promoting compliance and accountability.<sup>60</sup> Similarly the largest reductions in air pollution have been in cities where stronger political voice has emerged as a result of there being more literate residents.<sup>61</sup>

With climate change rainfall is expected to become more erratic and unpredictable and as India's economy expands the demand for water will rise with the growing needs of cities, industries and agriculture. With growing demands, water scarcity will inevitably proliferate to new areas and intensify in areas where water is already scarce. Addressing expanding water deficits will call for a fundamental change in the way in which water is managed with policies and approaches that eliminate waste and boost the value derived from water that is consumed. This inevitably will require mechanisms to facilitate a reallocation of water to more efficient uses in ways that are equitable and environmentally benign as well as more effective management and control of water quality.

---

<sup>56</sup> Sekhri (2013a).

<sup>57</sup> Kaur et al. (2012).

<sup>58</sup> Brainerd and Menon (2014).

<sup>59</sup> Greenstone and Hanna (2014).

<sup>60</sup> Powers et al (2011).

<sup>61</sup> Greenstone and Hanna (op cit).

## Making cities productive and livable

Making land more productive requires making cities more efficient. Urban areas will define the form and speed of India's structural transformation. Modern economic growth theory emphasizes knowledge accumulation as the central determinant of total factor productivity growth and thus of long-run economic success. Research on how knowledge accumulation occurs is providing new insights. Clustering economic activity (geography) matters for the spread of knowledge, making productive the cities that facilitate its flow as a key engine of productivity growth. Cities bring other agglomeration benefits to productivity, through the deepening of local product and labor markets and the greater availability of intermediary inputs and services.<sup>62</sup> Knowledge is also embedded in the economic structure of a country: those countries with greater "economic complexity" tend to find it easier to move up the ladder of productive knowledge, further fueling growth.<sup>63</sup> All these preconditions in turn attract even more people in search of higher incomes and better opportunities.

This virtuous circle is built on private entrepreneurship but needs a skilled workforce and a host of publicly provided inputs and policies to allow productivity gains to materialize. Cities, again, are important in this process as they provide the scale, concentration, and diversity to facilitate the emergence of new activities and knowledge.

## Managing growth and accelerating agglomeration

India's cities will soon be home to 600 million people, nearly twice the population of the United States packed into a fraction of the area. This massive social and spatial transformation could create unprecedented development opportunities if city growth is proactively managed to realize the benefits of urban agglomeration. Post-1991, not only have cities propelled growth, stronger links between cities and the rural economy have meant that urban growth has displaced rural as the largest contributor to faster poverty reduction in rural India.<sup>64</sup> But, India's cities are performing below their potential (figure 6).

---

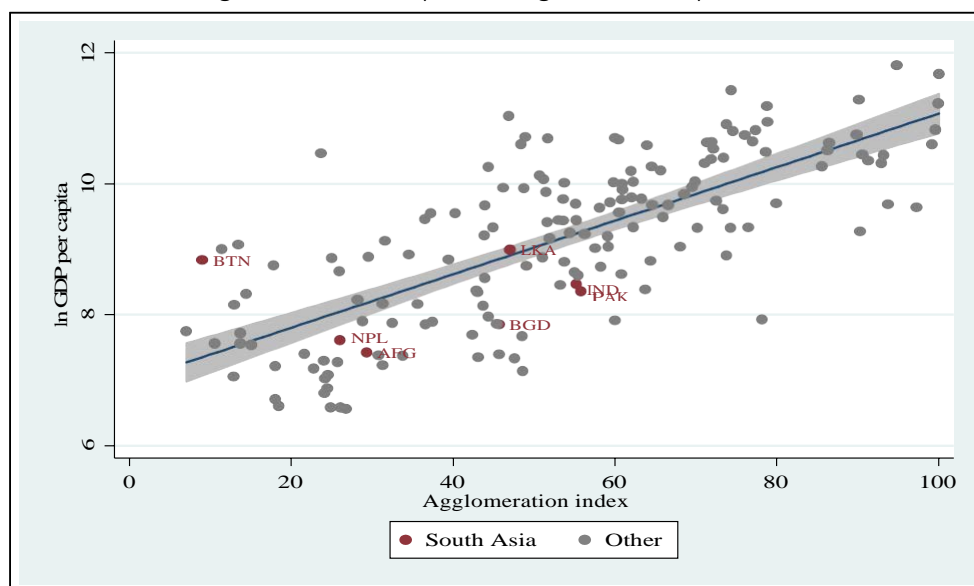
<sup>62</sup> Moretti (2014).

<sup>63</sup> Hidalgo and Hausmann (2009).

<sup>64</sup> Datt et. al. (2016).



Figure 6: Cities are performing below their potential



Notes: The Agglomeration Index measures a country's level of agglomeration based on population density and travel time data. Source: Ellis and Roberts (2016).

The physical form of a city can boost or undermine its productivity, livability, inclusiveness, and resilience. With rapid urbanization, “irreversibilities” make the form of city growth especially important. Once a city is built, it is nearly impossible to change its spatial organization for decades or even centuries. The result is to lock in modes of production that are suboptimal, hinder growth, and are costly if not impossible to reverse.

Fast-growing cities must proactively manage growth to realize the benefits of urban agglomeration. Population growth has been faster on the peripheries of cities, in areas beyond official administrative boundaries. The most rapid population growth post-2001 has taken place in “census towns”, locations that display strong urban characteristics but are still governed by rural local bodies. Without strong management, growth can be overwhelmed by the opposing forces of congestion, which makes cities less productive and erodes competitiveness.

In most Indian cities, public transport remains overcrowded and unreliable, with traffic congestion leading to longer commutes for workers, higher transport costs for producers, and worsening air quality. The lack of affordable urban transit options constrains the job opportunities of low-income residents, especially women. In Mumbai, for instance, poor people spend nearly a fifth of their household income on commuting and are often compelled to forgo more lucrative job opportunities further away.<sup>65</sup>

The absence of comprehensive mobility strategies has led to a spiral of congestion and pollution, with a substantial shift toward personalized transport, especially two-wheelers, and a proliferation of intermediate public transport modes such as auto rickshaws, **tempos**, and taxis. Inefficient and unsafe urban transport limits women's access to opportunities.<sup>66</sup> In addition, the access to and quality of all basic

<sup>65</sup> Joshi (2014), Baker et al. (2005).

<sup>66</sup> Anand and Tiwari (2006), Joshi (2014).

services in Indian cities, while better than in rural areas, are below comparators and global norms.<sup>67</sup> On average about 25 percent of households in cities have access to piped water and despite water being a scarce resource 40 to 50 percent of the water in city pipes is lost due to leakages and bad management.<sup>68</sup> Informally housed residents and those living beyond municipal boundaries often risk missing out on services. There is also an acute shortage of housing in India's cities, particularly for low-income groups.<sup>69</sup>

Congestion's consequences are visible even from space. Data from nightlights indicates that most large cities in India are sprawling beyond their municipal boundaries, and many once-rural areas are becoming denser and acquiring urban characteristics, in a trend indicative of deconcentrating economic activity. The dimming of lights at night in the cores of cities such as Delhi suggests that a decline in manufacturing activity has not been filled by other formal sector economic activity. Manufacturing employment within 10 kilometers of Delhi city center declined by 16 percent, and employment in suburban towns and villages 10–50 kilometers from the city center increased by almost 12 percent.<sup>70</sup> This process would be benign if it were driven by pull factors that created new poles of prosperity, but instead it is an outcome of push factors, linked to congestion that stymie city growth and force investment out of the city.

India's dispersed and sprawling cities experience slower economic growth than its more compact cities.<sup>71</sup> In a sample of 479 cities in 2002, a 10-percentage point increase in a city's dispersion was associated with a 0.4–0.9 percentage point decrease in economic growth over the subsequent decade. Similarly, a 10-percentage point increase in “intensive” growth (infill and intensification within existing urban boundaries) was associated with a 0.4–0.5 percentage point increase in economic activity over the same period.

Other estimates reinforce this conclusion. Low-density and car-dependent development in India is associated with higher infrastructure costs for capital investment and operation and maintenance, greater congestion, higher fuel consumption, and more traffic fatalities. Poorly planned and disconnected urban development could cost the Indian economy between \$330 billion and \$1.8 trillion by 2050, or at least 6 percent of GDP.<sup>72</sup> Because much of India's growth is driven by its cities, this suggests that urban policies have substantial macroeconomic growth impacts on the economy's structure.

Nor do Indian cities appear to conform to well-established patterns of city size distributions (termed Zipf's Law), such as those found in Brazil, China, the EU and the United States.<sup>73</sup> India has fewer extremely large

---

<sup>67</sup> No major Indian city provides its citizens with 24/7 piped water. By comparison, access in Jakarta includes 90 percent of the city population, in Manila 88 percent, and Colombo 70 percent. On average Indian cities treat less than a quarter of solid waste generated every day (Government of India, Central Pollution Control Board, 2015). Most waste that is collected is disposed of in low-lying open-air dumps; the remainder is scattered and lost in the urban environment, with obvious health and hygiene impacts.

<sup>68</sup> Hathi et al. (2016).

<sup>69</sup> Government of India (2011).

<sup>70</sup> Ghani et al. (2012).

<sup>71</sup> Tewari et al. (2016).

<sup>72</sup> Tewari et al. (2016).

<sup>73</sup> Analysis using different definitions of urbanization in Chauvin et al. (2016) and Government of India, Ministry of Finance (2017) show that Indian cities do not conform with the empirical regularity of Zipf's Law. The latter cites overburdened city infrastructure, high rents (due to distorted land markets), and place-based preferences, all of which deter migration to cities, as potential explanations.

cities than would be predicted by empirical regularities in other countries, but its smaller cities are also unusually small. In general, such size patterns correlate with inadequate migration and low levels of economic integration among cities.<sup>74</sup> This points to the need for strengthening physical transport connectivity and economic linkages among cities and between cities and rural areas.

### Reducing risks

Poor planning and urban management increase risks from environmental hazards and natural disasters, especially those emanating from climate change. The most prevalent hazards to which Indian cities are exposed are floods, cyclones, and earthquakes; the United Nations ranks India as having a very high mortality rate risk due to extreme vulnerability and exposure to multiple natural disasters. Most cities are exposed to multiple hazards: a study of 144 Indian cities finds that 120 are at risk from flooding, 52 from landslides, and 40 from earthquakes.<sup>75</sup> Perhaps as many as 148 million Indians reside in “severe climate hotspots” where consumption levels may decline by 8 percent or more due to projected temperature increases.<sup>76</sup> With sea level rise, most of India’s largest cities (Mumbai, Chennai, Kolkata) are at risk of storm surges and damaging floods. Recent research suggests that droughts, too, have impacts on cities, even if these are less visible and occur through harder to comprehend channels such as health, power supply, and firm productivity.<sup>77</sup>

Hazardous contaminated waste sites in potentially valuable locations in cities are another symptom of suboptimal land use. Some estimates suggest that India has about 30,000 contaminated sites spread across 60,000 hectares of urban land,<sup>78</sup> ranging from a few acres to over 300 acres each. These carry a high opportunity cost in terms of the benefits forgone by not using this land for recreational, commercial, or residential use, especially in congested urban areas. Pilot projects in Mumbai and Delhi suggest that the economic returns of remediation outweigh the costs by several orders of magnitude.<sup>79</sup>

### Limiting air pollution

Livability is also a concern, with air pollution but one illustration of the challenges ahead.

In 2016, Delhi was the world’s most polluted megacity. India experienced one of the worst deteriorations in air quality of any country between 1990 and 2013. And the challenge of air pollution is growing. In Delhi, the share of days with severe pollution rose from one-third in 2014/15 to two-thirds in 2015/16 over the winter months. Nearly everyone in the country (more than 99 percent) breathed levels of PM<sub>2.5</sub> above WHO’s guidelines, and 70 percent—more than 900 million people—inhaled polluted air that exceeded the

---

<sup>74</sup> Cristelli et al. (2012) find that Zipf’s law only applies if the group of cities are integrated economically, which explains why Zipf’s Law will work for cities in a given European nation, but not at the EU level. The implication for India is that the breakdown of Zipf’s Law could reflect a lack of migration and interaction between cities.

<sup>75</sup> Ellis and Roberts (2016).

<sup>76</sup> World Bank (2017 forthcoming). This analysis assumes BAU policies and hence limited adaptation.

<sup>77</sup> World Bank (2017 forthcoming).

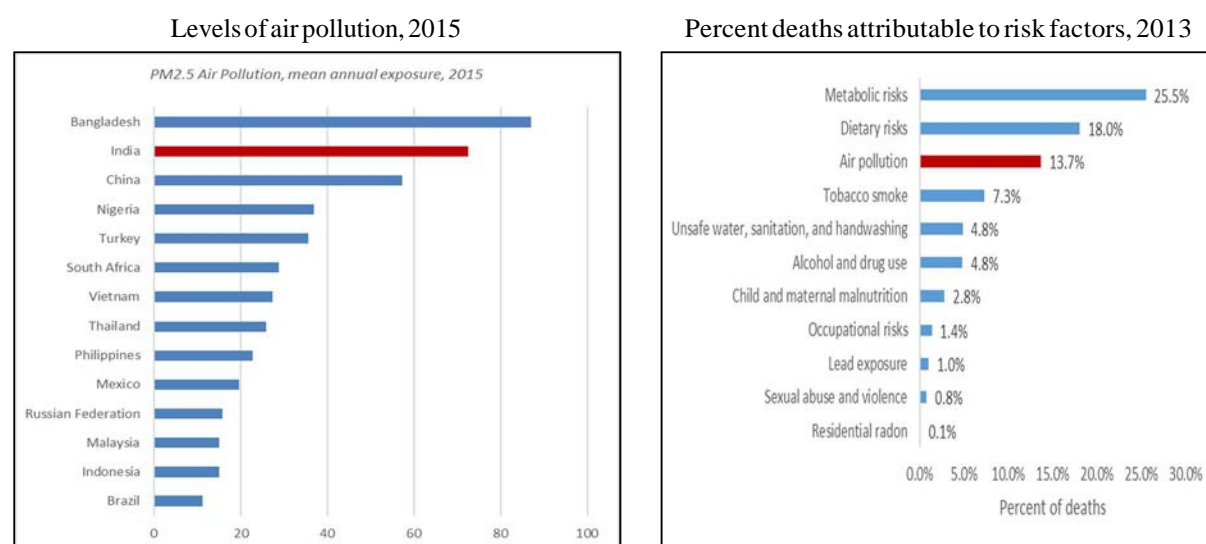
<sup>78</sup> See <http://projects.worldbank.org/P091031/india-capacity-building-industrial-pollution-management?lang=en> for details of the Capacity Building for Pollution Management Project.

<sup>79</sup> Tewari op cit

less stringent Indian standards for ambient air quality.<sup>80</sup> While PM<sub>2.5</sub> is the most harmful to human health, other pollutants are also raising concern. Concentrations of nitrogen dioxide, ozone, and benzene are also higher than the norms. Benzene is a toxin, which is harmful to human health in even trace amounts.

Air pollution presents a heavy and growing cost to people's lives and to the economy (figure 7). In 2013, it was the country's number-three fatal health risk.<sup>81</sup> Premature mortality due to air pollution is estimated to have cut expected lifetime labor earnings by 0.8 percent of GDP. Measured in reduced welfare, the estimated cost of air pollution in 2013 rises sharply to 7.7 percent of GDP.<sup>82</sup>

Figure 7: High levels of air pollution are exacting a huge price



Source: World Development Indicators and IHME, Global Health Data Exchange.

Action to curb pollution has been hampered by inadequate monitoring and incomplete knowledge about pollution sources in many cities.<sup>83</sup> The sources of pollution vary and include secondary inorganic aerosols (formed from the reaction of sulfur dioxide and nitrogen oxides emitted by power plants, industry, and traffic with ammonia from agricultural activities), biomass (used for cooking), agricultural and municipal waste-burning, vehicular emissions, road dust, and coal and fly ash from power plants and manufacturing establishments. An “airshed”-based management approach, which recognizes that pollution is a result of a multitude of interacting activities and emission sources, is needed to control emissions. It considers a range of sectors, including residential, commercial, industry, transport, agriculture, and government agencies. And it requires federal and local agencies to work together. No doubt new technologies can play a role in assisting in this transition, but cannot replace the need for enforcing regulations.

<sup>80</sup> PM<sub>2.5</sub> is a measure of the particulate matter (PM) in the air and is a concern for respiratory health. See, van Donkelaar et al. (2016).

<sup>81</sup> Forouzanfar et al. (2015).

<sup>82</sup> World Bank-IHME (2016).

<sup>83</sup> Guttikunda (2015).

## Improving connectivity

Enhancing growth and efficiency calls for improved connectivity within cities and between them and with rural areas. Investments in transport corridors, as illustrated by the Golden Quadrilateral highways that connect the four major economic centers of Delhi, Mumbai, Chennai, and Kolkata, have high payoffs.<sup>84</sup> Much progress has been made to improve connectivity though in global terms India lags its peers in freight logistics. The Global Connectedness Index places India as 71 out of 140 countries in 2014, which is a concern since freight demand is set to quadruple by 2035 if GDP growth exceeds 7 percent a year.<sup>85</sup>

Equally important is the need to invest better and enhance the efficiency of existing infrastructure.<sup>86</sup> Investments in first- and last-mile connectivity to connect the main corridors to the centers of production and consumption and investments to interconnect existing modes of transport can unlock substantial economic potential. Much of this investment should be focused on greener transport options, such as public transport and railways that deliver a triple dividend: reducing already congested roads and cities, improving access for the poor and emerging middle class, and yielding environmental benefits.

## Resourcing cities

Plans have been developed but implementation is perhaps the most challenging aspect of city governance. It will require empowering local governments with resources and authority and holding them accountable for achieving results. Revenues accruing to cities and local governments seem inadequate. In 2007/08, for example, local government revenues amounted to less than 1 percent of GDP, compared with 7 percent in Brazil; likewise, local governments' own-source revenues were only 0.5 percent of GDP, compared with 2–3 percent in Brazil.<sup>87</sup>

Land-based financing offers an avenue to increase local government resources without the moral hazard risk that comes with excessive borrowing. The benefits of public investment (particularly in infrastructure) are capitalized into land values, which tend to be captured by private interests. Where these benefits are localized and well-defined, however, public agencies can capture some of that incremental value to help finance their investment. Recognizing the challenges of altering institutional structures and mandates the Economic Survey of India suggests incentivizing city governments through the vehicle of competitive federalism.<sup>88</sup> Providing funds that are contingent on meeting measurable goals, could unleash a virtuous cycle of greater accountability and enhanced efficiency through competition for funds.

## Coordinating across jurisdictions and sectors

Finally, bringing air pollution levels within safe limits will call for coordination on standards, policies, and strategies across sectors: with the energy sector on emission standards and fuel sources; with urban governments on domestic combustion fuels and regulations; with agriculture on residue burning; and with

---

<sup>84</sup> Ghani et al. (2015), Alder (2016).

<sup>85</sup> Mohan (2016).

<sup>86</sup> For instance, even though performance in container ports has improved vastly, there is scope to double the cargo handled with existing facilities (Herrera Dappe and Suárez-Alemán, 2016).

<sup>87</sup> Tewari et al. (2016).

<sup>88</sup> Government of India, Ministry of Finance (2017).

transport on vehicle emission standards, fuel mix, and state of roads and highways. And where the sources of pollution lie outside the city's jurisdiction, an airshed approach is necessary.

Cross-jurisdictional and cross-sectoral coordination and cooperation are not easy, as they call for some regions or sectors to make sacrifices for the benefit of others, which is unlikely without legislative compulsion or economic compensation. This is why standard setting and enforcement of levels of cross-boundary pollutants are best done by the upper tiers of government. Weighing against this approach is evidence for India suggesting that enforcement of pollution regulations has been more effective when delegated to lower tiers and to cities that demand greater accountability from their regulators. These cities also tend to have more literate populations and a wider newspaper circulation. The form of compliance monitoring has also been shown to matter. Consistent with standard theoretical models in economics a widely-cited experiment in Gujarat in 2013 shows that the use of randomized third-party auditors, rather than bureaucrats, significantly improved reporting and compliance.<sup>89</sup>

To sum up, getting cities to work better and generate more output will require unleashing the forces of agglomeration while controlling those of congestion. Strengthened mechanisms of accountability will be needed to ensure that municipal service delivery commitments are met and that city plans reflect public preferences and are implemented appropriately. These steps require not just enough financing, but also more efficient delivery of basic services and a sharp improvement in enforcement of regulations (especially where irreversibilities loom large). These issues are addressed in greater detail in section 5 on strengthening the public sector.

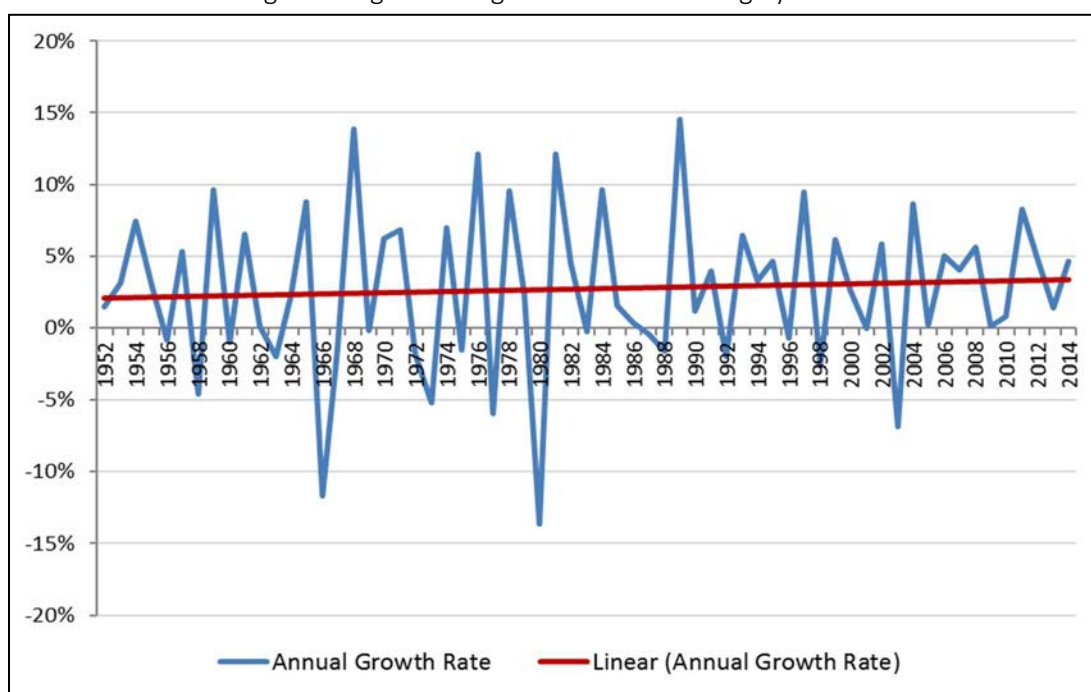
### Making agriculture productive

Most of the country's water (90 percent) is used for irrigation, much of the land (61 percent) is used for the sector, and most people (49 percent) work in the sector. Agriculture has made great strides in moving the country from chronic food deficits to food surpluses and net food exports since the early 1990s. It is now less sensitive to rainfall variability than in the early 1980s. Yield variability has been cut by half, due to rapid irrigation expansion (which has also had negative environmental impacts) and the spread of modern technology. However, value added in agriculture has grown at a modest 3 percent a year since 1970 (figure 8), and productivity per worker is still far lower than in other countries (figure 9).

---

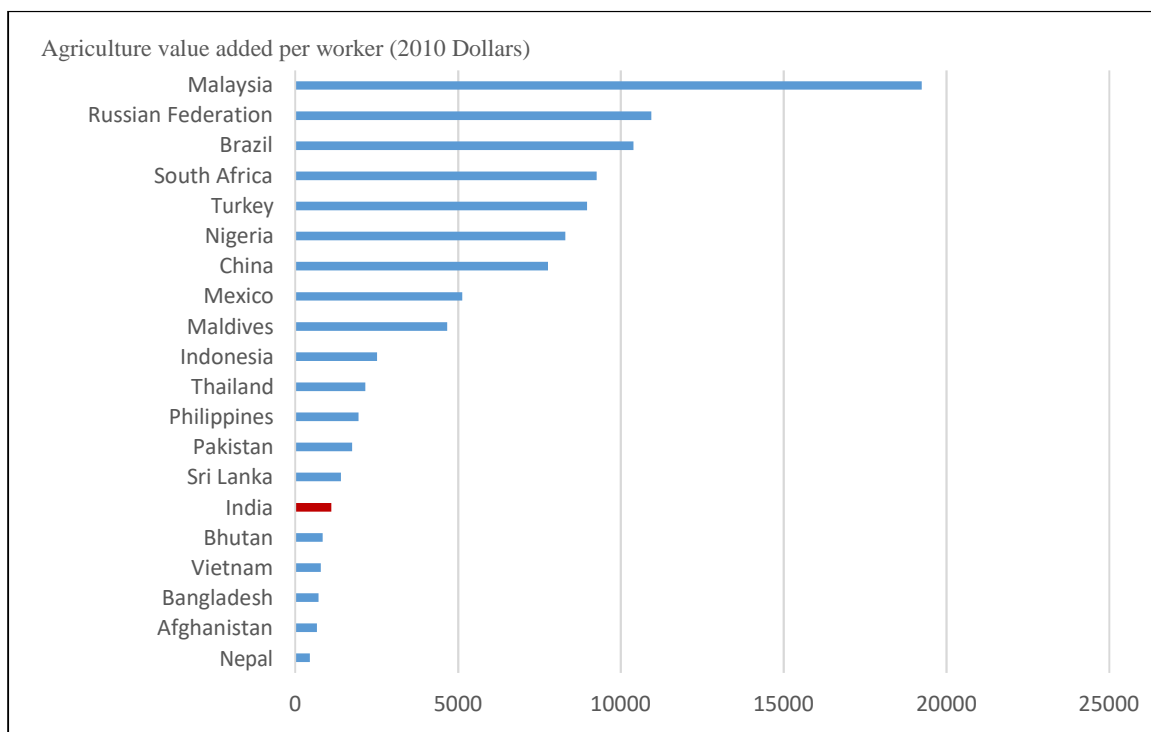
<sup>89</sup> Duflo et al. (2013); Greenstone and Hanna (2014).

Figure 8: Agriculture growth is slow and highly volatile



Source: World Bank (2014).

Figure 9: Agricultural labor productivity is low



Source: World Development Indicators (2014).

Past policies, originally to overcome chronic food insecurity, are now starting to show a multitude of strains—widening income disparities, degrading the fragile resource base (declining soil fertility), and depleting groundwater. Adding to these strains is an agricultural structure that remains concentrated in low-value, low-yield cereals. The sector is only sluggishly responding to the emerging demands of a wealthier urban consumer base for high-value and nutrient-rich foods. Agriculture’s share in output has fallen steadily, while its consumption of inputs (including water withdrawals) has steadily increased and its share in employment has declined only modestly. As a result, the sector lags the rest of the economy. There is a perverse gender dimension spreading across the sector with the growing feminization of agriculture. While India’s farmers are increasingly likely to be women, their ownership of agricultural assets has stagnated.

These challenges are aggravated by climate shocks, as much of the agricultural production base is subject to volatile monsoon events. Agro-climatic models suggest that rising temperatures and lower rainfall at the end of the growing season are likely to cause heavy losses in India’s rice production. The extremely high temperatures in northern India—above 34°C—have contributed to stagnating yields, though other factors include degraded soils, saline water intrusion, and inappropriate planting techniques.<sup>90</sup>

### Reducing subsidies and fertilizer use

A notable feature of the agricultural landscape is the pervasive use of subsidies that has created networks of support so complex that their fiscal cost and impacts are hard to estimate reliably.<sup>91</sup> According to the Economic Survey of India food subsidies absorb about US\$19 billion and fertilizer subsidies about US\$11 billion a year.<sup>92</sup> The most recent and comprehensive assessment of subsidies suggests that the combined fiscal burden of fertilizer, power, irrigation, and credit subsidies likely exceeded about US\$33 billion (Rs. 2 trillion) in current prices in 2013<sup>93</sup>—equivalent to 11 percent of agricultural GDP. Fertilizers consume the largest share of agricultural subsidies, followed by the power used for irrigation.

It is well known that these subsidies are highly distortionary, with robust evidence that the impacts often accentuate vulnerabilities and rural poverty. A widely discussed issue in agricultural policy is power subsidies and their impact on groundwater levels. Recent assessments indicate that a 10 percent increase in the average power subsidy induces a 6–7 percent increase in groundwater extraction rates.<sup>94</sup> This is driven partly by a shift in cropping patterns to more water-thirsty crops and partly by the use of more water overall. Falling groundwater levels in turn increase rural poverty and reduce agricultural productivity. By one estimate, a 1 meter drop in the groundwater level reduces foodgrain production by 8 percent and cash crops by 5 percent.<sup>95</sup> Thus a subsidy that may once have provided economic security to farmers has in some places become counterproductive.

---

<sup>90</sup> See among others Lobell et al. (2011) and Lobell et al. (2012).

<sup>91</sup> Singh (2011).

<sup>92</sup> Government of India, Ministry of Finance (2016).

<sup>93</sup> Bathla et al. (2017).

<sup>94</sup> Badiani and Jessoe (2011).

<sup>95</sup> Sekhri (2013).



Another policy-driven factor suppressing productivity is the nutrient imbalance resulting from current patterns of fertilizer use. Controlled prices for urea (nitrogen) fertilizers are kept low, while the prices of complementary nutrients (especially phosphorous and potassium) are unregulated and have shot up, generating a highly skewed pattern of fertilizer application that diverges sharply from scientifically recommended ratios. For example, the ratio of nutrient application of nitrogen, phosphorous, and potassium in Punjab averages 62:19:1, while the average recommended ratio is 4:2:1.<sup>96</sup> This has several deleterious effects.

On the farm, the distorted ratio produces crops that have become less responsive to fertilizer usage and, in extreme cases, lowers productivity. Off the farm, nutrient runoff from cropland causes eutrophication in waterways as some plants and algae “bloom,” outcompete other species, and deprive them of oxygen. People who drink eutrophic water endure health problems ranging from fatigue and headaches to diarrhea and organ damage. Eutrophication also takes a heavy toll on the seafood industry, killing fish in huge quantities and reducing yields. There is growing scientific consensus that the hypothesized safe boundary for the global nitrogen cycle has been crossed and that levels in India are higher than the global average.<sup>97</sup>

### Transitioning to a modern food system

The efficiency and productivity of Indian agriculture needs to improve, and the sector needs to transition from its traditional food security orientation (with a cereal or calorie focus) to a modern food system resilient to climate change. This requires more flexible supply-side responses (addressing low productivity, risks due to climate change and short-term weather anomalies, and natural resource degradation). Farmers need access to information and decision tools to select crops and manage them better so as to meet the changing consumption patterns of the middle class. Global experience suggests that an increasing agribusiness-to-agriculture ratio has been an important driver of poverty reduction and generating better jobs, as illustrated by the experiences of Israel in the 1960s, Thailand and Brazil in the 1980s. Further, agro-processing and other forms of agro-enterprise activity provide a venue for the accumulation of skills and could stimulate product and process innovations that would strengthen the backward and forward linkages with the rest of the economy.

Making these shifts from today’s sometimes perverse incentives and subsidies will require fundamental changes in policies and strategies. Today, incentives are distorted through an enormous and complex web of subsidies that range from minimum support prices (MSP) for staple crops (cereals), to support for water thirsty crops (rice and sugarcane) supported through public procurement and subsidized inputs, to subsidies for seeds, fertilizer, and groundwater (at low cost, with free or cheap electricity provided to operate pump-sets). These incentives have locked the agricultural sector into unproductive and inefficient modes of production and low value added products that have stymied the transition to a more modern food system. In addition, most input subsidies are a blunt instrument for supporting redistribution or providing safety nets to vulnerable farmers, since the benefits linked to input usage, accrue to the biggest users, who are likely to be the largest and wealthiest farmers.<sup>98</sup> It could be argued that MSP provides a

---

<sup>96</sup> Huang et al. (2017).

<sup>97</sup> Rockström (2009),

<sup>98</sup> Fan et al. (2008).

safety net to farmers, though with the availability of new technologies there are more effective and efficient ways to ensure that transfers are targeted and leakage is minimized.

The government is well aware of the problem of misdirected and unsustainable subsidies, but reforming subsidies, especially those in agriculture, is politically sensitive. Even when farmers understand the benefit of moving to a more sustainable and nondiscriminatory system based on agricultural technology and infrastructure investments instead of subsidies, none of them—rich, middle-income, or poor farmers—are confident of the transition. The strategy for rationalizing the present system will have to be negotiated.<sup>99</sup> Cash transfers as a “grand bargain” in lieu of distortionary subsidies—an idea floated in the 2017 Economic Survey<sup>100</sup>—could be contemplated, if only because its risks seem small compared with the long-run costs to farmers and the economy of continued degradation of natural resources and of inefficient redistribution. Two recent support programs also suggest a desire to move away from input subsidies (box5).

#### Box 5: New support programs in agriculture

An electronic trading platform called e-NAM has been introduced to connect sellers to wholesale markets across the country. The aim is to reduce transaction costs, inject competition and contestability in small village markets where oligopolistic wholesalers dominate, and more generally to enhance the gains from trade. The introduction of e-NAM is partly a response to the distorted agricultural markets that have been created by regulations such as the Agricultural Produce and Market Committee (APMC) Acts. APMC reforms have been underway since at least 2003, but progress has been slow and uneven across states. One of the key motivations for introducing e-NAM was to circumvent the problems associated with APMC and in doing so to improve the efficiency of markets and make them more transparent. Another program is the Pradhan Mantri Fasal Bima Yojana, which includes a weather-based farm insurance scheme with subsidized premiums intended to buffer rural incomes against rainfall shocks. Both schemes have the potential to boost rural incomes.

There is also recognition of the need for change in the way that water resources are managed. One example is the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), launched in 2015 to improve farm productivity and water utilization. To improve productivity, PMKSY seeks to provide water to every field. The challenge with this objective is that there is not enough water to sustainably irrigate every field in India, especially given the burgeoning water demands of cities and industry. India already uses more water for irrigation than any other country in the world, but without commensurate increases in output or value added. Competing demands on limited water resources suggest the need for a greater policy focus on increasing output and farm income. Hence the second component of the PMKSY scheme seeks to improve water use efficiency by producing “**more crop per drop**” primarily by expanding the use of drip irrigation and other related techniques. These approaches target water delivery to the root zone of a plant thereby reducing water losses through evaporation or seepage.

There is much debate among experts about the effectiveness of such water efficiency measures. Experience suggests that efficiency measures such as drip irrigation do not always deliver the anticipated water savings for two distinct reasons. First there is a behavioural reason. If the water that is “saved” through efficiency improvements, is used to expand production (called the “rebound effect”), then efficiency improvements

---

<sup>99</sup> World Bank (2006).

<sup>100</sup> Government of India, Ministry of Finance (2017).

may not translate into water savings.<sup>101</sup> A second reason is related to the bio-physical response of crops. Water savings can also be eroded if a new technology implies that crops absorb more water so that less is returned to the river basin or aquifer. For instance, less water may need to be withdrawn from a river for drip irrigation, but if crops consume more water, then less water could be returned to the system, harming downstream users. Whether these perverse effects occur is an empirical question and there is very little rigorous empirical evidence on the effects of such interventions, so the PMKSY scheme and others like it need to be accompanied by monitoring and evaluation to determine impacts on crop productivity, farm incomes, and net water supplies.

### Diversifying the farm economy

Diversifying from a cereal focus to higher value-added and resilient agriculture (including better post-harvest management and food safety systems) and promoting nonfarm links to industry and market will require the government to shift from being a direct market participant to becoming a catalyst and enabler of rural growth. For instance, access to all-weather roads has been shown to generate a 10 percentage point increase in the share of households engaged in off-farm wage labor and is associated with an 8 percent increase in household earnings and better living conditions.<sup>102</sup> Tackling climate change threats (especially serious in drier rainfed areas, where the majority of India's poor and low-productivity smallholders live) requires building resilience through innovations in climate-smart agriculture and reorienting incentives for better resource management (water and land/soils), with government playing a facilitating role.

Since the number of people dependent on agriculture will need to shrink, a complementary agenda is required to expand the rural nonfarm economy. The Self-Help Group movement has shown that small and marginal farmers and landless households can take advantage of economic opportunities, through mobilization and empowerment, coupled with credit and training. For the large-scale transformation, however, connecting rural livelihoods to the growth and employment engines of cities is a priority.

There are also opportunities to diversify the rural economy beyond traditional farming. Inland fisheries represent an underutilized opportunity. While agricultural yields and incomes have stagnated across India, the inland fishery sector (fish farms) is growing at about 7 percent annually. The value of inland fish production, two-thirds of which comes from inland small fish farming, is estimated at Rs. 1,410 billion, exceeds the value of wheat, at Rs. 1,290 billion, and is set to overtake rice. And while rice and wheat together occupy about 182 million acres of land, these fish farms use less than 5 million hectares and represent a more productive form of land use. Inland fish farms seem especially suitable for India: they provide a complementary source of income to farmers and are conducive to cooperative production arrangements that share overhead costs. They could also lower pressure on overexploited marine capture fisheries in India, allowing these to recover.

The cooperative model of rural development has shown considerable potential in India after the early success of the cooperatization of the dairy value chain and has been recommended for other sectors such as forestry, fishing and rural enterprises. Supporters of this approach have argued that cooperatives have

---

<sup>101</sup> This is the Jevon's effect in resource economics, which is of course highly desirable in many contexts.

<sup>102</sup> Asher and Novosad (2016).

promoted more equitable growth, helped smallholders reduce transaction costs in accessing inputs, information, technology, and eased entry into markets for high-value products and perishables. Current empirical research is somewhat ambiguous about whether the boost to rural incomes has emerged because of the entry of poor households into formal markets which also occurs under other forms of ownership, or because of factors unique to cooperatization.<sup>103</sup>

Finally, it is worth noting that many of the problems and barriers to income growth in the rural economy are related to resource and ecoservice degradation – loss of soil fertility and shrinking watersheds and rivers. Recognizing these problems, the Government of India has ambitious targets for the preservation of its forest estate – though there are long standing debates in the literature regarding classification of marginal lands and shrublands versus forests. There is limited recognition that forests are important not only for environmental services but also for the role that they play in supporting the livelihoods of the poor. A growing body of empirical evidence suggests that the lowest (poorest) quintiles of the population in forested rural areas obtain a greater proportion of their income from forests than they do from agriculture. This is often a consequence of their small land holdings or landless status. Moreover, in times of natural disasters and economic distress dependence on these sources of income increases suggesting that forests play an important role as a safety net.<sup>104</sup>

### Making more productive use of water

Managing India's scarce water resources more effectively will be critical to the future of agriculture as well as the livability of cities as more of the country's population move to urban areas and demand safer and more reliable water supply and sanitation services. Reforming the water sector perhaps represents the biggest challenge for agriculture and other water intensive sectors of the economy. The sector needs a fundamental shift in the way in which water is managed in the country.

In India, water scarcity has always been viewed as an engineering problem. If water is in short supply in one region, the common solution has been to bring in water from another region. But what might seem obvious is often not economically prudent. The inescapable laws of supply and demand suggest that when a resource is provided too cheaply it is also overused and abused. This is why, buoyed by myriad subsidies, water thirsty crops such as rice and sugarcane are grown in the most arid parts of the country. Much of the water that is provided at great cost to India's economy is thus used inefficiently and without much economic benefit and often with negative environmental impacts. As a result, the economic value extracted from the use of water today is much less than its potential contribution to the economy.

The country's water management policies need a fundamental reassessment as water demand rises with population and economic growth, and as climate change makes water supply more volatile. Most significantly mechanisms are needed to shift the allocation of water to higher-value uses, along with policies that increase the value generated by the water used within sectors. This will entail long-term changes and will require institutions and mechanisms that can facilitate them in ways that benefit all parties.<sup>105</sup> The

---

<sup>103</sup> Vandeplas et al (2013).

<sup>104</sup> See inter alia, Sunderlin et. al. (2005); Wunder et al. (forthcoming).

<sup>105</sup> Australia achieved such a transformation but it was an effort that took over 2 decades and a very large policy investment. But as a result, today one of the more lucrative investments in Australia is to hold a "water right" which has yielded a net annual return of about 15 percent in recent years.

details of how to achieve such a shift lie beyond the scope of this document but warrant closer examination if there is policy recognition of the need for reform. The first step in the process is for India to recognize the scale of the looming problem and the limits of current supply side approaches.

The uncertainty brought by climate change adds a further dimension of complexity to managing water deficits. Climate change models diverge sharply in their projections of India's rainfall patterns. Some models indicate rising mean rainfall levels, while others suggest a declining trend of rainfall. Nor is there convergence across models on changes in the spatial and temporal patterns of precipitation. This uncertainty has far reaching implications for water infrastructure. It suggests giving greater priority to policies that minimize regret and that can be reversed with caution exercised in the design and siting of long lived and irreversible investments. This may imply assessing the resilience of proposed projects to a range of possible climate outcomes as well as placing greater emphasis on approaches that can be reversed in the light of high levels of hydrological variability. In practice this will require that much greater attention is paid to policies on the demand side that induce greater economic efficiency, and can be modified in the light of new information, rather than structural remedies that are largely irreversible.

### Getting the energy sector right

India's energy sector plants a vast footprint on the country's budget, economy, environment, and citizens. Over the last decade, the sector has experienced impressive growth and improvements. Generation capacity has more than doubled (to 330,000 MW), and now exceeds connected demand by 6-8 percent, with stable and competitive costs. There is steady growth in the competitiveness and quantity of renewables in the generation mix (especially wind and solar); the national transmission company and a few state transmission companies have world class capabilities; there is a credible Central Electricity Regulatory Commission, an independent system operator and a competitive electricity market at the wholesale level. Electricity traders have ramped up exports to Bangladesh and Nepal, facilitated by transmission connectivity investments, contractual arrangements, and steady improvements in regulatory coordination.

In the petroleum sector, low international oil prices have enabled the Government to significantly reduce price distortions (kerosene and diesel) and scale up the distribution of LPG in rural areas (for cooking, displacing biomass and kerosene). On the demand side, there has been an acceleration in the electrification of rail transport (displacing costly and polluting diesel) and in the uptake of energy efficiency devices. Many of these achievements were initiated soon after the passage of the landmark Electricity Act 2003.

However, pockets of intractable distortions, especially in electricity distribution and in the indigenous coal sector, continue to extract a toll on the economy. Large energy subsidies have left states with huge debts and are both a strain on state finances and a major contributor to the national banking crisis. Recent analysis suggests that the economic costs to the country from non-fiscal distortions are far higher than the budgetary impacts. The combined effects of distortions in market structure and inefficient operations (the **institutional** effects), health impacts of pollution (social effects), and market imperfections (regulatory effects) are an astonishing 8 percent of GDP.<sup>106</sup> These figures indicate that market imperfections and health costs are far more important than the budgetary implications – suggesting the need for further structural

---

<sup>106</sup> Zhang (forthcoming).

reform of the sector. This result is supported by other empirical evidence which finds that the cost of self generation of power is often low for large industries.<sup>107</sup> Hence in India the direct economic effects of electricity interruptions has been found to be statistically small in recent econometric research, but there are troubling hidden impacts that include deterring the entry of industries in regions where power supply is unreliable.<sup>108</sup>

Energy demand in India is expected to grow faster than in any other country in the world over the next 25 years. Despite a rapid expansion of supply over 230 million people still lack access to electricity and over thirty percent still depend on polluting biomass fuels for cooking. The quality of services needs to be improved - frequent power outages take a heavy toll on firm performance, household health and overall economic performance. The choices India makes in closing existing and emerging gaps between demand and supply will have far-reaching global, national, and local consequences. Bringing efficiency and reform to a sector like electricity that exhibits strong natural monopoly elements is a challenge. India's electricity reform agenda emphasizes new technology and solutions grounded in information and communications technology, capacity building, reskilling, and related measures to improve operational efficiency. A host of other complementary measures are being introduced gradually to tackle performance incentives and the underlying political economy constraints.

Most notably in 2015, the national government announced the “Ujjwal Discom Assurance Yojna” or UDAY scheme, a major bailout of the state controlled distribution sector, linking central support for debt reduction with commitments by interested states and their distribution utilities to undertake a menu of measures which would enable loss making Discoms to break even within two-three years. Measures focus on improving **operational efficiencies** (compulsory smart metering, upgradation of transformers, promoting efficient lighting), **reducing the cost of power** (increased supply of cheaper domestic coal, liberal coal swaps from inefficient to efficient plants, faster completion of transmission lines), and **minimizing interest cost** (states to massively reduce Discom debt and future debt service burden).

Moving forward, given India's power surplus situation (the first time since Independence), improving service quality can be given greater emphasis under UDAY. This can be combined with ongoing measures to enhance utility management (solutions grounded in information and communications technology, capacity building, etc.) and corporate governance, thereby alleviating political anxieties around much-needed tariff adjustments.

India is well-placed to translate the lessons from the expansion of coal-based generation to scaling up power generation based on renewable energy sources. Continuing the coal-intensive energy growth path will affect global carbon dioxide emissions; India's forests, where most coal deposits occur; its rivers, where coal mine tailings and toxic residues drain; and the respiratory health and mortality rates of inhabitants who live close to coal-fired power plants and suffer disproportionately from their health impacts. Recognizing these challenges, India, in its Nationally Determined Contribution to the Paris Climate Change Accord, has committed to developing the world's largest clean, renewable energy program. The short-term

---

<sup>107</sup> Foster and Steinbuks 2009.

<sup>108</sup> Allcott et al 2016.

targets are ambitious and include building 100 gigawatts (GW) of solar power and 60 GW of wind energy by 2022.

#### 4. Accelerating inclusion: creating good jobs, building human capital

To turn the dream of a middle-class India into a reality will call for the creation of vast and unprecedented number of well paid jobs in India's cities and on its farms. Making cities and farms more efficient requires making Indian enterprises more productive. And this can only occur if there is an enabling policy environment coupled with a labor force with the skills and dynamism required to pivot the Indian economy into a globally competitive force.

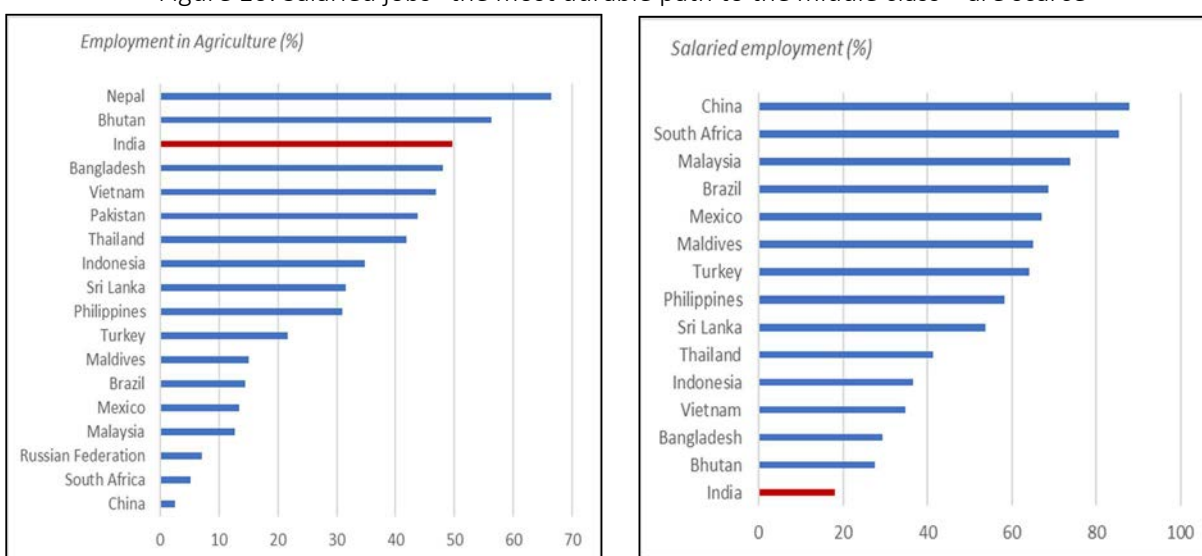
In a society with wide inequalities creating productive, regular jobs remains perhaps the most urgent priority. The issue is not just the number of jobs but also the type of jobs. Despite high levels of informality in the labor market, non-farm employment in the past decade has been key to raising living standards. The movement out of agriculture, supported by rising wages for unskilled labor, has lifted millions out of poverty. Occupational mobility is increasing from one generation to the next. Even within the same generation, mobility in earnings—measured by the ability to move out of poverty—is comparable to that of Vietnam. Importantly, jobs seem to trump caste in moving up the economic ladder as the extent of mobility is similar for groups across the spectrum.<sup>109</sup>

Nurturing and extending this dynamism is the highest priority to propel transitions to the middle class. While India's jobs dynamic has delivered significant gains in poverty reduction, large numbers of non-poor remain vulnerable to shocks with consumption levels that are only marginally above the poverty line. Transition to the middle class is tied to having a regular, salaried job, one with growing earnings. Currently, less than a fifth of workers in India have a salaried job, and their share in the workforce has increased by a meagre 4 percentage points since the mid-2000s. Agriculture still employs nearly half the workforce (figure 10) India faces a jobs deficit, with job growth primarily in sectors such as construction that offer irregular employment (box 6).

---

<sup>109</sup> Rama et al. (2015).

Figure 10: Salaried jobs--the most durable path to the middle class—are scarce



Source: World Development Indicators (2013).

#### Box 6: Plugging the jobs deficit

The rapid decline in poverty between 2005 and 2012 was driven mainly by higher labor earnings. Nonfarm jobs, supported by an unprecedented rise in wages for unskilled labor, propelled millions of Indian households above the poverty line. Such jobs and more migration to cities were the key drivers of mobility for disadvantaged groups such as the STs and SCs, that have fewer opportunities than other groups.<sup>110</sup>

Advances into the middle class are at risk, however, for India faces a growing jobs deficit. Economic growth has failed to generate enough jobs for its burgeoning working-age population. Employment elasticity—a measure of how employment varies with GDP growth—was 0.3 percent between 1991 and 2007 but has since declined to about half that level.<sup>111</sup> Between 2005 and 2012, the economy added roughly 3 million jobs a year, far too few for an economy with close to 13 million people entering the working age population every year. In a young, more educated, and increasingly aspirational society, this jobs deficit has the potential to turn the much-awaited demographic dividend into a demographic curse.

The issue is not just the number of jobs, but also the type of jobs. Agriculture is still home to nearly half the workforce, but output per worker there is less than half the economy's average. Employment has been growing most rapidly in construction and retail, which also have below-average output per worker and labor productivity in these sectors has been falling. Compared with historical peaks in today's high-income countries, India's industrial employment numbers are quite low: the share of manufacturing in India's total employment moved from 10.4 percent in 1994 to 12.5 percent in 2012.<sup>112</sup> Even in manufacturing, and in the organized sector more broadly, employment contracts have been shifting towards greater informality, as production is outsourced and new hires are taken on as contract workers

<sup>110</sup> Rama et al. (2015).

<sup>111</sup> Polaski (2015); Misra and Suresh (2014).

<sup>112</sup> This is based on NSS labor force surveys. Since 2000, there has been rising discrepancy between the estimates of manufacturing employment produced by firm surveys (ASI and NSS Survey of Unorganized Sector) and those produced by labor force surveys (NSS), with the former growing more slowly. This could be due to growing informality and the rising proportion of contract employment within factories (the latter can be seen in ASI data).



without job security or social security.<sup>113</sup> In 2012, over 90 percent of Indian workers were informal, of which about 10 percent were in the organized sector but informal. The share of contract labor in organized manufacturing reached 34 percent in 2011, up from 14 percent in 1996.

Another jobs deficit is the shortage of suitable jobs for women. While rising incomes and education levels can account for some of the observed decline in female labor force participation rates, the evidence points to limited job creation overall and sticky social norms that militate against women's mobility and work (Box 7). Apart from scarcity of good jobs, there is also evidence of "discrimination" of disadvantaged groups in the labor market. Analysis of earnings of household businesses shows that less than half (45 percent) of the gap in earnings between SC/STs and other groups can be explained by observed differences in endowments, education levels and demographic characteristics. Unobserved explanations, such as type of work, skill not reflected in education levels, and outright discrimination accounts for the rest of the earnings gap. SC/ST-owned businesses at the lower and middle end of the earnings distribution face greater discrimination.<sup>114</sup> A growing body of research provides evidence of caste-based stereotyping, which negatively impacts aspirations, performance, and labor market outcomes for disadvantaged groups.<sup>115</sup>

Regular jobs are concentrated in a few locations and sectors. In principle, urbanization brings with it the promise of better jobs. And in the case of India, it is true that the share of regular jobs is substantially higher in large cities. But there are fewer regular jobs in small towns and they are especially rare in rural areas. The public sector, which employs about 5 percent of workers, is the largest provider of good jobs, accounting for a quarter of all regular jobs and two-thirds of those that offer benefits. In the private sector, manufacturing offers a larger share of regular jobs than other sectors, but employment growth has been slow. In the absence of vibrant job creation in large villages and small towns, where most of the Indian population lives, or without arresting the withdrawal of women from the labor force (Box 7), building a large middle class will remain an elusive goal.

#### Box 7: Female labor force participation

In a puzzling development, the share of working-age women who work or actively seek work declined by more than 10 percentage points between 2005 and 2012, with a particularly pronounced decrease in rural areas (from 49 percent to 36 percent). In urban areas, only one in five working-age women are in the labor force. At these levels, India's female labor force participation rate (LFPR) is well below the expectation for its level of income and against that of its neighbors, such as Sri Lanka, and Nepal. Raising that rate is a high priority because it promotes women's empowerment and improved outcomes for children—core development objectives in their own right. Growth will also be raised if women's skills and talents were used more fully. By one estimate, GDP growth could accelerate by one percentage point if India were to close just half its female LFPR gap with that expected by its level of income.

A growing body of research suggests multiple factors at work. In part, the decline reflects "supply-side" factors. Young women are staying in school longer. This is a welcome development, both from a skills perspective and from a gender

---

<sup>113</sup> "Informal" is typically used to describe enterprises that are small and have low productivity and/or enterprises/workers that are not regulated/covered under any legislation. As such, formal workers could exist within informal enterprises and formal enterprises could have informal workers. The common thread is that these activities are not regulated and are imperfectly reflected in the official statistics. In the Indian context, the terms "organized" and "unorganized" are used in the official statistics. The organized sector comprises of enterprises for which statistics are available regularly from the annual reports in the case of the public sector and large companies, and through the Annual Survey of Industries (ASI) in the case of manufacturing firms that are registered under the Factories Act, 1948.

<sup>114</sup> Deshpande and Sharma (2016).

<sup>115</sup> See for example, Hoff and Pandey (2006); Deshpande and Newman (2007); Goel and Deshpande (2016).

equality perspective. However, most of the observed decline in female LFPR occurred among older women. And it took place despite their higher educational attainment.<sup>116</sup> A second explanation focuses on the “income effect”: as incomes rise, women who worked mostly out of necessity can choose to drop out of the labor force, often a preferred household choice. A weak relationship between household expenditure and female LFPR across locations suggests that rising incomes can only account for a small part of the puzzle.

More direct explanations come from women’s responses themselves. Per the 2011-12 National Sample Survey, over a third of women engaged in housework say they would like to work. Three-quarters of them favored regular, part-time jobs, which would provide higher and steadier income while allowing women to reconcile household duties with work. Unfortunately, as noted earlier, such good jobs are in short supply in India. Female entrepreneurs tend to hire more women, but relatively few women become entrepreneurs. Persistent employment segregation by gender further traps women in low-productivity, low-paying jobs.

An important part of the answer also appears to be safety concerns and social norms about house and care work that militate against women’s mobility and participation in paid work. A survey of sexual violence against women in New Delhi found that 75 percent of the female respondents had faced sexual violence in their neighborhoods.<sup>117</sup> In a survey of Skill India participants, 62 percent of unemployed women said they were willing to migrate for work, but 70 percent said they would feel unsafe working away from home. Social norms also restrict mobility, as illustrated by the large fraction (nearly 80 percent) of women in the 2011-12 India Human Development survey reporting that they require permission from a family member to go to the local market or health center.<sup>118</sup>

Growth alone cannot and will not make gender inequalities that restricts women’s progress go away. The World Development Report on Gender Equality and Development notes that the workings of markets and institutions and their interactions with each other and with households can mean that multiple constraints to progress require changes on several fronts. Addressing gender gaps in the labor market may require changes in how markets work, in the laws and regulations that apply to their work, and in the beliefs and norms that apply to the work that men and women do. This effort will take targeted policies to lift the constraints to women’s time stemming from the burdens of housework and care, and to improve the workings of labor and credit markets and the structure of formal institutions—particularly laws and the delivery of services.<sup>119</sup>

Creating good jobs necessitates nurturing dynamic and competitive firms, especially in labor intensive sectors of the economy. Firm growth in turn rests on well-functioning product and factor markets, that make it easy for firms to enter markets and thrive, while constraining them from engaging in anticompetitive practices. International comparisons based on the Doing Business “Distance to frontier” measure (the gap from best practices) show that India has made above-average gains in the regulatory regime underpinning its product and factor markets in the past decade but that much remains to be done.<sup>120</sup>

---

<sup>116</sup> Among women aged 18 to 30 years, the share of those completing secondary education increased from 20 percent in 2005 to 32 percent in 2012. But for the same age cohort, the share in the labor force declined from 38 to 30 percent.

<sup>117</sup> Bhatla et al. (2013).

<sup>118</sup> Pande et al. (2016).

<sup>119</sup> World Bank (2011).

<sup>120</sup> India improved its score from 48 to 61 (out of 100) between 2010 and 2017, just below the median. The distance to frontier measures the gap from the best practices seen across all countries and years, and as such is not a ranking. The score summarizes practices related to starting a business, dealing with construction permits, getting electricity,

Greater market integration—global and national—is a complementary need. Closer global integration would lift productivity by promoting competition, specialization, knowledge spillovers, and higher product standards. A domestically integrated market in goods and labor would provide scale economies, facilitate greater agglomeration of firms, improve allocative efficiency, lower production costs, and ultimately boost productivity.

Rapidly growing labor costs in China may open the way for India to seize a larger share of global manufacturing production and to become the next “factory of the world.” However, capitalizing on urbanization, industrialization, and global integration will require a strong government-led drive for economic reform encompassing policies to unshackle India’s firms and to upgrade human capital, thereby helping to secure the demographic dividend—the economic growth that may result from changes to a country’s age structure that result in a larger share of the working age population.

### Unshackling Indian firms

India has undertaken major economic reforms that have contributed to unleashing productivity and firm growth. India’s journey of economic reforms began in the late 1980s with the dismantling of the “license raj,” a draconian system of licensing requirements for the entry and expansion of firms. One study estimated that this step led to a 22 percent increase in total factor productivity.<sup>121</sup> It was soon followed by the liberalization of foreign direct investment and import tariffs in the 1990s, again with sizable positive impacts on productivity.<sup>122</sup> Another major product market reform was the dismantling of a system of protection that reserved entire product lines for small-scale industry. Intended to promote employment in small and micro firms, this policy did the reverse by barring competition from large firms while giving firms a strong disincentive to expand. In recent years, with a series of reforms, India’s place has moved up 30 ranks to 100 (out of 190 countries) in the World Bank’s Doing Business 2018 rankings.<sup>123</sup> It has introduced several notable reforms such as Single Window Clearances and changes to the bankruptcy laws.

Despite these initiatives, India is still a difficult place to do business. Indian firms remain burdened by costly regulations that make it safer for firms to remain small and under the radar (box 8). India scores poorly on cross-country measures of policy barriers to competition, such as the OECD Indicators of Product Market Regulation.<sup>124</sup> Even some of the potential gains from trade liberalization were lost because firms that benefited from cheaper imported inputs increased their price markups rather than passing on the gains to consumers.<sup>125</sup> This lack of “pass-through” is consistent with there being low levels of competition in product markets which allows firms to increase profit margins in the absence of pressures to retain customers.

---

registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency (World Bank, 2016d).

<sup>121</sup> Chari (2011).

<sup>122</sup> Liberalization of foreign direct investment, for example, is estimated to have increased the level of total factor productivity by about 14 percent (Sivadasan, 2009).

<sup>123</sup> World Bank (2017g).

<sup>124</sup> The OECD Product Market Regulation index measures the degree to which policies in the following areas inhibit product market competition: state control, barriers to entrepreneurship, and barriers to trade and investment. See Koske et al. (2015).

<sup>125</sup> Goldberg et al. (2016). Price markups are a measure of the market power of firms. However, high market power could be an inherent, structural feature of an industry, and not necessarily due to a policy gap.

In addition, there are a host of tax, subsidy, and protective policies for specific activities and categories of firms, whose rationale remains unclear. For instance, the Micro, Small and Medium Enterprise Act of 2006 encourages firms to stay small if they are to garner state benefits. The Act somewhat arbitrarily favors selected groups of firms and activities and discriminates against others. If India wants to leapfrog on productivity, it must take a hard look at the policies that create distortions and disincentives for firms to invest, hire, and trade.

#### Box 8: Letting firms grow to create jobs

India's stunted firm dynamics are a key constraint to creating productive jobs. Around the world, economic dynamism and job creation are associated with "gazelles," young firms with rapidly rising employment and productivity.<sup>126</sup> India offers a very different picture. An overwhelming majority of Indian firms are small: nearly two-thirds of manufacturing sector jobs are in firms with fewer than six workers—and the most common size of firm is one worker. In comparison, the modal manufacturing firm in the United States has about 45 workers.<sup>127</sup>

Nor do Indian firms grow much (figure 11). A majority start small and stay small. Most of the few big firms started out big. The average number of employees for a 40-year-old Indian manufacturing plant is almost the same as for its five-year-old counterpart. Contrast this with the United States, where firm employment grows eightfold over 40 years, or Mexico, where it doubles.<sup>128</sup>

This life cycle stasis and skewed pattern of firm size impose huge productivity costs, locking up resources in a suboptimal manner. Small firms tend to be less productive than medium-size and large firms. Although returns from expanding employment and capital are consistently higher for larger firms, such firms have not expanded.<sup>129</sup> According to one study, addressing the misallocation of labor and capital between Indian firms to U.S. efficiency levels could raise India's productivity by 40–60 percent.<sup>130</sup>

---

<sup>126</sup> World Bank (2012).

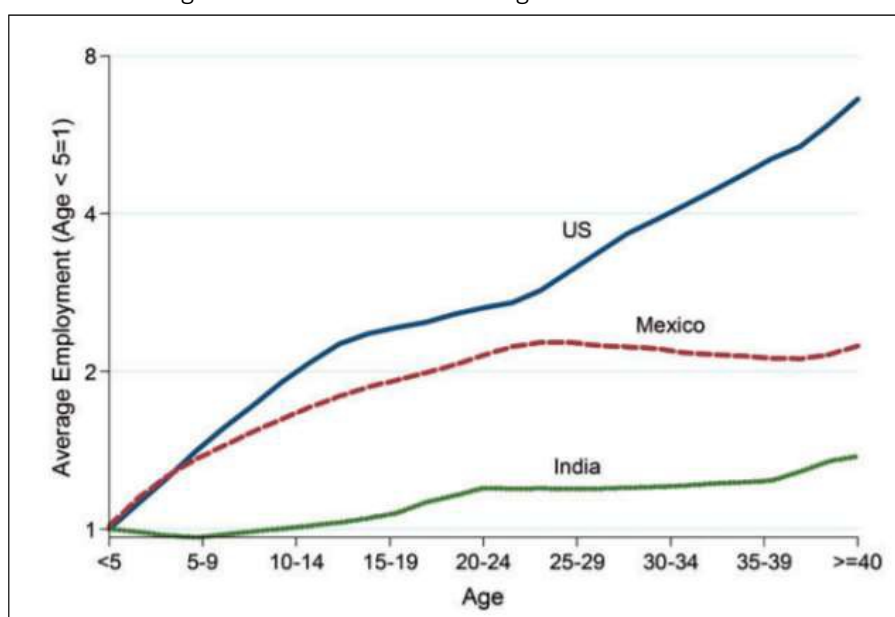
<sup>127</sup> Hsieh and Olken (2014).

<sup>128</sup> Hsieh and Klenow (2014).

<sup>129</sup> Ibid.

<sup>130</sup> Hsieh and Klenow (2009).

Figure 11: Indian firms do not grow much over time



Source: Hsieh and Klenow (2014).

Another concern are the distortions in the land market. Institutional gaps and regulatory inflexibility have resulted in the misallocation of land across firms, industries, and locations. There is emerging evidence of the huge costs of land market distortions for the growth of cities (section 3) and for the productivity of firms. Recent estimates show that a one standard deviation decrease in the misallocation of land and buildings across manufacturing plants is associated with a roughly 25 percent gain in output per worker, equivalent to a six-fold increase in the land supply for manufacturing establishments.<sup>131</sup> A related issue is the misallocation of land across agricultural and industrial uses. India needs to reduce the transaction costs of converting land from agricultural to non-agricultural uses with processes that are transparent and mindful of risks to vulnerable communities. Well-functioning land markets require clearly defined property rights and a reliable land registry, areas where serious challenges remain. The impact of ongoing reforms such as the digitization of land registers has yet to be rigorously assessed.<sup>132</sup>

Ill-designed and onerous labor regulations are a further constraint on employment growth. Flexible labor markets that facilitate the reallocation of workers in response to market conditions are important for productivity and job growth.<sup>133</sup> Well intentioned regulations aimed at protecting workers by imposing high dismissal costs on firms can impair efficient labor reallocation, styming both firing, but also hiring by firms.

Many of India's labor laws were written in the context of a more regulated economy that placed faith in economic planning rather than market incentives. India's Industrial Disputes Act of 1947 is a case in point. The Act makes India a complete outlier on dismissal norms (figure 12) and is cited as one of the main

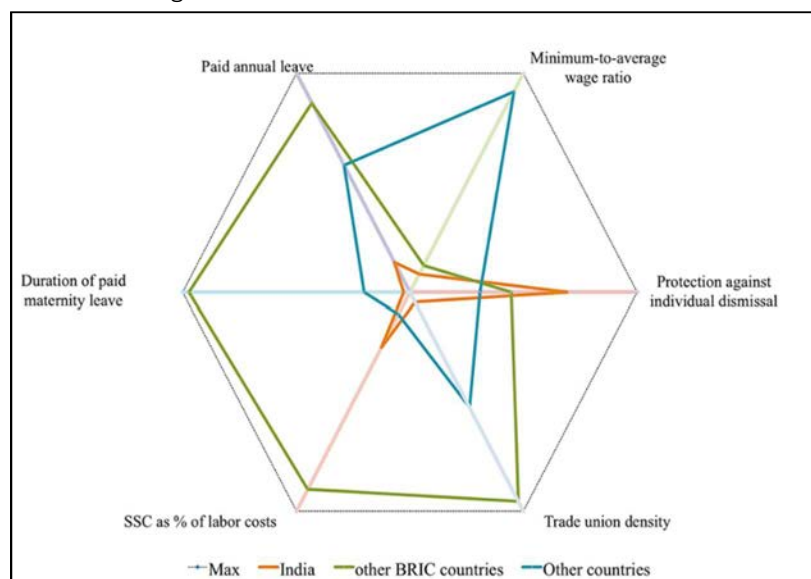
<sup>131</sup> Ghani et al. (2015).

<sup>132</sup> Official data measuring progress on the federal government initiative on Computerization of Land Record (CLR), which began in 2008, can be found at <http://nlrmp.nic.in/faces/rpt/rptCombinedDistrict.xhtml>

<sup>133</sup> Olley and Pakes (1996); Foster et al. (2002); and Bartelsman et al. (2005).

barriers to growth by medium-size Indian firms.<sup>134</sup> Under it, firms that employ more than 100 workers cannot reduce their workforce without prior permission from the state government. Further, there is a costly reporting and inspection architecture associated with this and other acts.<sup>135</sup> Several states have passed amendments, some of them “pro-worker” (reducing firing flexibility) and others “pro-firm” (increasing it).<sup>136</sup> But the amendments have had little impact on aggregate productivity, being piecemeal and state-specific. India still has inflexible labor laws, on average, with considerable divergence across states.<sup>137</sup> There are no doubt strong imperatives for protecting the rights of workers in an economy that lacks adequate safety nets. But it is unclear if the rigidities introduced by the current constellation of labor laws achieve these objectives.

Figure 12: India is an outlier on labor dismissal



Notes: Each variable, pertaining to 2011-2013, is plotted on its own scale and normalized. Other BRIC countries include Brazil, Russia and China. ‘Other countries’ refers to Colombia, Malaysia, Mexico and Vietnam. Source: Laporšek and Vodopivec (2014)

There is compelling evidence on the costs of India’s inflexible labor laws: they have reduced the responsiveness of manufacturing firms to changing market conditions and lowered their output, employment, and productivity.<sup>138</sup> As a result Indian manufacturing is also less competitive. Firms have responded by hiring more short-term contract labor or casual workers without contracts. These reduce worker welfare and inhibit productivity growth, as firms have fewer incentives to invest in skills training.<sup>139</sup>

<sup>134</sup> Government of India, Ministry of Finance (2015).

<sup>135</sup> Aside from the Industrial Disputes Act, there are multiple firm size dependent laws. Some, such as the Factories Act 1948 and the Payment of Gratuity Act 1972 bind on manufacturing firms with more than 10 workers.

<sup>136</sup> Besley and Burgess (2004) and Gupta et al. (2009), among others, have systematically coded state-level amendments to the Industrial Disputes Act in this manner. Others such as Bhattacharjea (2006) question whether the amendments actually increased or decreased flexibility in firing.

<sup>137</sup> OECD (2013).

<sup>138</sup> Adhvaryu et al. (2013); Ahsan and Pages (2016); Besley and Burgess (2004).

<sup>139</sup> Chaurey (2015).

Overall, the outcome of existing regulations is that it creates a segmented labor market with a high level of protection for a very small fraction of workers in jobs and high barriers for the entry of other workers into the protected segment of the formal labor market. This does not imply that there is no need for worker protections and rights. Rather reforms ought to protect the interests of **all** workers by creating an environment for labor relations that meets legitimate rights and interests of workers and provides adequate protections for safety, security and against arbitrary dismissal. Regulations that discourage firms from hiring workers force firms to stay inefficiently small, and induce firms to use capital at the expense of labor. Going forward, “grandfathering” current workers covered under existing laws and introducing mechanisms for firms to buy workers out of their old contracts are possible options.

The government has already made a start in this direction, with efforts to consolidate myriad labor laws into a single comprehensive labor code. The recent Insolvency and Bankruptcy Code is a major advance which is expected to promote faster exit of unviable firms.

Identifying which—amongst the set of product and factor market reforms—is the most binding of constraints on firms is difficult. Constraints vary across locations and industries (box 9 discusses the case of the electronics industry). Moreover, the evidence suggests that supporting policies are complements, not substitutes. Obstacles in one area are likely to hold back the gains from reforming others. As noted earlier, one study shows that some of the potential gains from trade liberalization were lost because firms that benefitted from cheaper imported inputs **increased** their price-cost markups and did not fully pass on the gains to their consumers.<sup>140</sup> Another shows that the state-level variation in labor laws explains why some states benefitted more from product market reforms than others.<sup>141</sup>

#### Box 9: Boosting India’s Electronics Industry - What will it take?

The electronics sector is one of the world’s largest and fast growing industrial sectors. Between 2004 and 2009, electronics production rose by 5 percent, more than double global GDP.<sup>142</sup> The sector is an important driver of innovation and productivity, a source for the accumulation of technological capabilities and a catalyst for trade and investment. An important feature of the sector is that production is highly fragmented, and the ability to shift parts of the value chains to low-cost locations has created opportunities for developing countries to participate: Taiwan, China and Indonesia have all benefited from this. India, however, is currently not a significant player in the sector. Indeed, India’s lack of competitiveness appears to reflect more the inadequate provision of public goods that raise costs and increase lead times.

The most critical gap is in terms of connectivity infrastructure, both hard and soft. Internal logistics are long and unpredictable- firms report that while it takes 11 days for a container to travel from Shanghai to Mumbai, it takes 20 days for it to travel from Mumbai to Delhi. A quarter of the journey time is spent at check posts, state borders, city entrances, and other regulatory stoppages. Firms are forced to hold larger inventories to cope with the consequent unpredictability, which raises inventory costs. Barriers at state borders—set to reduce with the GST in place—create opportunities for delay and rent-seeking. Total logistics costs account for 14 percent of total costs for electronics firms

---

<sup>140</sup> Goldberg et al. (2016).

<sup>141</sup> Aghion et al. (2008).

<sup>142</sup> Lima (2012).

in India, higher than at competing locations.<sup>143</sup> Margins in the sector are usually small, and these additional costs can render firms uncompetitive.

For most developing countries, the availability of cheap labor is one factor that makes them attractive as a manufacturing destination. However, firms in India report that skill levels, even of graduates coming out of technical training institutions, is low; and they have to make significant investments on their own to bring them to acceptable levels. Some report investing as much as a year on training, ranking this among the highest they spend on this head in production locations around the world.<sup>144</sup>

For tight supply chains, such as in electronics, clustering of lead and supplier firms in close proximity is an important source of efficiency. However, clustering in India is rendered difficult because buying large tracts of land at suitable locations that often implies aggregating smaller plots of land is an arduous task. Verification of titles is complex and procedures for purchasing land take time. Registration of changes in ownership and the maintenance of revenue records are done by different departments.

The overall regulatory environment further increases costs. At entry itself, the need for multiple clearances for setting up a factory poses a major challenge. For instance, the time required for getting land allotted and for obtaining all clearances often adds up to between six and eight months in India, while in China those clearances would require no more than two to four weeks. Once firms are set up, they are burdened with excess paper work and compliance under multiple laws, that are often not very clear. Complex tax structures that impose substantial compliance costs hit all types of companies, but especially SMEs and start-ups.<sup>145</sup> While many of these concerns cut across sectors, they affect fast moving, supply chain driven sectors more.

There are also some sector specific issues. An important one is the lengthy and unpredictable import clearance procedures. Electronics manufacturing firms are highly dependent on imports, and customs clearance can reportedly take from 2-10 days for large firms, and 14-21 days for SMEs. Lengthy clearance times in part reflect cumbersome procedures involved in obtaining exemptions to import tariffs on raw materials and components by IT product manufacturers that, paradoxically, are intended to support the industry. Mechanisms to address grievances also can take considerable time, and companies fear reprisal.

Since product and labor market regulations differ across states, impetus from the states is critical. Competitive federalism is being used as the instrument to incentivize state governments to streamline their business processes and regulations. These are significant steps in the right direction. The cumulative impact of reforms will be fully realized when they are implemented in a coherent, predictable, and transparent manner.

To a large extent, India's progress on improving the climate for doing business is slow not because laws are not being reformed, but because follow-through in procedural reforms is slow. Even routine procedures are not followed consistently: firm surveys suggest that the time taken to get a simple business permit varies widely across firms in India, and there are large gaps between policies and ground realities.<sup>146</sup> Regulatory reform should be accompanied by institutional reforms that enable implementation of changes. Weak institutions and enforcement impede implementation of reform.

---

<sup>143</sup> Jordan and Kamphuis (2014).

<sup>144</sup> Narain (2016).

<sup>145</sup> Ernst (2014).

<sup>146</sup> Hallward-Driemeier and Pritchett (2015); NITI Aayog-IDFC Institute (2017).



Another area of institutional reform is contract enforcement, where India does particularly poorly in the Doing Business index global ranking. This is a major concern because interfirm supply chains—domestic or global—are increasingly important and are underpinned by contracts.<sup>147</sup> Non-Indian firms may hesitate to subcontract manufacturing work to Indian firms unless they can be sure that the contract is enforceable.<sup>148</sup> Similarly, weak enforcement of employment contracts can keep firms small and poorly managed. Weak enforcement also has implications for how firms organize themselves. One reason Indian firms remain family owned and managed is the belief that outsiders cannot be trusted with decision-making powers, often leading to inefficient management and curtailing firms’ productivity and growth.<sup>149</sup>

## Connecting Indian firms

### Embedding India in global trade

Greater global integration can help create productive jobs. International experience shows that access to international markets helps firms grow and become more productive through knowledge spillovers, quality upgrading, and innovation.<sup>150</sup> Most developing countries that have grown rapidly and transitioned to higher levels of development have done so through export led growth. In many ways, India is no different. The IT sector is the country’s most prominent industry on the world stage with India ranked as the top exporter of information and communication technology services. Manufacturing exports by contrast have been much less successful and have stagnated and even declined in recent years. Most of India’s manufacturing exports are in low value-added segments of the economy and comprise either processed commodities (31 percent) or low-technology manufactures (25 percent).<sup>151</sup> Overall India’s share of world merchandise exports is only 1.5 percent and its share of global services exports just 3.2 percent.<sup>152</sup>

Manufacturing exports have been shackled by myriad bottlenecks to trade and impediments to firm growth. Nontariff barriers to trade, logistical and trade facilitation bottlenecks, and poor transportation infrastructure add to the thickness of India’s international borders.<sup>153</sup> Although India has made progress in reducing tariff barriers to trade, trade is still impacted by substantial nontariff barriers. It has resorted increasingly to trade remedy measures such as antidumping and safeguard actions. Between 2011 and 2015, India initiated around 10 percent of global antidumping investigations and 17 percent of new safeguard investigations.<sup>154</sup> Empirical evidence suggests that these new types of trade defense have a negative impact on trade in the products they target.<sup>155</sup> Moreover, industries such as electronics and information technology (IT) hardware face an inverted tariff structure in which the tariff on the final good

---

<sup>147</sup> Bartelme and Gorodnichenko (2015); Dixit (2007).

<sup>148</sup> Johnson et al. (2002); Nunn (2007).

<sup>149</sup> Bloom et al. (2013).

<sup>150</sup> Atkin et al. (2016).

<sup>151</sup> <http://www.livemint.com/Opinion/dLu5DiBzJMyGf3e0r4oybK/No-Make-in-India-impact-visible-yet-in-exports.html>

<sup>152</sup> Lopez-Acevedo et al. (2016).

<sup>153</sup> Arvis et al. (2013).

<sup>154</sup> Calculations from WTO Trade Monitoring Database.

<sup>155</sup> Reis and Farole (2010) and Gregory et al (2010).

is lower than the tariffs on its inputs,<sup>156</sup> putting domestic manufacturers at a disadvantage. Exemptions to offset this disadvantage can be issued, but claiming them is cumbersome.

In addition, the poor quality of logistics and trade facilitation has also disadvantaged Indian firms in international markets. While India's ranking on the Logistics Performance Index has improved significantly, the index is biased toward the performance of the main economic gateways in the country, such as Mumbai, and may not capture the full costs and inefficiencies in moving goods internally. India's ports are barely able to cope with the rising volume of cargo because without a commensurate increase in capacity, congestion has increased at container ports. Despite improvements in economic efficiency, India's ports still lag top-performing ports such as Singapore, Hong Kong SAR, China, and Shanghai.<sup>157</sup>

Nor has it been possible to leverage export opportunities within the South Asia region which is the world's least economically integrated region. Intraregional trade accounts for less than 5 percent of India's total trade. This lack of integration limits India's access to regional energy resources, especially hydropower. It also prevents the country from seizing opportunities for increased trade and investment in South Asia and with economies in the Association of Southeast Asian Nations (ASEAN). The migration of manufacturing from China offers a golden opportunity for Indian firms to penetrate deeper into the global market. Tackling domestic constraints that impair competitiveness should allow India to reclaim manufacturing as a source of productivity and employment, notwithstanding concerns of automation (box 10).

#### Box 10: The Future of Manufacturing-Led Development

There are growing concerns that changing technologies may make manufacturing export-led development less accessible for a labor-abundant economy like India. The greater use of robotics, artificial intelligence and 'smart' factories may make it feasible for leading firms to re-shore labor-intensive manufacturing activities back to advanced economies, and closer to the final consumers. There is a great deal of uncertainty around the impacts of automation on employment, with estimates ranging from the truly staggering (more than half of all employment) to relatively modest levels of under 10 percent.<sup>158</sup> At the same time, China is expected to have more installed industrial robots than any country in the world by 2018, as a response to rising wage pressures.

Notwithstanding the uncertainty, it is clear that the impact of these technologies, however, will not be uniform across the manufacturing sector. India's nascent success in autos and electronics however may become hard to scale up – high rates of robotic use in such industries will place more developed manufacturing centers at an advantage. But in other sectors, potential opportunities for labor-intensive assembly will remain. Indian producers will continue to have opportunities to serve the global market in garments, footwear, leather goods and the like that require labor-intensive assembly on a large scale and have been slow to automate. There is also the possibility of leapfrogging regarding the use of technologies and advanced manufactured goods in the production of traditional manufactured goods.

India's large domestic market strengthens the case for the development of a robust manufacturing sector. For one, there are manufacturing products, such as construction materials that are bulky to transport or food processing

---

<sup>156</sup> Lopez-Acevedo et al. (2016).

<sup>157</sup> Herrera Dappe and Suárez-Alemán (2016).

<sup>158</sup> Frey and Osborne (2013) and Bowles (2014) estimate large potential job losses in the US and European Economies. World Bank (2016a) estimates that two-thirds of current jobs in a sample of developing countries could be at risk of automation. However, more recent research, that takes account of the automatability of tasks, not occupations, produce much lower estimates (World Bank, 2017c). None of these estimates account for the job creating impacts of technology adoption, adding to the uncertainty.

industries that require proximity to the raw materials. The benefits from India's large size could accrue to the production of lower quality, low priced goods for local or regional markets. India could also expand production of goods that are design-intensive, typically produced in small batches on short cycles and often cater to idiosyncratic taste differences – fashion garments and accessories, cosmetics, jewelry and some food industries for example. With 3D printing, this could mean additive manufacturing in close proximity to consumer markets, likely to the benefit of India's large domestic market with pockets of high purchasing power.

All that said, low wages in themselves will not be sufficient, even for traditional labor-intensive manufacturing when they are more than offset by other costs in the business environment. The quality of infrastructure and logistics, regulatory requirements, property rights and contract enforcement will warrant greater attention for India to compete with other countries in Asia and Sub-Saharan Africa. There are more demanding requirements in terms of skills, but India is perhaps better positioned than many other developing countries with its relatively high supply of engineers and its vast diaspora in science and technology. The skill-bias will likely go hand-in-hand with the increasing 'servicification' of manufacturing, with a resulting emphasis on the supporting eco-system too – a "smart" auto parts factory or a 3D printer to make spare parts places greater demands on ICT infrastructure, intellectual property rights, trade in data, and complementary services such as logistics, finance, consumer support etc.

Source: World Bank (2017c).

### Creating a single market within India

The size of the Indian economy together with its burgeoning population provide firms with significant opportunities to harness economies of scale and for new industries to develop that cater to the domestic consumer. Creating these opportunities will require policy reforms that improve connectivity, and eliminate barriers to the free flow of goods and labor across state boundaries. Significant progress has been made on both fronts. The completion of the Golden Quadrilateral (a highway network connecting many of the major industrial, agricultural, and cultural centers of India) in 2012 and the recent launch of the Goods and Services Tax (GST), which aims to remove tax barriers to trade between states, are major steps toward greater integration. The Golden Quadrilateral has led to significant industrial output growth and is estimated to have increased GDP by 2 percent by facilitating internal specialization and trade.<sup>159</sup> The GST—aimed at consolidating overlapping and complex central and state tax systems and creating, in effect, a common market for goods and services within the country—promises to transform domestic trade. It is estimated that moving to the GST could add up to 2 percentage points to GDP growth.<sup>160</sup>

Policies such as the GST that aim to remove tax barriers to trade between states need to be complemented with policies that ease and accelerate the real movement of goods between states.<sup>161</sup> Two-thirds of freight and 80 percent of passenger traffic move along roads. But road transport can be distressingly slow. Trucks in India travel an average of 250–300 kilometers (km) a day, compared with 450 km in Brazil and 800 km in the United States. Nor are the various modes of surface transport integrated in a manner that allows synergies and complementarities to emerge. As a result, access to consumers and input suppliers is costly for Indian firms, with internal trade costs accounting for as much as 30 percent of total trade costs.<sup>162</sup>

---

<sup>159</sup> Ghani et al. (2015); Asturias et al. (2014).

<sup>160</sup> NCAER (2009).

<sup>161</sup> Saigal and Guzder (2013); Sarkar et al. (2007); Government of India, Planning Commission (2014).

<sup>162</sup> Van Leemput (2016).

Logistics impose a disproportionately high cost on Indian firms (10–14 percent of net sales).<sup>163</sup> Added to this are state-level differences in product market regulation and tax systems that compound transactions costs. By one estimate, dismantling this regime could reduce logistics cost and transit time by 10–15 percent. It would also reduce fragmentation and increase competition in India’s inefficient logistics industry.<sup>164</sup>

To build a well-integrated domestic market India needs to develop an integrated logistics strategy that makes better use of the rail network and is fully aligned with its industrial and transport agenda. This will entail addressing missing links in the transport system, improving the integration of transport modes, introducing modern warehousing, streamlining customs formalities, and improving integration with logistics and industrial parks.

#### Box 11: Connecting people to opportunities

India also needs to eliminate barriers that prevent workers from moving to more productive places. The country has low rates of domestic migration, implying that people are not moving to better opportunities.<sup>165</sup> This hints at frictions and market distortions that prevent labor from moving to areas where returns are higher. Such misallocation of labor also reduces productivity growth.

The reasons for low rates of internal migration are not fully understood but studies point to a dependence on caste networks for insurance, and the risk of losing access to these.<sup>166</sup> Certain policies too could be inadvertently inhibiting labor mobility; suspects include the low inter-state portability of identification documents giving access to the public distribution system, and a bias for state residents in access to tertiary education and public sector employment.<sup>167</sup>

Taking people to opportunities also requires improving rural connectivity and within-city connectivity. Better rural connectivity can lead to higher incomes and more occupational choices. Transport infrastructure and all-weather roads within villages also foster female entrepreneurship.<sup>168</sup> Better rural roads can also improve educational and health outcomes.<sup>169</sup> Nearly forty percent of rural roads in India are unsurfaced, and poorer states have even lower levels of rural connectivity.<sup>170</sup>

### Financing Indian firms

India has introduced extensive reforms in the financial sector since the early 1990s. Interest rates have been liberalized; capital markets have been substantially deregulated, restrictions on capital inflows have been eased; private entry has been allowed into banking, mutual funds, insurance, and pension markets;

---

<sup>163</sup> Logistics costs for moving freight are as high as 14 percent of GDP, markedly more than 8–10 percent for most advanced economies (Aritua, 2016).

<sup>164</sup> Rustagi et al. (2016).

<sup>165</sup> In a cross-country comparison of internal migration rates between 2000 and 2010, Bell et al. (2015) shows that India ranks last in a sample of about 80 countries. Analysis of the 2011 Population Census data suggests an uptick in the rate of internal migration (Government of India, Ministry of Finance 2016). These figures pertain to long-term, not seasonal, migration.

<sup>166</sup> Munshi and Rosenzweig (2016).

<sup>167</sup> Kone et. al. (2016); Kim and Nayyar (2016).

<sup>168</sup> Ghani, Kerr, and O’Connell (2013).

<sup>169</sup> Bell and van Dillen (2014); Banerjee and Sachdeva (2015).

<sup>170</sup> Analysis of data at <http://www.omms.nic.in/>

prudential norms have been tightened; and supervisory systems have been strengthened. The state has influenced financial market development through its ownership of banks and other financial institutions.

Over the past few years, however, vulnerabilities have built up and are threatening the private investment needed to power India's growth. The immediate challenge is one of twin balance sheet weaknesses—stressed assets of banks and over-leveraged companies. The problem is particularly acute in public sector banks, which account for nearly three-quarters of banking assets. By September 2016, nonperforming assets in public sector banks had reached almost 12 percent of total advances, significantly higher than in private banks or the high levels experienced in the Republic of Korea during the East Asian financial crisis. On the corporate side, 40 percent of debt was owed by companies that did not earn enough to pay the interest on their loans.<sup>171</sup> Large volumes of nonperforming assets are concentrated among fewer than 50 creditors, but banks have been slow to initiate default proceedings. Worryingly, corporate stress is spreading to smaller companies.<sup>172</sup>

The spreading and deepening of corporate stress during a period of rapid development suggests that economic growth will not make the problem go away. Strains are showing, as corporations are reluctant to invest and public sector banks lack the capacity to make fresh loans. Private investment has started to contract, and real credit growth has been slow in the past few years. Medium enterprises already have limited access to credit because of higher risk perceptions and limited immovable collateral—formal sources cater to only 22 percent of total MSME debt financing.<sup>173</sup> With private credit at 52 percent of GDP in 2014, India lags its BRICS peers. The latest of several measures introduced recently to help banks deal with distressed assets amends banking regulations to permit the central bank to get more deeply involved in asset resolution.

Solutions to this problem will need to be mindful of moral hazard risks of condoning financial imprudence. A failure to recover bad debt through restructuring and other arrangements, would weaken market discipline and signal to the small number of firms and individuals who hold these debts, that loans can be defaulted with impunity. Solutions which rely on tax payer relief for banks would encourage profligate lending yet again, ignoring the lessons of the past.

To set the right fundamentals for future financing, a long-term vision for the state's footprint in the financial sector is needed, to optimize capital allocation, risk sharing, and other instruments available to the public sector for achieving development objectives. Public sector banks will need to be reformed, and broader space created for well-regulated private banks and non-bank financial institutions. Further work needs to be done in strengthening financial market regulation and supervision. This includes a range of measures, from improved loan classification and risk measurement, to enshrining risk-based supervision approaches

---

<sup>171</sup> Public sector banks are dominant providers of credit to corporates while private banks are more retail oriented. Other regional banks and cooperative credit institutions provide financial services to low- and middle-income households. Nonbanking financial companies have expanded from a low base, and are now also engaging in traditional (non-deposit-taking) banking services. Other financial subsectors, such as insurance and pensions, are still dominated by the state.

<sup>172</sup> Government of India, Ministry of Finance (2017).

<sup>173</sup> IFC (2012).

in banking, insurance, and capital markets, to enhanced corporate governance and prudential regulation and oversight by the regulators of financial firms and infrastructure.

At the same time, the country's capital markets need to be further developed. Measures to deepen the domestic corporate bond market include developing bondholder protection mechanisms, improving liquidity in the secondary market, and rationalizing stamp duties on bond issuances. Easing investment restrictions and opening the financial system to private domestic and foreign investors would also be desirable.<sup>174</sup>

Financial deepening has risks, however. Proceed too slow and growth may remain subdued, as in Indonesia. Proceed too fast and the surplus of funds may induce unproductive investments, as in Japan and China, further leading to corporate failures. The challenge for financial sector policymakers is to find that alluring sweet-spot between affordable and available credit that can stimulate rapid investment while assuring financial stability.

### Building human capital

Upgrading India's human capital is essential to ensure a more productive workforce that is skilled, educated, healthy, and entrepreneurial.<sup>175</sup> The expansion of these basic aspects of human capabilities also improves the quality of life. This will require the government to make smart investments to equalize opportunities by improving the quality of health care and education, particularly in the early years.

### Upgrading skills

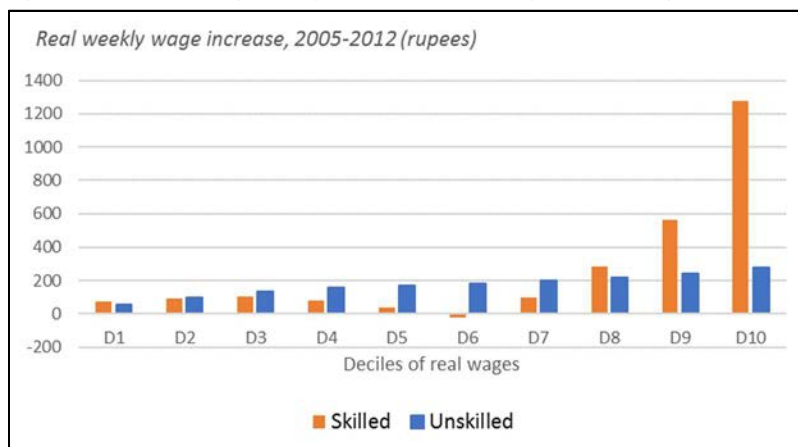
The high wage growth in the top 10 percent of jobs reflects the increasing scarcity of highly skilled labor in the service sector (figure 13). Over the past decade, high growth rates of sectors such as IT have depleted talent pools, producing labor shortages in high-skilled jobs and driving up salaries. Requirements for a more, and differently, skilled workforce are set to grow as work is disrupted by automation and other technological change.

---

<sup>174</sup> Offshore Masala bonds and onshore Maharaja bonds are recent examples of innovative finance attracting new classes of investors, lengthening maturities, developing yield curves, and mobilizing long-term rupee financing for infrastructure needs.

<sup>175</sup> Causality can of course run in both directions. Students and parents may choose to not invest in post-schooling education or formal training if jobs are few, or skills go unrewarded. Firms may not grow, and jobs not materialize, if a short supply of skills starts to become a binding constraint. Lack of skills has not been a major constraint for unskilled workers (especially in rural areas), who have seen the steepest real wage gains over the past two decades.

Figure 13: Increasing skills premium at the top of the wage distribution



Source: NSS Employment Unemployment Surveys.

India is among the top five countries with the highest skill shortages, with nearly two-thirds of surveyed firms reporting difficulty finding qualified employees.<sup>176</sup> Nearly half of all employers report unfilled job vacancies due to talent shortages.<sup>177</sup>

Over the years, the government has introduced several schemes to deliver and upgrade skills through a formal technical and vocational education and training system. But the scale and impact of formal post-school education and training remains modest, with less than 3 percent of the workforce undergoing formal skills training, and about only 9 percent acquiring skills through informal apprenticeships and on-the-job training. The vast majority of informal workers have no access to formal training. Efforts have been stepped up through initiatives such as Skill India and Make in India.

Evaluations of training programs suggest that linkages with industry are weak and outcomes are uneven across programs, contexts, and trainees.<sup>178</sup> The high unemployment of educated labor suggests fundamental mismatches between training programs, the demands of industry, and worker preferences.<sup>179</sup> High attrition rates in training programs could reflect incentives skewed by the public sector labor market.<sup>180</sup> Many young people in India aspire to be in the public sector. Millions spend several years preparing for entrance exams to various government jobs, and unemployment rates for men do not start to drop off until after age 30 (the age limit for entry into many government jobs).<sup>181</sup> With a high wage

<sup>176</sup> OECD (2016).

<sup>177</sup> Talent shortage survey: <http://economictimes.indiatimes.com/jobs/48-of-indian-employers-up-against-talent-shortage/articleshow/54913657.cms>

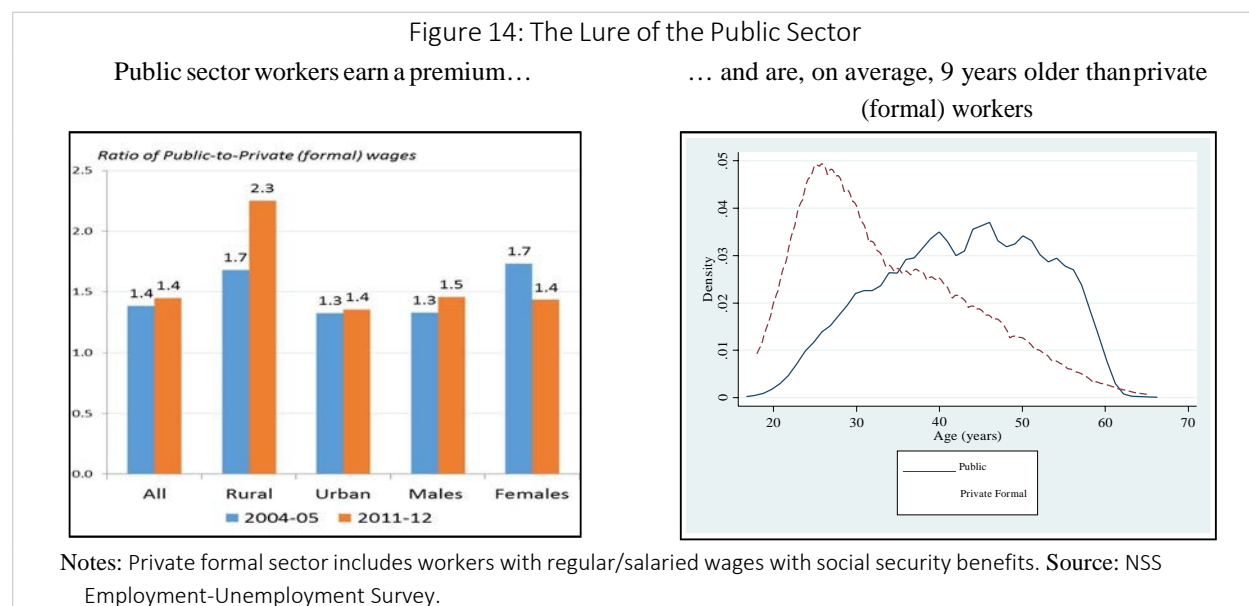
<sup>178</sup> A study evaluating the impact of five national skill development programs in five states found that compared with a matched group, those undergoing training had a significant but modest employment advantage and earned higher wages (World Bank, 2015).

<sup>179</sup> About 30 percent of youth aged 15-29 years are neither employed, nor in education or training (OECD, 2017).

<sup>180</sup> Muralidharan (2016).

<sup>181</sup> In 2015, 2.3 million people applied for 368 vacancies for peons in the public sector in the state of Uttar Pradesh. In the Kanpur municipal corporation, 700,000 people applied for 3275 vacancies for sanitation workers. Half a million of the applicants were graduates and post-graduates (Naqvi, 2016).

premium on public sector jobs and extraordinary job security (figure 14), this may be a rational strategy for individuals, but it is socially wasteful. Distortions and inefficiencies in the public sector labor market also contribute to suboptimal outcomes on service delivery and constitute one of the main governance problems facing India (see section 5).



## Investing in the foundations

India has made substantial gains in health and education outcomes in the last couple of decades but deep challenges remain around issues of quality and opportunity. From 1991 to 2013, life expectancy at birth increased by more than seven years, the infant mortality rate fell by half, the share of births in health facilities more than tripled, the maternal mortality ratio fell by about 60 percent, and the total fertility rate fell to almost replacement level. The education system also expanded rapidly, with nearly 133 million children enrolled in primary grades<sup>182</sup> and another 66.5 million in upper primary grades, leading to gross enrollment ratios of 100 and 95, respectively.

National averages mask disparities across social groups, states, and rural-urban areas, reflecting inequalities in opportunity to access basic services (box 12). Eight low-income states account for 50 percent of India's population but 71 percent of infant deaths, 72 percent of under-five mortality, and 60 percent of stunting.<sup>183</sup> Child stunting ranges from 2 in 10 children in Kerala to about 5 in 10 in Uttar Pradesh and Bihar.<sup>184</sup> Infant mortality among STs is 26 percent higher than the rest of the population, and maternal

<sup>182</sup> DISE (2006, 2014).

<sup>183</sup> UP, Bihar, Rajasthan, MP, Jharkhand, Odisha, Chhattisgarh and Assam.

<sup>184</sup> More than two-thirds of maternal deaths and more than one-half of neonatal deaths occur in four states: Uttar Pradesh, Bihar, Rajasthan, and Madhya Pradesh (Government of India MOHFW, 2016).



mortality, 63 percent higher.<sup>185</sup> Girls have an acute survival disadvantage.<sup>186</sup> Interstate differences in educational achievements in secondary grades are also large for girls and for STs.

#### Box 12: Inequality of opportunities

Opportunities in education are better than in health or sanitation, as measured by the Human Opportunity Index (HOI).<sup>187</sup> The HOI for access to key services for health and nutrition is below 30 percent for full immunization or institutional births, and below 40 percent for improved sanitation.<sup>188</sup> Access to primary education is far better (HOI for primary school completion: 80 percent), reflecting the drive toward universal enrollment and the rising demand for education. The picture is less encouraging for access to secondary school, where the HOI for completion is below 50 percent. And children from disadvantaged groups who get access to higher education through affirmative action are still vulnerable to bias and prejudice from their peers.<sup>189</sup>

Several population groups receive systematically lower coverage of basic services. Children residing in rural areas fare worse than those in urban areas with regard to basic health services. Gender gaps in coverage are small in primary education and basic health services, though the gap widens through secondary school completion. Overall, parent's education, location, and caste are the most important circumstances behind inequality in access to health, education, and infrastructure.

The intersection of social and spatial exclusion means that traditionally excluded groups such as the STs are concentrated in areas that have lagged behind. For instance, the tribal population of the low-income states of Odisha, Jharkhand, Chhattisgarh, Rajasthan, and Madhya Pradesh comprises 49 percent of the ST population of India. States such as Uttar Pradesh, Haryana, Punjab, Himachal Pradesh and West Bengal have a more than 20 percent share of SCs in their population.

Not all states with high proportion of SCs or STs are necessarily doing poorly in aggregate terms. For instance, almost one-fourth of the population of Himachal Pradesh comprises SCs, but outcomes for the state in general and for SCs and STs have been much better than in other states. Similarly, STs living in the Schedule VI areas of the northeast have much better outcomes in poverty, education and health, than STs who live in the "Hindi-belt."

There is considerable heterogeneity within states and even within districts. The reasons for such heterogeneity along spatial and social lines are unclear, though hypotheses range from historical circumstance, to diverse policy regimes and to different institutional structures, incentive systems and local accountability to citizens.

Although opportunities have been improving, these advances are often driven by greater coverage, with less progress on reducing inequalities across groups. Moreover, the magnitude of improvement in access to services may overstate the improvement in equity. This is because the quality of health and education services is likely to vary considerably across population groups, and these differences may not have reduced substantively.

---

<sup>185</sup> Bang (2016).

<sup>186</sup> The risk of dying at between 1–5 years in the 2000s is 75 percent higher for girls than boys (UN DESA, 2011).

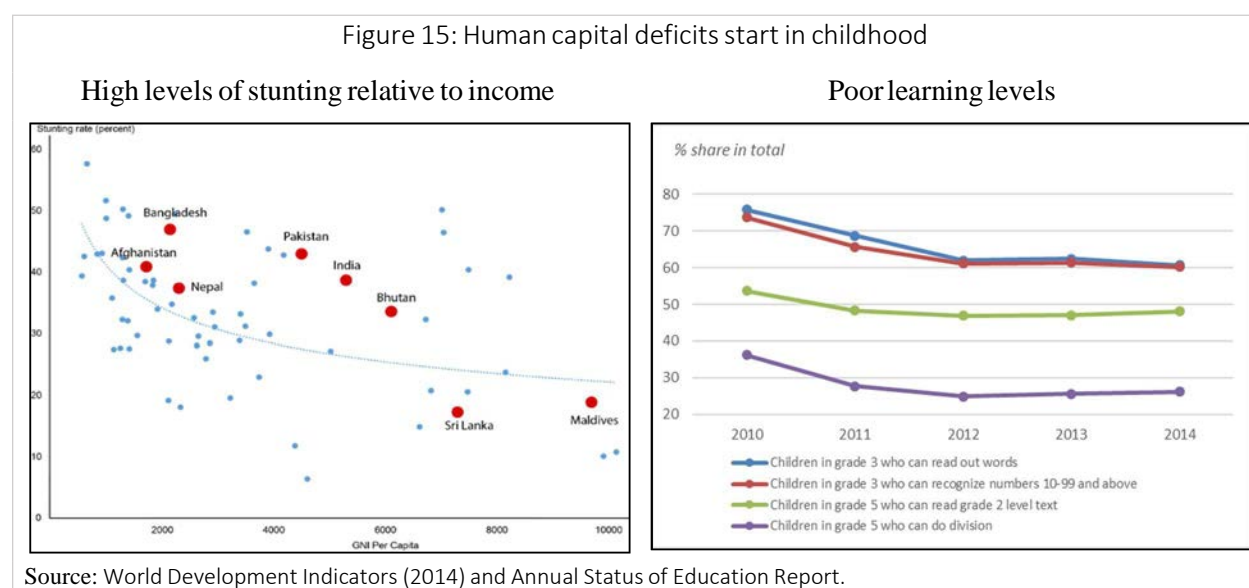
<sup>187</sup> The HOI—computed by multiplying the coverage rate of a service by a measure of the dispersion of access across different population groups—is a synthetic measure of the extent of equality of opportunities. The HOI varies from zero, when nobody has access to services or the dispersion is extremely high, to 100 when everybody has access, and it increases when coverage expands or becomes more equitable (Paes de Barros et. al., 2009).

<sup>188</sup> Rama et al. (2015). Sanitation HOI takes account of both access and use of latrines (Hathi et al. 2016).

<sup>189</sup> Deshpande (2016).

Bringing more children into school has brought to the fore the challenge of improving learning outcomes (figure 15). Students do not acquire grade-appropriate levels of learning and leave school or move to a higher grade without mastering grade-appropriate knowledge and skills.<sup>190</sup> This is indicative of deeper problems with the education system that calls for systemic reform of the way teachers are trained, hired, held accountable and penalized or rewarded.

One of the ways in which the teaching-learning relationship breaks down is that children arrive in school unprepared to learn. This is also true in India because stunting (low height-for-age), is a marker of cognitive impairment, affects 39 percent of all under age five children, and as many as 60 percent of children in poor households are stunted.<sup>191</sup> Child malnutrition is known to have long-lasting negative effects: poor mental development, behavioral abnormalities, a reduced capacity to work, and lower incomes. Improved nutrition in early years can raise adult wages by 5–50 percent, and nonstunted children born into poverty are 33 percent more likely than stunted children to escape poverty as adults. Reductions in stunting could increase GDP by 4–11 percent in India.<sup>192</sup>



Several factors underlie India's poor performance. Public expenditure on health is low, with heavy reliance on out-of-pocket payments—the most inefficient and inequitable form of health financing--by households.<sup>193</sup> Public spending on education has risen with successive governments investing heavily

<sup>190</sup> India does not participate in international assessments, but test scores on the government's national assessments show poor mean achievement at all grade levels, a decline over time for the same grade, and a decline between lower and higher grades. Data from the Annual Status of Education Report, a household-based survey of children living in rural areas, confirm the poor learning levels.

<sup>191</sup> India ranks 114 out of 132 countries on under-5 stunting, 120 out of 130 countries on under-5 wasting (IFPRI, 2016).

<sup>192</sup> Shekar et al. (2017); Horton and Steckel (2013).

<sup>193</sup> Government health expenditure has remained constant at around 1 percent of GDP (1.4 percent in 2014, compared with 2.4 percent in middle-income countries and 3.1 percent in China). Total health expenditure, at 4.7 percent of GDP, is slightly higher than the average for lower-middle-income countries (4.5 percent), but nearly two thirds (62.4

through national schemes such as the Sarva Shiksha Abhiyan (SSA) and Rashtriya Madhyamik Shiksha Abhiyan (RMSA).

But public service delivery is riddled with inefficiency. Per capita public health expenditure and health outcomes and outputs across states are weakly correlated. Rural healthcare spending has increased through the National Rural Health Mission, but the fee-charging private sector continues to dominate the provision of health services, even in India's poorest rural regions.<sup>194</sup> After more than a decade of rising public investment in education, school availability and input-based measures of quality have improved. Despite these investments, there has been no improvement in the quality of education measured through test scores and the enrolment in government schools has been shrinking. The cost-effectiveness of government expenditure has been worsening over time: between 2011-12 to 2014-15, the annual per pupil expenditure in government schools increased by up to 253 percent, while aggregate learning outcomes for Class V students declined by 6 to 33 percentage points.<sup>195</sup> The typical Indian state spends twice as much per year of schooling as parents spend to send their children to private school; adjusting for the higher learning outcomes in private schools, public sector costs of delivering basic education are five times too high.<sup>196</sup> A similar story can be told for health, where a study in rural Madhya Pradesh estimates that cost per patient interaction was at least four times as high in the public sector, without commensurately higher outcomes.<sup>197</sup>

Like education, in health the key, systemic problem is not whether people can access healthcare providers, but whether that access is of sufficient quality to be of any value to their health status. The average Indian village has nearly 6 health care providers and the cost of a single interaction with a private primary care provider in India ranges from US\$ 50 cents to US\$2.<sup>198</sup> That would be anywhere from 10 percent to 40 percent of the minimum daily wage of an unskilled urban worker, or between 11 percent and 80 percent of the daily wage of a rural unskilled worker.<sup>199</sup> These numbers, suggest both ready availability and relative affordability of private care. But, only 4 in 10 people reporting symptoms of a heart attack to a health care provider would be correctly diagnosed as heart attack cases; 80 percent of children suffering from viral diarrhea would be incorrectly given antibiotics and; less than 25 percent of the poor who are suffering from hypertension even know that they have this condition.<sup>200</sup>

Relatively low-cost maternal and early-life health and nutrition programs offer very high returns on investment, and the success of subsequent interventions—schooling and training—is influenced by early-life development. A growing literature shows how poor water supply and sanitation contributes to

---

percent) is financed by household out-of-pocket payments, compared with 58 percent in lower-middle-income countries and 41 percent in middle-income countries.

<sup>194</sup> The private sector is the predominant source of care in India. More than 70 percent of outpatient visits in rural areas and almost 80 percent in urban areas are to providers outside the public health system.

<sup>195</sup> Kingdon et al. (2016).

<sup>196</sup> Pritchett and Aiyar (2014).

<sup>197</sup> Das et al. (2016).

<sup>198</sup> Preliminary results from the Medical Advice, Quality and Availability in Rural India (MAQARI) study (CPR Policy Brief, 2011).

<sup>199</sup> [http://www.delhi.gov.in/wps/wcm/connect/doi\\_t\\_labour/Labour/Home/Minimum+Wages/](http://www.delhi.gov.in/wps/wcm/connect/doi_t_labour/Labour/Home/Minimum+Wages/)

<sup>200</sup> Coarasa and Das (2015).

undernutrition by transmitting pathogens and infections that inhibit nutritional uptake. While considerable progress has been made on providing access to latrines, weak demand is a problem: people in households with latrines often choose not to use them.<sup>201</sup> Experimentation is needed to find effective ways to raise awareness of the benefits of latrine use and to change behavior. Ending stunting calls for multisectoral interventions, with coordinated action in early childhood development through health, nutrition, sanitation, gender equality, and access to safe drinking water (box 13).

#### Box 13: Addressing malnutrition – what will it take?

A set of 10 interventions—related to nutrient supplementation and counseling and targeted to adolescent girls, pregnant women, infants and children up to two years—have been identified as core elements of a strategy to improve nutrition. Scaling up seven of them<sup>202</sup> to reach 90 percent of the population, alongside improvements in the underlying determinants of stunting,<sup>203</sup> would enable a 40 percent reduction in stunting by 2025.

The recently released National Nutrition Strategy seeking to scale up interventions targeting infants, adolescents, women, and communities is well aligned with the global evidence base. Importantly, it also proposes a set of core strategies focused on how to improve program delivery recognizing that while interventions are not new, the Achilles heel has been implementation.

The experience of other countries shows that with concerted attention and coordinated action, rapid progress is possible. Take the case of Peru which halved in seven years the stunting rate from 28 to 14 percent, with significant gains amongst the more marginalized groups. A set of coordinated efforts enabled this significant reduction: high level political commitment under the ‘5X5X5’ program (aimed at reducing stunting in children under 5 by 5% within 5 years); developing a body of evidence on factors influencing nutrition outcomes; country wide media campaigns to reach all households emphasizing the importance of nutrition in children under 5 along with available health and nutrition services. This was complemented by a robust monitoring system linked with a performance incentive mechanism to recognize improvements in coverage and delivery of services critical in improving nutrition. A multi-sectoral effort, spearheaded by the Ministry of Finance and the Prime Minister’s office, strengthened the link between the existing conditional cash transfer program **JUNTOS** and the supply of health and nutrition services. This contributed to more than doubling the uptake of regular child health and nutrition checkups in rural areas, from 20 percent in 2008 to 58 percent in 2013.<sup>204</sup> In addition, the Initiative Against Child Malnutrition, or *Iniciativa contra la Desnutrición Infantil (IDI)*, a collective effort of 20 development organizations in Peru played a major role in coordinating efforts towards reducing malnutrition in the country.

In education, interventions that have shown promise in improving foundational learning in schools are curricula that promote reading and numeracy skills in the early school grades, provision of adequate reading materials, remedial instruction, teacher training, and classroom practices that engage students at their current levels of learning. Teachers should be trained to focus on teaching children the mechanics of

---

<sup>201</sup> A five-state survey uncovers the complexity of addressing open defecation, with 47 percent of those doing it reporting that it is pleasant, comfortable, or convenient (Coffey et al., 2014).

<sup>202</sup> The nutrition-specific interventions include: Antenatal micronutrient supplementation, infant and young child nutrition counselling, Balanced energy-protein supplementation for pregnant women, Intermittent presumptive treatment for malaria in pregnancy in malaria-endemic regions, vitamin A supplementation for children, Prophylactic zinc supplementation for children, Public provision of complementary foods for children. (Shekar et al., 2016)

<sup>203</sup> These include food availability and food diversity; women’s health status, education and empowerment; WASH

<sup>204</sup> Shekar et al. (2017).

reading and basic computation within the first two grades, with less emphasis on completing the prescribed curriculum for its own sake.<sup>205</sup>

At its core, improving outcomes will require a shift from attaining specific benchmarks (such as numbers of doctors or teachers per a given population) to building capacity and accountability of service providers. A study from Bihar, one of India's poorest states, shows that teacher capacity is extremely weak. Of the 2200 elementary school teachers tested on competencies relevant to grades 4-6, mean scores were less than 40 percent in language and less than 60 percent in math.<sup>206</sup> In the state of Madhya Pradesh, over three-quarters of all primary care visits were to providers without any formal medical training; only 4 percent were to providers with an MBBS degree.

It is worth emphasizing that the quality of education and healthcare is even worse than would be suggested by the levels of teacher training or medical knowledge of healthcare providers. Widespread absenteeism among both teachers and health workers, with variations across states, has been documented for over a decade.<sup>207</sup> Even when present, many teachers do not use their time effectively in the classroom.<sup>208</sup> Studies show that medical knowledge does not necessarily translate into high-quality health care practice; some studies find no significant difference in the quality of care provided by people in the private sector with informal training and by fully trained doctors in the public sector.<sup>209</sup> Public sector doctors who also operate private clinics are more likely to provide better care in their private clinics than in the public facility.<sup>210</sup> The lower effort (compared to the private sector) in public clinics appears to offset the benefit of more qualified providers in the public sector. Even in the private sector, there is a large and significant gap between knowledge and practice of medical practitioners.

The ability to incentivize provider performance through a “higher pay for more performance accountability” is severely curtailed by the fact that pay for frontline providers in the public system is already very high. Take the example of teachers. The bulk of public expenditures go to teacher salaries that are many multiples of private school teacher wages. Government school teachers are paid three times what China pays its public-school teachers and 25 times what private schools pay in India. Private schools also elicit greater teacher effort and demand greater teacher accountability, as seen from lower teacher absence rates in private than in government schools.<sup>211</sup>

Hiring contract teachers (at lower pay) has not proved to be a viable long-term solution as governments face pressure for “regularization” and contract teachers do not have a viable career path to motivate performance. Increasing monitoring of teacher performance, by the administration and by communities, is likely to yield substantial returns. This will require robust data systems that provide feedback to policymakers and communities (thereby strengthening voice) on results. Several efforts have been made

---

<sup>205</sup> Banerjee et al. (2005); Banerjee et al. (2016), World Bank (2017f).

<sup>206</sup> Sinha et al. (2016).

<sup>207</sup> Muralidharan et al. (2016a) find that teacher absence in rural areas has declined only from 26 percent to 24 percent, in the same schools surveyed in 2003 and 2010. Studies such as Banerjee et al. (2004) in Rajasthan and Dhaliwal and Hanna (2017) show that absence of staff at health clinics is worse.

<sup>208</sup> Sankar and Linden (2014); Educational Initiatives (2016).

<sup>209</sup> Das et al. (2012).

<sup>210</sup> Das et al. (2016).

<sup>211</sup> Pandey et al. (2008); Kingdon (2014).

in this direction which should be sustained and expanded— for instance, the federal government is benchmarking performance on health outcomes across states and ranking public district hospitals; some state governments are strengthening village health and nutrition committees as mechanisms for social accountability; and class and subject-matter minimum learning benchmarks are planned to be included under the Central Rules of the Right of Children to Free and Compulsory Education Act of 2009.

While challenges and solutions are country-specific, the recent World Development Report (WDR) on education shows that many countries, including India, are facing a severe learning crisis. Levels of learning are low, not just in low-income countries, but also in several middle-income countries. At the same time, inequalities in learning outcomes are high. And improvements in system-wide learning are often slow.<sup>212</sup>

Box 14 summarizes lessons for the sets of policy actions that, from international experience, are important to improve foundational learning.

#### Box 14: Three Policy Actions to Address the Crisis

**First, assess learning, to make it a serious goal.** Countries need to put in place a range of well-designed student assessments to help teachers guide students, improve system management, and focus society's attention on learning. These measures can spotlight hidden exclusions, inform policy choices, and track progress.

**Second, act on evidence to make schools work for all learners.** Countries should start by targeting areas with the largest gaps between what happens in practice and what evidence suggests works for learning. The best place to start is these three key areas:

- Prepared learners. Reduce stunting and promote brain development through early nutrition and stimulation (as in Chile) so children can learn. Support disadvantaged children with grants to keep them in school (as in Cambodia)
- Skilled and motivated teachers. Attract talented people into teaching (as in Finland and Shanghai). Use repeated, specific teacher training reinforced by mentors instead of the ineffective one-off methods that are more common.
- Inputs and management focused on teaching and learning. Deploy technologies that help teachers teach to the level of the student (as in Delhi, India). Strengthen the capacity and powers of school management (as in Indonesia), including principals.

**Third, align actors, to make the whole system work for learning.** Even evidence-based classroom innovation may have little impact if system-level technical and political factors prevent a focus on learning. Countries can escape low-learning traps by acting on three fronts as they implement reforms:

- Deploy information and metrics to make learning politically salient (as in Brazil and the NGO-led ASER and Uwezo programs have done in India and East Africa)
- Build coalitions to shift political incentives toward learning for all (as in England since 1999 and what Chile did early in its decades-long education reforms, or as Malaysia and Tanzania did recently with collaborative society-wide reform 'labs')
- Use innovative and adaptive approaches to find out which approaches work best in their context (as Misiones Province in Argentina did when drop-outs were high or Burundi did during post-conflict reconstruction).

Source: World Bank (2017f).

---

<sup>212</sup> In fact, across all countries participating in multiple rounds of the PISA assessment since 2003, the median gain in the national average score from one round to the next was zero (World Bank, 2017f).

## Protecting the vulnerable

When individuals are trapped in poverty, the creation of new jobs, or the provision of training opportunities, will not be sufficient to lift them out of destitution.<sup>213</sup> Entrenched poverty can create a vicious cycle of misfortune that traps its victims in adversity even when better opportunities are available. For instance, a very poor farm household when faced with a shock to its income, may be compelled to take what may seem like a “bad” decision (say, plant more crops in a drought), simply to survive.<sup>214</sup> Likewise deprivations in infancy may prevent a child from growing to her full cognitive potential, resulting in lower levels of education, wealth and health as an adult, which in turn can be transmitted to the next generation. More generally when conditions experienced by an individual today, determine economic prospects tomorrow, a poverty trap can ensnare people in immutable circumstances that perpetuate deprivation.<sup>215</sup>

In these situations, even the best markets and opportunities, may be insufficient to lift the deeply deprived out of poverty. Instead what is required are well-designed and implemented social protection systems that complement the economic transformation process by addressing these market and policy failures.

In India despite sustained growth and poverty reduction in recent years, vulnerability remains high even in economically advanced states.<sup>216</sup> The divergence in income and social indicators across and within states has also increased the diversity of social protection needs in different parts of the country. Basic subsistence needs and services remain the priority in some areas, while others face second-generation challenges of diversifying social protection instruments to deal with structural transformation and the new risks and vulnerabilities that it brings.

Recognizing these challenges, India has established an elaborate social protection architecture which continues to focus on alleviating chronic poverty through rural safety nets. The two largest programs, the Public Distribution System (PDS) and the Mahatma Gandhi National Rural Employment Guarantee (MGNREG) program, absorb more than 2 percent of GDP and account for more than half the spending on safety nets.<sup>217</sup> The PDS provides subsidized food and fuel to more than 65 million households, with access for the poor guaranteed under the National Food Security Act. The MGNREG program provides a legal guarantee of up to 100 days of employment on public works to all rural households, creating rural assets and providing crucial insurance benefits against shocks.<sup>218</sup>

---

<sup>213</sup> Banerjee and Duflo (2011).

<sup>214</sup> For instance, this would occur if risk neutral agents are compelled to meet a threshold (say) survival level of income, as is commonly modeled in the “safety-first” literature.

<sup>215</sup> This could occur for any number of reasons – an inability to obtain food, seed, medicine, equipment, etc. that often arise due to nonconvexities (such as a minimum purchase size, or a fixed cost, or credit constraints).

<sup>216</sup> Dang and Lanjouw (2015) show that around 40 percent of the population was vulnerable to falling back into poverty in 2012, with consumption levels close to the poverty line.

<sup>217</sup> There are approximately 950 central and centrally sponsored schemes, a significant share of which are related to the social sector and social protection. The top 10 account for almost half of the total annual budget allocation (Government of India, Ministry of Finance, 2016).

<sup>218</sup> Increased utilization of the scheme, particularly in the less developed states, in the months following demonetization is suggestive of the insurance role being played by the scheme (Government of India, Ministry of Finance, 2017).

The performance record is mixed. There is vast heterogeneity in implementation, with consequences for where there are intended impacts. Paradoxically, often the schemes have worked less well in poorer states where they are needed the most. Despite major gains in PDS coverage, inclusion of the poorest and most vulnerable in the low-income states remains low.<sup>219</sup> Due to the MGNREG, rural private sector wages seem to have increased but key questions on the overall impacts of rural productivity remain unanswered.<sup>220</sup> There are high levels of unmet demand, particularly in the lower income states. While leakage appears to be declining, the predictability of timely payments remains a concern.

While protective programs have received a major boost through the enactment of entitlements, the government has also begun to invest in preventive instruments, such as insurance in the informal sector to deal with unexpected healthcare costs, accidents, and deaths.<sup>221</sup> In addition to expanding the reach of preventive programs, the program mix should evolve from the dominant rural focus to service an increasingly urbanizing and mobile population. In places with well-functioning markets, this would be made easier with a shift to benefits in cash rather than in kind.

Another concern is the imperfect targeting of assistance. Delinking program eligibility from flawed “below poverty line” lists is a step in the right direction. Drawing on the Socio Economic and Caste Census to develop a social registry could identify vulnerable individuals and families eligible to receive benefits, with lists tailored to the objectives of each program. Direct benefit transfers have the potential to improve the delivery of core safety nets but early experience points to implementation challenges that need to be overcome for inclusive and efficient programs (Box 15).

#### Box 15: Direct Benefit Transfers

Direct Benefit Transfer (DBT) is a GOI initiative to transfer cash benefits such as wage payments, subsidies and other government transfers directly into the bank accounts of beneficiaries through electronic payment systems. DBT was designed with the objective of minimizing delays in fund flows, parking of funds along the delivery chain, and curbing leakage and duplication. As of December 2016, 84 schemes (16 per cent of the target) across 17 departments and ministries were using DBT. Three schemes – MGNREG, LPG subsidies and pensions under the National Social Assistance Program – make up the bulk of DBT, together accounting for 90 per cent of funds transferred through DBT. Scholarship programs accounted for 8 per cent of the total DBT funds transferred.

The DBT initiative in combination with the Prime Minister’s Jan Dhan Yojana (PMJDY) has created greater momentum in expanding financial access and digital payments in India. Under the PMJDY, more than 250 million no-frills bank accounts have been opened since the scheme’s inception. The gender gap and the gap between richer and poorer adults in account ownership has shrunk rapidly due to this strong government push.<sup>222</sup> An assessment carried out soon after the scheme was initiated found that a significant fraction of PMJDY account holders reported that this was

---

<sup>219</sup> World Bank (2017a).

<sup>220</sup> Sukhantar (2016).

<sup>221</sup> The government launched two new co-contributory social insurance schemes in the 2015 budget, Pradhan Mantri Jeevan Jyoti Bima Yojana and the Pradhan Mantri Suraksha Bima Yojana, to provide insurance for disability, death, and accidents. Another program launched at the same time, the Atal Pension Yojana, provides pensions to those in jobs that do not allow access to formal sector provident funds and pensions.

<sup>222</sup> Demircuc-Kunt et. al. (2018).



their first bank account.<sup>223</sup> Recent regulatory changes have led to the creation of new licenses for financial intermediaries, many of them microfinance institutions, to expand access to finance for the underserved population.

Evidence from early experiences with DBT for social protection programs remains limited and mixed. Piloting biometrically authenticated pension and MGNREG payments in Andhra Pradesh demonstrated drops in leakage, motivating the authors to label digital payments a ‘game changer for governance in India’.<sup>224</sup> Despite debates on fiscal savings, use of DBT in the case of LPG subsidies appears to also have reduced leakage.<sup>225</sup> However, recent process assessments from three Union Territories where governments are transferring food subsidies through DBT show that uptake can be constrained by limited financial literacy and access to banking networks, even in urbanized environments.<sup>226</sup> For example, the survey finds that, on average, transaction costs (time and money) incurred for accessing and using cash-transfers were higher than the costs incurred by collecting in-kind food rations directly. In particular, the role of Aadhar in delivering benefit transfers has come under significant academic, legal and civil society scrutiny for privacy concerns, delayed payments and triggering exclusion through authentication failures.<sup>227</sup>

The challenge of implementing DBT is exacerbated by weak last mile capacities, reliance on paper registration of beneficiaries and a poor presence of reliable banking outlets in many interior rural areas.<sup>228</sup> Implementing large scale digital payments which enhance inclusion requires a capable local bureaucracy and robust regulatory regimes to protect citizens. This once again illustrates that technology is a helpful tool that can lower transactions costs, reduce leakage and improve transparency in many contexts, but that effective implementation can still be impeded by incentives and capabilities.

Looking ahead, bolstering program performance and coherence of the social protection architecture requires a new relationship between the national government and the states. The diversity across states requires an enabling policy and financing regime whereby state governments have greater flexibility in shaping their social protection systems, while the national government focuses on monitoring and coordinating interventions, and facilitating cross-state learning.

## 5. Strengthening the public sector

Transforming India into a successful middle-class economy requires that the government fulfill its core responsibilities that include delivering macroeconomic stability, ensuring basic public goods and services, and efficient regulation to address market failures. This has proven especially challenging in the Indian context and while many bold and innovative alternatives have been trialed in many sectors and parts of the country, scalable and replicable solutions to the problem remain elusive.

Delivering the transformations to end extreme poverty and advance to a middle-class society will depend on how institutions—both formal government agencies and the rules of the game for various actors—are able to adapt to circumstances in order to provide better outcomes. Adaptability in turn depends on the

---

<sup>223</sup> The assessment authors also note, however, there may have been an incentive in the survey to report that this as PMJDY services are marketed to first time account owners (Singh et al., 2015).

<sup>224</sup> Muralidharan et. al. (2016b).

<sup>225</sup> Government of India, Ministry of Finance (2016), Clarke (2016).

<sup>226</sup> Muralidharan et. al. (2017b).

<sup>227</sup> Abraham et. al. (2017), Khera (2017), and Aggarwal (2016).

<sup>228</sup> World Bank (2017a).

state's capacity and resources, as well as on accountability mechanisms that provide incentives to use the capacity of the state effectively.<sup>229</sup>

Four elements are vital for transforming the public sector. First, accountability, efficiency, and effectiveness need to be improved to reduce waste and boost the returns on public spending by tightening the chain from inputs to outputs. Second, the public sector must be adequately resourced and “right-sized.” Third, because most services are delivered by lower-tier governments, the compact between the layers of government will influence what services are delivered to citizens and how front-line service delivery agencies perform. Fourth, India needs to secure huge financing for the public assets to support growth, and that will require new or revamped modalities of support.

### Tightening the chain from inputs to outcomes

Improving government accountability, efficiency, and effectiveness along the chain from inputs to outcomes is perhaps India's biggest economic policy challenge. The link between spending and outcomes is weak. About half of India's public spending on basic services does not reach the poor because of inefficiencies in execution and “leakages.” More than a third of the value of food subsidies does not reach the intended beneficiaries because food stocks are either wasted or sold illegally in the open market. Energy and farm subsidies and tax exemptions disproportionately benefit the better off, despite the declared goal of promoting equity.<sup>230</sup> The average Indian state achieves just half the learning outcomes expected for its spending on primary and secondary education and a third of the real health outcomes expected for its spending on primary health care. That rates of teacher and doctor absenteeism remain stubbornly high a decade after the problem was first identified is a tragedy for a country with low human development outcomes. Often, districts with the largest share of poor people have the greatest shortfalls in funds. In sector after sector, increasing the efficiency of public spending is likely to yield higher marginal returns than increasing inputs.<sup>231</sup>

Few development problems in India have been as challenging as those linked to providing basic public services. A lack of funds could be a convenient defense—and could even be justified through selective global comparisons and benchmarking. But even if valid, calls for greater spending rarely consider the opportunity costs of reallocating funds between sectors, the consequences of expanding the fiscal space, or the quality of spending and the efficiency of service delivery. As suggested by economic theories of second-best, where inefficiencies are substantial, increased spending could fuel even greater waste for little additional benefit. Where the productivity of spending is low, enhancing spending efficiency is likely to be more effective than increasing the resources allocated to public good provision. Hence research finds that investing in efficiency improvements in schooling is 10 times more cost effective than spending more on teachers.<sup>232</sup> Likewise agricultural subsidies have distorted planting patterns and input use to such an extent that they have degraded the natural resource base. Further spending on these subsidies is unlikely to resolve problems in the agricultural sector.

---

<sup>229</sup> Evans (2005), World Bank (2004), World Bank (2016b).

<sup>230</sup> Lahoti et al. (2012).

<sup>231</sup> Muralidharan et al. (2016a).

<sup>232</sup> Muralidharan et al. (2016a).

Even more complex is the challenge of increasing the effectiveness of regulation. As India grows and industrializes, it will need to do better at developing and enforcing regulations that address market failures and facilitate private investment. That requires a robust competition policy, sound regulation of natural monopolies in power and water, the protection of common property resources, and the control of air and water pollution—to name but a few. But, mechanisms introduced to correct regulatory or market failures are often undermined by the rent-seeking conditions that they create. The longer the pipeline of interventions, regulations, and monitoring, the greater the opportunities and incentives for “leakage.” This may explain why increases in monitoring pollution have had little impact on outcomes. In such circumstances the task of regulation is to design implementation mechanisms that are mindful of these constraints. In practice, this might imply a shift from reliance on command and control mechanisms to a focus on incentives.

Recognizing these challenges there has been much policy innovation in recent years with promising and novel approaches that are being piloted and rigorously evaluated. A common feature of the more successful approaches is recognition of the need to align incentives of the relevant actors with the desired outcomes. Especially notable are innovations in the use of technology and e-governance (box 16).

#### Box 16: Some technological solutions to improve efficiency

Computer-based educational coursework has been piloted to improve student learning outcomes and compensate for the deficiencies of teacher performance.<sup>233</sup> Similarly, giving farmers access to information on agricultural prices has reduced the information stranglehold of wholesalers on farmers and increased farmgate prices while reducing price dispersion across markets.<sup>234</sup> The goods and services tax (GST), upon which much fiscal reform rests, is structured around a sophisticated web-based platform that integrates tax transactions across states and is likely to reduce tax evasion. An experiment with the MGNREG Scheme (the largest workfare program in the world) found that electronic fund transfers eliminated administrative tiers and reduced leakage greatly.<sup>235</sup> The unique biometric identity number, Aadhar, and secured payments infrastructure could reduce leakages in the delivery of subsidies. Similar biometric-based schemes have reduced leakages in pensions by 47 percent in Andhra Pradesh<sup>236</sup> and in liquefied petroleum gas household subsidies by 11–14 percent nationally.<sup>237</sup>

Technology solutions have considerable potential, but not all governance challenges respond to them. Tasks that are routine, repetitive, or mechanical are more amenable to technological solutions than complex functions that call for discretion and judgment. Biometric identification, for example, has increasingly become the norm in several government offices and some health and educational facilities to ensure regular attendance of teachers and doctors. Monitoring attendance does not mean that employees become more productive while at work. What is required as well is the ability to enforce policies.<sup>238</sup> Likewise, direct electronic transfers of cash can eliminate the risks of leakage through intermediaries, but deciding who benefits is a more complex task that often entails human intervention.

<sup>233</sup> Muralidharan et al. (2017a).

<sup>234</sup> Goyal (2010).

<sup>235</sup> Banerjee et al. (2016).

<sup>236</sup> Muralidharan et al. (2016b).

<sup>237</sup> Barnwal (2017).

<sup>238</sup> Dhaliwal and Hanna (2017).

In particular, technology cannot fill gaps in enforcement of misdemeanours. A computer can track a public employee's attendance and in some cases even performance, but it cannot invoke sanctions or take remedial actions. In other words, technology has eased constraints and improved the efficiency of monitoring, but cannot replace all tasks. Approaches are needed that sharpen accountability and incentives that combine sanctions for delinquent performance with rewards for success.

Recognizing these challenges, India has invested heavily in a variety of "rights"-based approaches to public services. One of the earliest efforts was the 2005 Right to Information (RTI) Act, which places extensive requirements on public authorities to provide information and respond to requests for information. Driving this legislation was the conviction that even where regulatory institutions are weak, providing information that enables greater public participation and spurs demand for better services, can be decisive in improving service delivery. Numerous examples illustrate the power of this tool. Publicly available data on air quality have been instrumental to the success of public interest litigation that ordered cities to comply with Supreme Court verdicts.<sup>239</sup> In an experimental trial involving a request for a ration card in Delhi, an RTI request has been found to obviate the need for paying bribes. And RTI has also been found to increase voter participation while promoting issue-based voting patterns.<sup>240</sup>

The promise of RTI has sparked a wide variety of related initiatives to improve transparency and service standards. In an extension of the RTI approach, some 20 states have introduced Right to Public Service laws that set firm requirements on timeliness and procedural regularity in delivering government services, such as government benefits and licenses. With better execution, this legislation could improve the government-to-citizen interface. Several states have one-stop shops and electronic tracking platforms to improve responsiveness. Many states have online feedback and complaint management systems to facilitate two-way communication between citizens and government. Yet resistance to process re-engineering remains, resulting in the persistence of complex procedures, multiple approval layers, and subjective verification processes.<sup>241</sup>

Citizen report cards and social audits are popular in some states. Once more these are aimed at identifying and publicizing inefficiencies and leakages in government delivery mechanisms, creating conditions for accountability through public pressure. These schemes have evolved as a natural extension of the RTI movement and aim to provide a mechanism for citizens to monitor state performance and seek redress. There is currently limited evidence of the effectiveness of these programs, though the initial signs are encouraging and suggest that they can promote transparency in decision making.<sup>242</sup>

Overall, these initiatives have done much to improve accountability in specific circumstances, and they might even have catalyzed changes in administrative procedures in some states. But they have not radically transformed governance across the spectrum of public services. This is perhaps because these instruments are fundamentally reactive and depend on citizen intervention. They are based on the presumption that information can leverage better outcomes through the sanctioning instruments of government. But this

---

<sup>239</sup> Greenstone and Hanna (2014).

<sup>240</sup> For example, Peisakhin and Pinto (2010) and Banerjee et al. (2017).

<sup>241</sup> World Bank-Public Affairs Center (2016).

<sup>242</sup> Aiyar and Mehta (2015).

can occur only where there is access to reliable information (box 17), willingness to act on that information, and capacity to remedy deficiencies.

#### Box 17: India's statistical system—Data rich or data poor?

India has a long history of data collection and dissemination. Once regarded as a pioneer in collecting and analyzing statistics, it established new survey methods and institutions such as the Indian Statistical Institute to process and research the information collected. In recent years, investments have not kept up with the demands of a data rich world, and the statistical system today lags other emerging economies in producing timely statistics critical for routine policymaking and for monitoring key welfare outcomes (table).<sup>243</sup>

Four policy areas deserve further attention:

1. **Frequency of data collection.** Data on jobs and poverty (monetary welfare) are collected once every five years. Data on non-monetary indicators are collected with even lower frequency.
2. **Reliability of data.** GDP, inflation, and production numbers have come under scrutiny as trends in different indices are often difficult to reconcile. The inconsistency between household survey versus national accounts based measures of private consumption has got worse over time.
3. **Coverage and representation.** Data at granular or disaggregated levels are limited and often coverage too is limited as in household surveys that do not capture top income households.
4. **Lags in data release.** Time gaps between data collection and data dissemination tend to be substantial. Economic Census data collected in 2013–14 was released as late as 2017.

**Table: India's Statistical System ranks poorly in comparison to its peers**

Survey	India	Brazil	Indonesia	South Africa
Consumption expenditure/Income	5 years	Annual	Semi-Annual	3 years
Employment	5 years <sup>a</sup>	Quarterly	Semi-Annual	Quarterly
Education	6 years	5 years	Semi-Annual	3 years
Health	3-8 years <sup>b</sup>	Annual	3 years	3 years
Firms/Enterprises	Registered manufacturing: Annual; Census: 5-7 years	Annual	Registered manufacturing: Annual; Census: 10 years	10 years

a: The new Periodic Labor Force Survey, initiated in 2017-18, will produce annual and quarterly estimates in rural and urban areas, respectively. b: Some health statistics (e.g., mortality rates) are available every 3 years via the Sample Registration System.

There are opportunities for revolutionizing the statistical system to support evidence based decision-making. With the push to adopt digital platforms for service delivery and doing business (e.g., Goods and Services Tax Network) a wealth of data is being accumulated. How best to use it, in tandem with the core statistical system, needs attention.

The structure of the public sector labor market is another source of inefficiency that severely limits the ability of the state to deliver public services efficiently. The current system does not adequately monitor the performance of frontline service delivery officials, nor does it adequately reward good performance.<sup>244</sup> In some cases, it does not hire enough people, or people with the right skills, or people in the right location. And with a compressed public sector salary structure (with salaries often higher than those in the private

<sup>243</sup> Annex 1 provides a summary assessment of India's statistical capacity.

<sup>244</sup> Muralidharan (2016).

sector at lower tiers, and lower at the top end) that is weakly tied to performance, the salary structure cannot motivate employees.

One promising initiative links salary increments for senior civil servants to performance, a recommendation of the Seventh Pay Commission. The central government has recently focused on setting clear objectives for secretaries and departments and measuring performance against them, with regular oversight by the Prime Minister's Office. Such high-powered incentives are likely to work best where outcomes are verifiable and measurable. Where not all tasks are monitored, there are risks that the unmeasured duties are ignored or given a lower priority. Several states monitor file movement electronically, making it easier to spot delays at various stages and to take remedial action. More broadly, simplifying decision-making can clarify the links in the process and make it easier to monitor.

It is increasingly clear that reforming India's civil service will be a crucial factor in unlocking the country's growth potential. One study notes that the average tenure of an IAS officer in a post was only sixteen months, while the probability of being transferred in any year was 53 percent.<sup>245</sup> Rapid transfers combined with a proliferation of multiple ministries and agencies undermines the ability of governments to coordinate on many issues. Systems and processes remain archaic, despite the growing use of technology; multiple points of decision-making coupled with the long chain of file movement delays decision-making. There is scope to hire new talent from outside through lateral entry to increase competition and efficiency.<sup>246</sup> Dampening the incentives to engage in corruption will likely involve taking steps like reforming the electoral system to promote transparency in both party and campaign finance.<sup>247</sup> While Parliament passed a bill in 2013 to create an independent Ombudsman ("Lok Pal") to address corruption, the institution is so far not operational.

### Right-sizing and resourcing the public sector

India's public sector needs to grow—spending more and employing more staff, at least in specific areas—to deliver on its functions. The level of public spending is roughly on a par with other countries at the same per capita GDP. But by other metrics it could be argued that the public sector is too small. The number of doctors, nurses, and midwives stands at only 11.9 per 10,000 people, less than half the World Health Organization benchmark of 25.4 per 10,000 people.<sup>248</sup> India's judiciary—a guardian of democracy—has only 12 judges per 1 million people, compared with 108 in the United States.<sup>249</sup>

India's lower local governments (rural and urban) are starved of resources relative to their functions. In addition, the public service (at 1 percent of the population) is far smaller in India than in peer countries. India's capital stock is barely higher than in Bangladesh, Nepal, and Nigeria. At about 5.8 percent of GDP, general government investment pales in comparison to China, which has a much higher capital stock per capita and invests over 10 percentage points of GDP more than India does.

---

<sup>245</sup> Iyer and Mani (2012).

<sup>246</sup> Krishnan and Somanathan (2017).

<sup>247</sup> Vaishnav (2017).

<sup>248</sup> Rao et al. (2011).

<sup>249</sup> Joshi (2016).

Relatively high debt and fiscal deficits constrain India from borrowing more to finance higher spending. At over 6 percent of GDP at the general government level, India's fiscal deficit is among the highest among emerging economies, which leaves little room for fiscal expansion. Debt levels are also relatively high at close to 70 percent of GDP, and exclude significant contingent liabilities, such as the debt of electricity distribution companies recently recognized by states under the UDAY scheme. Fiscal sustainability concerns therefore add to the urgency of not only spending more efficiently but also raising more revenues.

India remains an outlier in collecting taxes on incomes and profits, largely due to low personal income tax collection rates. Too few individuals pay income taxes (only 8.6 percent of the labor force), and among those who pay taxes, many underreport incomes. Corporate tax collections are in line with India's level of development, but have been declining in recent years. India is also an outlier in property tax collections, which limits the resources for state and local governments.<sup>250</sup>

Domestic revenue mobilization is roughly 17 percent of GDP, up from single-digit revenue-to-GDP ratios in the early 2000s, and largely reflecting the introduction of the value-added tax in the states and service tax, as well as parallel improvements in IT, which have increased compliance. But it also reflects heavy reliance on indirect taxes, which are more regressive than income taxes. Indirect tax collection is projected to increase further over the medium term, as the goods and services tax (GST) integrates the domestic market, improves transparency, and improves compliance.

Domestic revenue mobilization calls for long-term measures to bolster tax capacity and tax effort. The introduction of a Goods and Services Tax (GST) provides an opportunity to alter the landscape for taxation. Although the GST was designed to be revenue-neutral in the short term, it will increase formalization of the economy and may lead to higher revenues in the long term. Sellers who are not in the GST chain will be unable to claim input credits, putting them at a disadvantage vis-à-vis registered vendors. As the credit chain will function only if all the transactions are recorded, the post-GST environment would lead to improved disclosure of economic transactions, which in turn, may also have a strongly positive impact on direct tax collection. Moreover, administration and compliance are expected to improve through the harmonization of policy rates and introduction of common definitions, as well as the consolidation of multiple taxes into a single tax.<sup>251</sup>

Even as resource mobilization proceeds, a greater share of taxes will need to be channeled to local bodies. The 73<sup>rd</sup> and 74<sup>th</sup> constitutional amendments, proposed in 1992, assign mandatory functions (and recommend others to be delegated at the discretion of states) to rural and urban local bodies. Analysis of recent data for 21 Indian cities suggests a strong correlation between the capacities—resources and people—of urban local bodies and their levels of service delivery (unlike at the state level). Two decades after the amendments were passed in Parliament, the autonomy of local bodies is still limited through

---

<sup>250</sup> Local governments generally do not tap into all their tax bases as prescribed by law. The reasons include poor administrative capacity, the tax structure (including high property registration duties), and weak incentives for revenue collection. Recent estimates for two cities show that they are collecting no more than 5–20 percent of their property tax potential (Government of India, Ministry of Finance, 2017).

<sup>251</sup> The GST will replace the Service Tax and Excise tax levied by the Centre, and the States' Value Added Tax (States-VAT) levied by the States, as well as numerous other taxes.

administrative controls from higher tiers, tied funding (e.g., centrally sponsored schemes), and limited devolution of revenues.<sup>252</sup> This started to change after the 14<sup>th</sup> Finance Commission (2015–2020) recommended a significantly higher share for states of central taxes and a threefold increase in resources to local bodies. Urban local bodies must in parallel raise more local revenue, partly by employing new technologies to assess tax potential and partly by strengthening tax administration. In particular, India is an outlier in the collections of tax on property, which globally represents a key source of revenue to local governments.

The recent “demonetization” (where 86 percent of India’s currency ceased to be legal tender overnight, being replaced by new notes) has the potential to boost formalization and increase tax collections over time.<sup>253</sup> To realize this potential, complementary measures that are needed include greater coordination between central and state tax agencies, and among central tax agencies to improve enforcement; implementing a minimum alternative tax based on individual and corporate assets to secure higher revenues and simplification of the tax code; rationalizing taxation of land transactions; and over time simplifying the GST regime and further reducing costs of compliance.

### Delivering resources: The compact among the center, states, and local bodies

A key challenge in any federal system is aligning functions, finances, and functionaries among tiers of government. These problems have been particularly acute between the states and local bodies. The 14<sup>th</sup> Finance Commission’s recommendations address these imbalances more rigorously than in the past. Untied transfers to the states were sharply increased, and transfer channels were rationalized. The sharing between the center and states for centrally-sponsored schemes was revised to generally increase contributions from the states. Intergovernmental transfers increased somewhat, but more importantly a greater proportion of them are now untied, allowing for greater flexibility in the choice of service provision at the state level. Decentralization has gained further impetus through the allocation of more funds to urban local bodies. This will need to be accompanied by strengthening public financial management systems of the lower tiers of government, where capacity is especially weak.

Overall the decentralization process remains an unfinished agenda in India. Experiences across the country demonstrate that approaches need to be tailored to the capacity of lower tiered governments. Especially in medium sized cities there is a need to build the credibility and legitimacy of urban local bodies (ULBs). Once this is achieved fiscal and functional devolution will be more effective. The approach must be tailored towards the need and vision of the state and not vice-versa.<sup>254</sup>

---

<sup>252</sup> Rural local bodies faced an estimated shortfall equivalent to 1 percent of GDP to deliver their legally mandated services over the following five years (Accountability Initiative, 2014).

<sup>253</sup> Because the policy entailed the immediate demonetization of ₹500 and ₹1000 notes, it became widely known as “demonetization,” although it can be best described as a currency exchange, since new ₹500 and ₹2000 notes were introduced to replace old ones.

<sup>254</sup> Approaches can span the range from strong state level supervisory and delivery role in places with weak ULBs; to intermediate models with select responsibilities (reverse) delegated to the state; all the way to full devolution in which ULBs are empowered to prioritize, finance, and deliver, with the state involved in building capacity and holding local bodies accountable.



The move toward increased expenditure flexibility in favor of the states presents both an opportunity and a challenge. The opportunity lies in the greater freedom to align local development needs and priorities with the resources available, possibly strengthening ownership of development outcomes. The challenge stems from constraints in capacity—institutional and human—to improve the efficiency of expenditure and from the political economy of resource use.

A key risk to Indian financial federalism arises from moral hazard. The lack of a subnational insolvency procedure and the assumption that bailouts will be available in a crisis weakens fiscal discipline of lower tiers of government and public sector agencies and enterprises. In bond markets, investors currently lend to all states at the same interest rate, that bears little relation to the underlying fiscal position of the state. Demands for waivers of repayment of loans, recently agreed to by Uttar Pradesh and Maharashtra, are spreading to other states, aggravating the risk of poor loan repayment discipline in future.<sup>255</sup> State-owned power companies have required three bailouts in the past two decades. The end result is that profligacy is rewarded by bail-outs and debt forgiveness.

### Securing the financing needs of the state

India's financing requirements are immense. Infrastructure investments alone could consume an estimated US\$6 trillion before 2030. Cities, expected to accommodate an additional 10 million people or more each year over the next two decades, will require infrastructure investments estimated at US\$40 billion annually for the next two decades.<sup>256</sup> Despite ambitious plans, the resources to finance public investment are limited.

How, then, can India finance its large infrastructure requirements? Relying solely on the public sector raises the question of fiscal space. While increased tax revenues are part of the answer, expenditure restructuring will also be important. Another possibility is bringing in more private investment to finance, build, and operate infrastructure with the expectation that user charges will make these investments profitable (or that public subsidies are forthcoming). But public–private partnerships have lost steam after a period of expansion.

India has turned to public–private partnerships (PPP) across a range of sectors, in particular to finance its highways, airports, and ports, but also in power and health. Some sectors, such as roads, have seen successful replication of standard contractual agreements. But PPPs, where more complex contractual arrangements are needed, have not taken off. In the highway development program, the stock of contracts is estimated between US\$32 billion to US\$47 billion. Most of the debt (roughly 80 percent) to finance this portfolio came from public sector banks. After a promising start, projects have faced mounting financial and operational challenges, which have flowed through to the banks and developers that supported them,

---

<sup>255</sup> Evidence from the 2008 farm loan waiver shows that the bailout had no positive impacts on productivity, consumption or labor market outcomes, but led to significant ex-post moral hazard in loan repayments (Gine and Kanz, 2014). In addition, the bailout did not lead to the expected stimulus as lenders reallocated credit away from districts with program exposure.

<sup>256</sup> Estimates in 2009-10 prices over the 2012-32 period (Government of India, Ministry of Urban Development, 2011).

contributing to the rising stock of nonperforming assets in the banking sector.<sup>257</sup> Developers, several of whom are India's national construction industry champions, are also showing signs of stress, which is slowing investment growth. Options include debt forgiveness schemes through restructuring arrangements that make concession companies solvent, permit an exit option; or direct government intervention to take possession of contracts and recapitalize them, usually under a temporary holding company.<sup>258</sup> Once the contracts are made profitable again, government may then re-divest itself of individual concessions.

Neither of these options seems desirable if the result is that some or all of the losses can be transferred to the public purse, while gains remain private. A revised model is needed to revive the flow of public-private partnerships where more rigor is applied in selecting partnership models.<sup>259</sup> Building capacity in local and state governments could empower them to independently identify PPP projects, appoint consultants, and develop their own project funding mechanisms and project specific contractual agreements.

Going forward, Indian bank financing will not be sufficient to finance PPP projects. Loans typically are for shorter tenures than the long duration required for infrastructure PPP projects. Indian banks also lack evaluation capability and expertise in project finance, making it important to explore and attract other sources of low-cost, long-term capital for PPP projects.

More broadly, applying the principles of the cascade – whereby provision of development finance would largely rely on private funds with appropriate encouragement, incentives, and risk sharing from the public sector – would be useful in working out a new strategic approach to development finance.

## The reform process

The reform agenda is vast and may seem overwhelming as there are no easy remedies to solving India's governance deficits. Technological innovations can assist but not resolve all problems. Services will improve only if there is greater accountability and alignment between the performance of civil servants and service delivery units and the incentives they face. If poor performance, job shirking, and rent seeking are tolerated, or simply just ignored as being too hard to address, India's entire transformation agenda will be compromised. There is no simple pathway to reforming the public sector and improving itseffectiveness.

Instead reform in India is a process rather than an event. When successful and sustained, Indian reform has had a domestic impulse, been negotiated over time, and been introduced in increments. The initiators and managers of reform must take into account the scale of the country, navigate a diversity of economic and social interests, and respect a robust political and administrative culture that requires policy to be inborn or indigenized in order to be acceptable.

The progression of the Goods & Services Tax (GST), one of the most complex and consequential reforms undertaken in India, is a case in point. Seeking as it did to alter the taxation responsibilities between the states and the center, it had perhaps the highest degree of difficulty of any reform in India, requiring intense

---

<sup>257</sup> As of December 2016, the State Bank of India, which holds the greatest nominal amount of highway-related debt, reported that some 20 percent of loans to ports and highways were nonperforming.

<sup>258</sup> Multiple efforts are underway to deal with the stock of stressed loans, including avenues for restructuring, refinancing existing exposure, more liberal exit policy in the concession agreement, one-time fund infusion to revive stuck projects, fast-track dispute resolution, and termination.

<sup>259</sup> World Bank (2015).

negotiations with state governments represented by a range of political formations. Calibrations and concessions had to be made at almost every stage to accommodate varying and often conflicting demands—for instance, between manufacturing (“producer”) states and states that had low industrial bases but were home to vast consuming populations. The outcome is perhaps not as perfect as its initiators would have liked, but on balance it is a major achievement.

The deliberative space afforded by Indian democracy, while ostensibly slow and messy, actually enables sustainability of reform through the accommodation of competing interests, and ensures legitimacy with real-time testing of public acceptability. A related critical factor is India’s federal structure. With the Centre playing an agenda-setting role, federalism provokes competitiveness and demonstration effects among the states, thus fueling reform initiatives. Alongside, federalism encourages broad consensus at a paradigm level (despite short-term, tactical differences on specific policies) as most political parties get a taste of governing and develop a common appreciation of the requirements of economic management, growth, and development.

The distinct ingredients that have worked in India to put a reform into practice and sustain it are: political leadership to articulate reform, provide backing, and seek opportunities and openings; negotiation with opponents and existing interest groups; introducing the reform in increments, sometimes stealthily, creating constituencies with a stake in the new system; an eventual outcome that may be a compromise on the original idea, but which is an improvement on the prevailing situation and holds promise for further adjustments ahead; and changing management in the departments that must implement the reform. In sum, it is reform in slow motion that has delivered durable if incremental changes through the accommodation of competing interests that ensures legitimacy with real-time testing of public acceptability.

This process has played out across several sectors since 1991 – external liberalization, telecoms, fiscal management, aviation, industrial policy, to name but a few – where reform has made considerable advances. In other sectors, where these factors have not all come together, reform progress has been static. Looking ahead, a huge agenda confronts India as the country must adapt its institutions and policy frameworks to address the needs of its people, including the specific development challenges laid out in this report. The question is whether heightened public aspirations can help propel a less gradualist reform strategy.

## 6. Risks to India’s advance

While India’s fortunes are largely in its own hands, two global risks could jeopardize progress toward global middle-class status: a growing anti-international trade sentiment and climate change. The more immediate risk is from mounting pressures against international trade. The negotiation of regional trade agreements has stalled, protectionist measures are spreading, and current trade agreements may be reconsidered. India’s services exports are being challenged by restrictions to the temporary movement of workers and by policy responses to anti-outsourcing sentiment.

For India, an active World Trade Organization member, the multilateral trading system is a key negotiating forum where its economic interests are advanced by its capacity to build coalitions with like-minded

countries around common objectives. India's services industry has benefited enormously from technology changes that have allowed firms to outsource IT-related activities to India and high value-added activities such as knowledge process outsourcing. If the current system of global commerce unravels, India could be a big loser.

Simulations of the impact of hypothetical new trade barriers on merchandise trade show a wide range of estimates, with positive impacts from trade diversion to negative impacts from trade destruction stemming from across-the-board increases in tariffs.<sup>260</sup> The impacts on trade in services are not yet known, however, as they are likely to be affected in different ways. The simulations also show that greater integration with advanced economies as they experience a growth revival would counter some of the negative impacts of rising protectionism; in some scenarios, the estimated gains fully offset the negative impacts. The scenarios are not predictions, but they do illustrate that the case remains strong for India and South Asia to focus on export-oriented growth. A more proactive stance on economic policies to support export diversification and a stronger supply response would amplify the potential gains from integration.

The longer term global risk is from climate change, which could threaten India's development and growth. Even under optimistic scenarios, the impacts of climate change on India's agriculture, coastal cities, and glaciers are a concern; the consequences in the absence of a meaningful agreement would be much more severe and would slow the pace of development. If global temperatures increase by 4°C, India would shift to a new constellation of climate patterns that would be harsher and less conducive to development, with especially severe projected impacts in the west and south.<sup>261</sup>

Monsoons, already fickle, would become even more variable, so that an extreme "once in a 100 year" flood is projected to occur every 10 years. Yields of all major crops would be expected to fall, while energy security is likely to come under increasing pressure. India's two dominant forms of power generation—hydropower and thermal power (fossil fuel, nuclear, and concentrated solar power)—both can be undermined by inadequate water supply. Cities would need to be reengineered to cope with more volatile rains and "heat-island" effects, which will have adverse impacts on labor productivity and health. Climate change, hydro-meteorological and geophysical risks will affect all types of infrastructure, including water, drainage, energy and transport. Addressing risks that involve long-lived assets may require action now. Where decisions are irreversible resilience will need to be made built into design parameters. State governments can begin the process by improving risk assessment and information to support decision making, initiate mandatory screening and factoring hazard risks into public investments. Aware of the perils that would arise from a breakdown in climate collective action, India—along with other countries and blocs—has reaffirmed its commitment to the Paris Climate Change Accord.

The strategies proposed in this document may offer partial buffers against some of these risks, whose extent is unknown. A middle-class India would create a buoyant domestic market, but this would only partly alleviate the impacts of declining export markets and trade restrictions, given the importance of exports for productivity growth. Climate change-related risks would be partly mitigated by a more resource-

---

<sup>260</sup> World Bank (2017e).

<sup>261</sup> See <http://www.worldbank.org/en/news/feature/2013/06/19/india-climate-change-impacts>

efficient growth path that would enhance adaptive capacity. More pessimistic scenarios would require diversion of greater policy attention and public investment to tackling the impacts of these risks.

## 7. Prioritization

This Strategic Country Diagnostic for India ends with priorities. The focus in this section is on the **how** rather than the **what**. This SCD has identified three overarching priorities for India's future prosperity. These are the need to pivot to greater resource efficiency, make growth more inclusive – neither of which is achievable without a shift in governance. Within each of these are embedded myriad issues that need to be addressed to achieve the overall objective of a middle-class India. For resource efficiency, it is imperative that cities work better and farms become more productive. These require vast agendas involving investments and reforms of the subsidy regime – especially in the rural sector. Inclusive growth requires better and faster job creation. This in turn will require eliminating barriers to job creation and enterprise as well as more effective investments in human capital. Improving governance in India involves reforms rather than simply increased investments. Current public spending is much less effective than it could be suggesting an emphasis on outcomes and efficiency is warranted rather than simply spending more money on problems that require better performance by public sector service providers. Incentives will play a key role in achieving better outcomes and the government's current emphasis on competitive federalism is a promising endeavor. Each of the major states of India has a larger population than most countries in the world and each will have its own priorities that depend on their circumstances and the politics of the feasible in each. The priorities of a country as large as India must combine both national priorities with the priorities of the individual states so in some contexts the issues become too regionally diverse to be conveniently summarized into a small list.

Moreover, a prioritization of the **what** perpetuates the illusion that India's challenges are solely, or even primarily, the lack of the "right" priorities, or the lack of adequate emphasis on the business as usual government remedies of more, or more amply funded, programmatic schemes. Take the problems of quality of basic education, eradication of open defecation, fair and effective processes for land use conversion, or reduction of air pollution. None of these problems persist because people deny that they are a priority. In each case these have been named as priorities and both legislative and programmatic action has been taken over the course of decades. These problems persist because the **how** is hard not because the **what** has not been prioritized. More pronouncements on the priorities of the **what** risks just exacerbating the announcement-implementation-achievement gap that politicians, policy makers, front-line workers and citizens already feel so keenly.

Finally, the process of prioritization remains a highly imperfect and inexact exercise. Since the information that is available is always incomplete, the prioritization exercise is inevitably biased towards the known risks and constraints rather than the imperfectly understood ones that could be more significant. Nor is there an agreed quantitative approach that can rank even the known risks in order of their impacts. Hence the process remains subjective and open to all the weaknesses of an imprecise consensus seeking process.

These caveats suggest it is more important to emphasize **how** policies could be better implemented rather than summarize the outcomes of a prioritization process that is inevitably inexact, incomplete and highly

subjective. At the end of the day it is the task of governments to decide on policy objectives and priorities and the role of advisory bodies to advise on how best to achieve those goals.

Underlying the challenges of implementation are often deep incentive barriers and distortions. For instance, moral hazard problems allow public sector banks and public utilities to build fiscal deficits, inflate costs and shirk on service delivery, in the certain knowledge that central government bail-outs will be forthcoming. Likewise, when enforcement is imperfect, additional rules and regulations – say to enhance market competition, or protect natural assets through EIAs or decrees– become vehicles for rent extraction. Often tighter rules worsen, rather than improve, the problems the new regulations are designed to resolve. These are among the many instances where the interests of implementing agencies and the public, need to be better aligned by modifying and sharpening incentives. There is no single policy panacea that can achieve this, but a variety of complementary approaches are needed to tackle these deep and long standing problems that have held back progress in India.

### Five principles for the priority of the how

This report has identified the medium-term priorities that India will need to address to continue on the path to middle class prosperity: **pivot to a more resource-efficient growth path, accelerate inclusion, and improve public sector effectiveness.** Each of these names large and complex agendas that will require a search for locally achievable solutions that meld the technical, political, and administrative elements into a causally correct, politically achievable, administratively doable set of actions. In this, there are five principles for the priority of the how that are not themselves the detailed array of actions but are priorities to guide the search for the how.

#### **Tighten the chain from inputs to outputs with emphasis on performance not merely compliance**

As the report argues measuring “priorities” by budgets spent or inputs achieved or bureaucratic boxes ticked is not enough for the 21<sup>st</sup> century challenges of middle class prosperity. Each program needs to start with a clear specification of the **outputs and outcomes** it intends to achieve and a way of measuring whether those are reached that can provide real feedback. While this might seem too “common sense” to constitute a useful priority, this is exactly the opposite of what happens. That is, government and public sector systems, worldwide not just in India, tend to “see like a state” and attempt to reduce the complexity of the world to a set of boxes to be ticked. Take the decades of attempts to eliminate the negative consequences for health of poor sanitation and open defecation. Each new scheme would acknowledge the need for infrastructure plus behavior change—but since infrastructure is amenable to structured and controlled inputs the programs would measure the measurable inputs rather than outcomes. For every initiative—from improving air pollution to unshackling Indian firms to improving early childhood experiences—implementation has to start with a clear specification of what the world will look like when there is success and how to measure that as a way of constructing policies and programs that drive for success in outcomes not just successful expansions of inputs.

#### **Use information technology as a tool to assist—not as a solution in isolation**

As India’s private sector is a global leader in many domains of information technology it is not surprising that India has also, in some ways, become a global leader in the application of information technology to the public sector. The progress of Aadhar in providing a unique verifiable identity to each Indian is one

example of the kind of impact IT can have. Information technology—particularly when coupled with a revamping of the processes that are “e” enabled can reduce leakages, increase effectiveness, and can help in eliminating petty corruption.

However, not all government services are amenable to the scripted logistics that is the strength of IT. Railway bookings, identity verification, and even most aspects of basic regulation like granting driver’s licenses and passports, and the delivery of mandated payments can be enhanced with IT. But many government services fundamentally rely on people exercising their judgment and skill and expertise in carrying out their functions. Fundamental services like policing, education, health, and economic regulation require individuals to act in ways that cannot be reduced to IT enabled processes. Studies have shown that introducing IT as a control device into capability and implementation intensive fields like health or policing can have unintended, even perverse, consequences if not embedded in an overall performance-driven package.

### **Confront, don’t cocoon, capability gaps—build capability by delivering results**

The adeptness with *jugaad* (or innovative work-arounds) is both a blessing and curse, particularly in the public sector. One way that policies, programs, and projects have adapted to the lack of implementation capability within the government is to work around the bottlenecks with special purpose vehicles or mechanisms. When one organization is broken or dysfunctional, the impetus is to create a new organization or institution to implement the new program or project. While this improvisation does keep some forward momentum, it does so at the expense of an increasing complex and unwieldy accretion.

Each new proposal for action (project, program, regulation, legislation) should come with a simple diagnostic: “Do we have the capability to do this now?” “If not, how we will build the capability to implement that will be a regular, sustained and sustainable, part of a structure of governance?”

### **Use competitive federalism to unleash virtuous circles of innovation**

The federal structure created in India’s constitution has proved an enormous boon, and, can be used more aggressively and creatively as the platform for even greater success. With the increasing delegation of revenues to the states with the 14<sup>th</sup> Finance Commission, there is increasing scope for competitive federalism. But the center needs to take concrete actions to make “federalism” into “competitive” federalism and transform “anything goes” into a virtuous circle of innovation, scale, and replication.

The previous model of Centrally Sponsored Schemes attempted to cope with differences in state capability by designing “one size fits all” programs that states were expected to implement. This had the virtue of helping the weakest states. But the narrow strictures limited what more capable and progressive states could do. In keeping with performance orientation, the center can measure outputs and assist in the design and in particular, in the design of learning mechanisms for projects. This can come with “tiered” engagement in CSS in which lower-capability states implement a basic version while high-capability states opt for more performance than process accountability and innovation driven versions. To competitive

federalism, India can add competitive sub-federalism, incentivizing city local governments to bring about a paradigm shift in their delivery of services.<sup>262</sup>

### **Strengthen both public and private sector—but pursue “partnership” with caution**

In many domains—education, health, finance—private and public providers operate side by side. In some instances, the failure to expand quality public provision to meet needs leads to private sector substitutes—as the section on resources points out, irrigation is now dominated by private tube wells. In other instances, primarily in large-scale infrastructure, public-private partnerships embed private actors into contractual or regulatory environments where “free markets” are not really possible. Partnerships provide opportunities to tap into the energies and vibrancy of India’s youth, entrepreneurs and NGOs to help find solutions to India’s governance, service delivery and last mile challenges. Lessons learned globally and from the Indian experience suggest ways to work productively with the private sector.

An important principle is to “do no harm” and, to the extent feasible allow the private sector to be an engine of expansion and innovation. This is not as easy as it sounds, as the impulse is strong for government providers to see the private sector as an inferior competitor that needs to be “regulated.”

Many features that would make for a strong public sector—rigorous measurement of outcomes, for instance, and transparent dissemination of information about performance—also can make for a strong private sector. Constructing a viable “partnership” with the private sector requires public sector capability, and a different type of capability than running the public sector. That is, successful “partnership” requires public sector capability in partnership. Providing public sector financing directly to private entities poses risks of many types. Leveraging the capability of the private sector to get to scale and to operate effectively—for instance, relying on private sector operators for training in job skills— is attractive, but only if the public sector one builds the capability to avoid the predictable downsides.

## **8. Why India matters to the world**

It is widely recognized that India with its large population has a significant footprint on the global stage. For instance, India is home to a third of the global poor, so eliminating poverty worldwide will be out of reach if India fails to grow. One in five young people live in India. If it failed to provide jobs to the 1 million young people who reach working age every month, social stability could collapse, with potential impacts on a regional and perhaps even planetary scale. Malnutrition indicators in India are among the worst in the world, with levels as dismal as in some of the poorest Sub-Saharan African countries. If India were to underperform on its climate goals, global damages from climate change would certainly be much greater; while the risks of catastrophic impacts (by crossing unknown thresholds) would be very much higher. Meeting the Sustainable Development Goals will also be impossible if India doesn’t get its act together. And so on and so forth.

---

<sup>262</sup> See Government of India, Ministry of Finance (2017) which argues that the competition between states must extend to competition between cities- entrusted with responsibilities, empowered with resources and held accountable-to unleash dynamism. The Maharashtra Sujal Nirmal Abhiyan which offers financial incentives to urban local bodies to improve operations and finances through performance based grants is an example of initial steps in this direction.



However, there is another and more important reason why India matters to the world. It is set to become one of the top global economic powers, and this well within the 21<sup>st</sup> century. Is that really possible? India's GDP per capita is barely US\$2,000, a mere quarter of China's and a meager 5 to 6 percent that of the European Union and the United States. How can India catch up in a couple of generations? The answer relies on two powerful forces, one more or less irreversible, the other already unleashed.

The irreversible force is demographics. Given increasingly long life expectancies and relatively predictable fertility trends, there is considerable certainty on population figures going forward. Toward the end of the 21<sup>st</sup> century, there will be about 1.5 billion Indians and 1.1 billion Chinese. Migration is unlikely to alter the relative size rankings much. These sheer numbers mean that even if the Indian economy stagnates, and even if India does not become middle class, it would be among the biggest global economic powers. This is simple arithmetic and a consequence of the number of people and the size of the economy. For instance, it could be the largest economy with slightly more than two-thirds of China's current per capita GDP.

The unleashed force is convergence, the process that gradually brings an economy's efficiency to the global frontier. There is more uncertainty here. Convergence could take India to the economic forefront within two or three generations. Countries where the basic market forces and institutional mechanisms are not in place may fail to take off. But one after another, economies in East Asia have embarked on this rapid catch-up process and South Asia (or at least, its eastern part) now seems to be following suit. Convergence in China started in the late 1970s, with the reform process unleashed under Deng Xiao Ping's leadership. The path has been more haphazard in India, where catch up has involved slower policy reforms. But despite the differences, India started to converge in the 1990s and is now amongst the fastest-growing large economies in the world. There are well-known risks that could impede convergence. Since the reform process in India has been slow and the benefits of economic growth often distributed unequally, and in ways that are perpetuated by a degrading resource base, it is unclear how fast and how vigorously the forces of convergence would provide a boost to growth rates. As an example, if growth becomes highly unequal, political forces could derail the reform agenda as has occurred elsewhere.

On current trends, GDP per capita in India will reach two-thirds that of China in the 2070s. It can be argued that growth in both China and India is bound to decelerate as they both become richer. A simulation incorporating this deceleration shows that it has little effect on the time when India's economy becomes as big as that of the European Union and the United States.

The conclusions tend to be similar for different models used to run simulations of these types. Jim O'Neill, from Goldman Sachs, coined the BRICs acronym in 2001. Two years later one of its reports predicted that by 2050 India's economy would be about 21 percent smaller than that of the United States.<sup>263</sup> But growth in emerging markets beat expectations, and by 2015 a report by The Economist Intelligence Unit<sup>264</sup> concluded that the gap would be only 10 percentage points. For the same year, PwC even put India's economy ahead of the United States by 2 percentage points.<sup>265</sup>

---

<sup>263</sup> Wilson and Purushothaman (2003).

<sup>264</sup> Economist Intelligence Unit (2015).

<sup>265</sup> PwC (2015).

The most basic analysis involves a decomposition of growth by source: greater capital accumulation, larger working-age population, higher educational attainment, and greater urbanization rate. Based on this simple formulation, it is not unreasonable to assume that India will become the second largest global economic power toward the middle of the century and could even reach first place by the third quarter of the century—just a couple of generations away, or the time it took China to rise to its current world status. From a geopolitical perspective, this is a very short time. India's size combined with its commitment to multilateralism and the credibility that democratic traditions bring, would give India considerable leverage in global matters and make its economic rise a valuable asset to the world.

And this, is why India matters so much to the world today.

## 9. References

- Abraham, R., E. S. Bennett, N. Sen, and N.B. Shah. 2017. *State of Aadhaar Report 2016-17*. IDInsight.
- Accountability Initiative. 2014. *Rural Local Bodies: Core Functions and Finances*. Study for the 14<sup>th</sup> Finance Commission. New Delhi: Centre for Policy Research.
- Acemoglu, D., S. Johnson, and J. A. Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *Quarterly Journal of Economics* 117 (4): 1231–1294.
- Adhvaryu, A., A. V. Chari, and S. Sharma. 2013. "Firing Costs and Flexibility: Evidence from Firms' Employment Responses to Shocks in India." *Review of Economics and Statistics* 95 (3): 725–740.
- Aggarwal, A. 2016. "The MGNREGA Crisis." *Economic and Political Weekly* 51(22).
- Aghion, P., R. Burgess, S. J. Redding, and F. Zilibotti. 2008. "The Unequal Effects of Liberalization: Evidence from Dismantling the License Raj in India." *American Economic Review* 98(4): 1397–1412.
- Ahsan, A. and C. Pagés. 2016. "Are All Labor Regulations Equal? Evidence from Indian manufacturing." *Journal of Comparative Economics* 37 (1): 62–75.
- Alder, S. 2016. "Chinese Roads in India: The Effect of Transport Infrastructure on Economic Development." Working Paper, University of North Carolina, Chapel Hill, NC.
- Alder, S., L. Shao, and F. Zilibotti. 2016. "Economic Reforms and Industrial Policy in a Panel of Chinese Cities." *Journal of Economic Growth* 21 (4): 305–349.
- Alfaro, L. and A. Chari. 2014. "Deregulation, Misallocation and Size: Evidence from India." *Journal of Law and Economics* 57 (4): 897–936.
- Allcott H, Collard-Wexler A, O'Connell SD. 2016 How do electricity shortages affect industry? Evidence from India. *The American Economic Review*:106(3):587-624.
- Anand, A. and G. Tiwari. 2006. "A Gendered Perspective of the Shelter–Transport–Livelihood Link: The Case of Poor Women in Delhi." *Transport Reviews* 26 (1): 63–80.
- Anand, I. and A. Thampi. 2016. "Recent Trends in Wealth Inequality in India." *Economic and Political Weekly* 51(50): 59-67.
- Anderson, I., B. Robson, M. Connolly, F. Al-Yaman, E. Bjertness, A. King, M. Tynan, R. Madden, A. Bang, C. Coimbra, M. Pesantes, H. Amigo, S. Andronov, B. Armien, D. Obando, P. Axelsson, Z. Bhatti, Z. Bhutta, P. Bjerregaard, M. Bjertness, R. Briceno-Leon, A. Broderstad, P. Bustos, V. Chongsuvivatwong, J. Chu, Deji, J. Gouda, R. Harikumar, T. Htay, and A. Htet. 2016. "Indigenous and Tribal Peoples' Health (The Lancet–Lowitja Institute Global Collaboration): A Population Study." *The Lancet* 388 (10040): 131–157.
- Aritua, B. 2016. "Unlocking the Potential of Freight Logistics in India." Connections Series Note, World Bank, Washington, DC.
- Arvis, J.-F., Y. Duval, B. Shepherd, and C. Utoktham. 2013. "Trade Costs in the Developing World: 1995–2010." Policy Research Working Paper 6309, World Bank, Washington, DC.
- Asher, S. and P. Novosad. 2016. "Market Access and Structural Transformation: Evidence from Rural Roads in India." Manuscript: Department of Economics, University of Oxford.
- Asturias, J., M. Garcia-Santana, and R. Ramos Magdaleno. 2014. "Competition and the Welfare Gains from Transportation Infrastructure: Evidence from the Golden Quadrilateral in India." Working Paper 11283, Centre for Economic Policy Research, London.

- Atkin, D., A. Khandelwal and A. Osman. 2016. "Exporting and Firm Performance: Evidence from a Randomized Experiment." *Quarterly Journal of Economics* 132(2): 551-615.
- Azam, M. and G. G. Kingdon. 2015. "Assessing Teacher Quality in India." *Journal of Development Economics* 117: 74–83.
- Badiani, R. and K. K. Jessoe. 2011. **Electricity Subsidies for Agriculture: Evaluating the Impact and Persistence of these Subsidies in India.** Working Paper, University of California, Davis, Davis, CA
- Baker, M., J. Gruber, and K. Milligan. 2008. "Universal Child Care, Maternal Labor Supply, and Family Well-Being," *Journal of Political Economy* 116 (4): 709–745.
- Balcasar Salazar, C. F., S. Desai, R. Murgai, and A. Narayan. 2016. "Why did Poverty Decline in India? A Nonparametric Decomposition Exercise." Policy Research Working Paper 7602, World Bank, Washington, DC.
- Banerjee, A., A. Deaton, and E. Duflo. 2004. "Wealth, Health, and Health Services in Rural Rajasthan." *American Economic Review* 94(2): 326-330.
- Banerjee, A. and E. Duflo. 2005. "Growth Theory through the Lens of Development Economics." In **Handbook of Economic Growth**, edited by P. Aghion and S. Durlauf, 473–552. Amsterdam: Elsevier.
- Banerjee, A., and E. Duflo. 2011. **Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty.** Public Affairs.
- . 2014. "Do Firms want to Borrow More? Testing Credit Constraints using a Directed Lending Program." *Review of Economic Studies* 81 (2): 572–607.
- Banerjee, A., E. Duflo, C. Imbert, S. Mathew, and R. Pande. 2016. "E-governance, Accountability, and Leakage in Public Programs: Experimental Evidence from a Financial Management Reform in India." Working Paper No. 16-09, Massachusetts Institute of Technology Department of Economics, Cambridge, MA. <https://economics.mit.edu/files/10557>.
- Banerjee, A., R. Banerji, J. Berry, E. Duflo, H. Kannan, S. Mukerji, M. Shotland, and M. Walton. 2016. "From Proof of Concept to Scalable Policies: Challenges and Solutions with an Application." Working Paper 22931, NBER, Cambridge, MA.
- Banerjee, A., S. Cole, E. Duflo, and L. Linden. 2005. "Remedying Education: Evidence from Two Randomized Experiments in India." Working Paper 7634, NBER, Cambridge, MA.
- Banerjee, R. and A. Sachdeva. 2015. "Pathways to Preventive Health, Evidence from India's Rural Road Program." USC-INET Research Paper No. 15-19.
- Bang, A. 2016. "Health Care in Tribal Areas: Present and the Future." *Yojana* 60: 23-26.
- Barnwal, P. 2017. "Curbing Leakage in Public Programs: Evidence from India's Direct Benefit Transfer Policy." Working Paper, Michigan State University.
- Bartelme, D. and Y. Gorodnichenko. 2015. "Linkages and Economic Development." Working Paper 21251, NBER, Cambridge, MA.
- Bartelsman, E., S. Scarpetta, and F. Schivardi. 2005. "Comparative Analysis of Firm Demographics and Survival: Evidence from Micro-Level Sources in OECD Countries." *Industrial and Corporate Change* 14 (3): 365–391.

- Bathla, S., P. K. Joshi and A. Kumar. 2017. **Revisiting Investments and Subsidies to Achieve Higher and Equitable Income and Poverty Alleviation in Rural Areas Across Indian States**. New Delhi: International Food Policy Research Institute.
- Bell, C. and S. van Dillen. 2014. "How Does India's Rural Roads Program Affect the Grassroots? Findings from a Survey in Upland Orissa." *Land Economics* 90 (2): 372–394.
- Bell, M., E. Charles-Edwards, P. Ueffing, J. Stillwell, M. Kupiszewski, and D. Kupiszewska. 2015. "Internal Migration and Development: Comparing Migration Intensities around the World." *Population and Development Review* 41 (1): 33–58.
- Bertaud, A. and J. K. Brueckner. 2004. "Analyzing Building Height Restrictions – Predicted Impacts, Welfare Costs, and a Case Study of Bangalore, India." Policy Research Working Paper 3290, World Bank, Washington, DC.
- Besley, T. and R. Burgess. 2004. "Can Labor Regulation hinder Economic Performance? Evidence from India." *The Quarterly Journal of Economics* 119 (1): 91–134.
- Béteille, T. and V. Ramachandran. 2016. "Contract Teachers in India." *Economic and Political Weekly* 51(25): 40-47.
- Bhatla, N., P. Achyut, S. Ghosh, A. Gautam, and R. Verma. 2013. "Baseline Finding from the Safe City Delhi Programme." UN Women and ICRW, Delhi.
- Bhattacharjea, A. 2006. "Labour Market Regulation and Industrial Performance in India: A Critical Review of the Empirical Evidence." *Indian Journal of Labour Economics* 49 (2): 211–232.
- Birdsall, N. 2010. "The (Indispensable) Middle Class: Or, Why it's the Rich and the Rest, not the Poor and the Rest." Working Paper 207, Center for Global Development, Washington, DC.
- Bloom, D., D. Canning, and J. Sevilla. 2003. **The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change**. Santa Monica, CA: Rand Corporation.
- Bloom, N., B. Eifert, D. McKenzie, A. Mahajan, and J. Roberts. 2013. "Does Management Matter: Evidence from India." *Quarterly Journal of Economics* 128 (1): 1–51.
- Bowles, J. 2014. "The Computerisation of European Jobs." Accessed from: <http://bruegel.org/2014/07/the-computerisation-of-european-jobs/>
- Brainerd, E. and N. Menon. 2014. "Seasonal Effects of Water Quality: The Hidden Costs of the Green Revolution to Infant and Child Health in India." *Journal of Development Economics* 107(C): 49–64.
- Brauer, M., G. Freedman, J. Frostad, A. Van Donkelaar, R. V. Martin, F. Dentener, R. Van Dingenen, K. Estep, H. Amini, J. Apte, K. Balakrishnan, L. Barregard, D. Broday, V. Feigin, S. Ghosh, P. Hopke, L. Knibbs, Y. Kokubo, Y. Liu, S. Ma, L. Morawska, J. Sangrador, G. Shaddick, H. Anderson, T. Vos, M. Forouzanfar, R. Burnett, and A. Cohen. 2015. "Ambient Air Pollution Exposure Estimation for the Global Burden of Disease 2013." *Environmental Science & Technology* 50 (1): 79–88.
- Bulman, D., M. Eden, and H. Nguyen. 2014. "Transitioning from Low-Income Growth to High-Income Growth. Is There a Middle Income Trap?" Policy Research Working Paper 7104, World Bank, Washington, DC.
- Carswell, G. and R. Cripps. 2013. "Sounding a Note of Caution." *Economic & Political Weekly* 48 (30): 25–28.
- Case, A. and C. Paxson. 2008a. "Height, Health, and Cognitive Function at Older Ages." *American Economic Review: Papers and Proceedings* 98 (2): 463–467.

- . 2008b. "Stature and Status: Height, Ability, and Labor Market Outcomes." *Journal of Political Economy* 116 (3): 499–532.
- Center for Policy Research (CPR). 2011. Mapping Medical Providers in Rural India Project. New Delhi.
- Chancel, L. and T. Piketty. 2017. "Indian Income Inequality, 1922-2014: From British Raj to Billionaire Raj?" *WID World Working Paper Series* No. 2017/11.
- Chari, A. V. 2011. "Identifying the Aggregate Productivity Effects of Entry and Size Restrictions: An Empirical Analysis of License Reform in India." *American Economic Journal: Economic Policy* 3(2): 66-96.
- Chatterjee, U., R. Murgai, A. Narayan, and M. Rama. 2016. *Pathways to Reducing Poverty and Sharing Prosperity in India: Lessons from the Last Two Decades*. Washington, DC: World Bank.
- Chaurey, R. 2015. "Labor Regulations and Contract Labor Use: Evidence from Indian Firms." *Journal of Development Economics* 114 (3): 224–232.
- Chauvin, J. P., E. Glaeser, Y. Ma, and K. Tobio. 2016. "What is Different about Urbanization in Rich and Poor Countries? Cities in Brazil, China, India, and the United States." Working Paper 22002, NBER, Cambridge, MA.
- Clarke, K. 2016. "Estimating the Impact of India's Aadhaar Scheme on LPG Subsidy Expenditure." International Institute of Sustainable Development.
- Coarasa, J. and J. Das. 2015. "Primary Care for the Poor." Viewpoint No. 345, World Bank, Washington, DC.
- Coffey, D., A. Gupta, P. Hathi, N. Khurana, D. Spears, N. Srivastav, and S. Vyas. 2014. "Revealed Preference for Open Defecation: Evidence from New Survey Data." *Economic & Political Weekly* 49 (38): 43.
- Credit Suisse. 2016. *Global Wealth Report 2016*. Zurich.
- Cristelli, M., M. Batty, and L. Pietronero. 2012. "There is More than a Power Law in Zipf." *Scientific Reports* 2 (812): 1–7.
- Daksh India. 2016. Access to Justice Survey 2015-16. Bengaluru.
- Dang, H. A. and P. Lanjouw. 2015. "Poverty Dynamics in India between 2004 and 2012: Insights from Longitudinal Analysis Using Synthetic Panel Data." *Policy Research Working Paper* No. 7270, World Bank, Washington DC.
- Das, J., A. Holla, A. Mohpal, and K. Muralidharan. 2016. "Quality and Accountability in Health Care Delivery: Audit-Study Evidence from Primary Care in India." *American Economic Review* 106 (12): 3765–3799.
- Das, J., A. Holla, V. Das, M. Mohanan, D. Tabak, and B. Chan. 2012. "In Urban and Rural India, A Standardized Patient Study Showed Low Levels of Provider Training and Huge Quality Gaps." *Health Affairs* 31 (12): 2774–2784.
- Das, J. and A. Mohpal. 2016. "Socioeconomic Status and Quality of Care in Rural India: New Evidence from Provider and Household Surveys." *Health Affairs* 35 (10): 1764–1773.
- Datt, G., M. Ravallion, and R. Murgai. 2016. "Growth, Urbanization and Poverty Reduction in India." Working Paper 21983, NBER, Cambridge, MA.
- De Loecker, J., P. Goldberg, A. Khandelwal, and N. Pavcnik. 2016. "Prices, Markups, and Trade Reform." *Econometrica* 84 (2): 445–510.

- De Vries, G., A. Erumban, M. Timmer, and I. Voskoboynikov. 2012. "Deconstructing the BRICS: Structural Transformation and Aggregate Productivity Growth." *Journal of Comparative Economics* 40 (2): 211-227.
- Demirguc-Kunt, A., L. Klapper, D. Singer, S. Ansar, and J. Hess. 2018. *The Global Findex Database 2017: Measuring Financial Inclusion and the Fin-tech Revolution*. World Bank, Washington DC.
- Deshpande, A. 2016. "Double Jeopardy? Caste, Affirmative Action, and Stigma." *WIDER Working Paper 2016/71*, United Nations University World Institute for Development Economics Research.
- Deshpande, A. and K. Newman. 2007. "Where the Path Leads: The Role of Caste in Post-University Employment Expectations." *Economic and Political Weekly* 42 (41): 4133–4140.
- Deshpande, A. and S. Sharma. 2016. "Disadvantage and Discrimination in Self-Employment: Caste Gaps in Earnings in Indian Small Businesses." *Small Business Economics* 46 (2): 325–346.
- Dhaliwal, I. and R. Hanna. 2017. "The Devil is in the Details: The Successes and Limitations of Bureaucratic Reform in India." *Journal of Development Economics* 124 (C): 1–21.
- Diao, X., M. McMillan, and D. Rodrik. 2017. "The Recent Growth Boom in Developing Economies: A Structural Change Perspective." Working Paper 23132, NBER, Cambridge, MA.
- Dixit, A. K. 2007. *Lawlessness and Economics: Alternative Modes of Governance*. Princeton, NJ: Princeton University Press.
- Dougherty, S., R. Herd, and T. Chalaux. 2009. "What is Holding Back Productivity Growth in India?" *OECD Journal: Economic Studies* 1: 1–22.
- Duflo, E., M. Greenstone, R. Pande, and N. Ryan. 2013. "Truth-Telling by Third-Party Auditors and the Response of Polluting Firms: Experimental Evidence from India." *Quarterly Journal of Economics* 128 (4): 1499–1545.
- Duranton, G., E. Ghani, A. G. Grover, and W. R. Kerr. 2015. "Effects of Land Misallocation on Capital Allocations in India." Policy Research Working Paper 7451, World Bank, Washington, DC.
- Dutta, P., R. Murgai, M. Ravallion, and D. van de Walle. 2014. *Right to Work? Assessing India's Employment Guarantee Scheme in Bihar*. Washington, DC: World Bank.
- Economist Intelligence Unit. 2015. *Long-term Macroeconomic Forecasts: Key Trends to 2050*. Special Report from the Economist Intelligence Unit. London.
- Educational Initiatives. 2016. "Time on Task Study in Secondary Schools." World Bank, New Delhi.
- Ellis, P. and M. Roberts. 2016. *Leveraging Urbanization in South Asia: Managing Spatial Transformation for Prosperity and Livability*. Washington, DC: World Bank.
- Ernst, D. 2014. "Fast Tracking India's Electronics Manufacturing Industry: Business environment and Industrial Policy." World Bank.
- Evans, P. 2005. "Harnessing the State: Rebalancing Strategies for Monitoring and Motivation." In *States and Development: Historical Antecedents of Stagnation and Advance*, edited by Matthew Lange and Dietrich Rueschemeyer, 26–47. New York: Palgrave Macmillan.
- Fan, S., Gulati, A., & Thorat, S. 2008. Investment, Subsidies, and Pro-Poor Growth in Rural India. *Agricultural Economics*, 39(2), 163-170.
- Ferreira, F. and M. Ravallion. 2008. "Global Poverty and Inequality: A Review of the Evidence." Policy Research Working Paper 4623, World Bank, Washington, DC.

- Ferreira, F., S. Chen, A. Dabalen, Y. Dikhanov, N. Hamadeh, D. Jolliffe, A. Narayan, E. Prydz, A. Revenga, P. Sangraula, U. Serajuddin, and N. Yoshida. 2016 "A Global Count of the Extreme Poor in 2012: Data Issues, Methodology and Initial Results." *Journal of Economic Inequality* 14 (2): 141–172.
- Food and Agriculture Organization. 2016a. **FAOStat**. FAO Statistics Division, Rome.
- Food and Agriculture Organization. 2016b. **AQUASTAT Main Database**. FAO Statistics Division, Rome.
- Forouzanfar, M.H., Alexander, L., Anderson, H.R., Bachman, V.F., Biryukov, S., Brauer, M., Burnett, R., Casey, D., Coates, M.M., Cohen, A. and Delwiche, K., 2015. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*, 386(10010), pp.2287-2323.
- Foster, L., J. Haltiwanger, and C. J. Krizan. 2002. "The Link between Aggregate and Micro Productivity Growth: Evidence from Retail Trade." Working Paper 9120, NBER, Cambridge MA.
- Foster, V., and J. Steinbuks. 2009. "Paying the Price for Unreliable Power Supplies: In-house Generation of Electricity by Firms in Africa." Policy Research Working Paper 4913, World Bank, Washington DC.
- Frey, C. B. and M. A. Osborne. 2013. **The Future of Employment: How Susceptible are Jobs to Computerisation**. Oxford, UK: Oxford Martin School.
- Global Burden of Disease Collaborators. 2013. "Global, regional, and national comparative risk assessment of 79 behavioral, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: A systematic analysis for the Global Burden of Disease Study 2013." *Lancet* 386 (10010): 2287–2323.
- Ghani, E., A. G. Goswami, and W. R Kerr. 2012. "Is India's Manufacturing Sector Moving Away from Cities?" Working Paper 17992, NBER, Cambridge, MA.
- . 2015. "Highway to Success: The Impact of the Golden Quadrilateral Project for the Location and Performance of Indian Manufacturing." *Economic Journal* 126 (591): 317–357.
- Ghani, E., W. Kerr, and S. O'Connell. 2013. **Promoting Women's Economic Participation in India**. Economic Premise 107. Washington, DC: World Bank.
- Gill, I. S., and H. J. Kharas. 2007. **An East Asian Renaissance: Ideas for Economic Growth**. Washington, DC: World Bank.
- . 2015. "The Middle-Income Trap turns Ten." Policy Research Working Paper 7403, World Bank, Washington, DC.
- Giné, X. and M. Kanz. 2014. "The Economic Effects of a Borrower Bailout: Evidence from an Emerging Market." Policy Research Working Paper 7109, World Bank, Washington, DC.
- Goel, D. and A. Deshpande. 2016. "Identity, Perceptions and Institutions: Caste Differences in Earnings from Self-Employment in India." Discussion Paper No. 10198, IZA Institute of Labor Economics, Bonn, Germany.
- Goel, R. and S. K. Guttikunda. 2015. "Evolution of On-Road Vehicle Exhaust Emissions in Delhi." *Atmospheric Environment* 105: 78–90.
- Goldberg, P. K., A. Khandelwal, N. Pavcnik, and P. Topalova. 2010. "Imported Intermediate Inputs and Domestic Product Growth: Evidence from India." *Quarterly Journal of Economics* 125(4): 1727-1767.



- Government of India, Central Pollution Control Board. 2015. **Assessment of Status of Municipal Solid Wastes Management in Metro Cities and State Capitals**. New Delhi.
- Government of India, Ministry of Finance. 2015. **Neutral Rate and the Structure of Rates for a Goods and Services Tax**. New Delhi.
- . 2016. **Economic Survey 2015-16**. New Delhi.
- . 2017. **Economic Survey 2016-17**. New Delhi.
- Government of India, Ministry of Road Transport and Highways. 2012. **Report of the Working Group on Roads for the National Transport Development Policy Committee**. New Delhi.
- Government of India, Ministry of Urban Development. 2011. **Report of the High-Powered Expert Committee for Estimating the Investment Requirement of Infrastructure Services**. New Delhi.
- Government of India, Ministry of Water Resources. 1999. **Report of the National Commission for Integrated Water Resources Development Plan**. New Delhi.
- Government of India, MOHFW (Ministry of Health and Family Welfare). 2016. **Prioritizing investments for achieving MDG 4 & 5: Progress & Challenges**. New Delhi.
- Government of India, NITI Aayog. 2016. **Report of the Expert Committee on Land Leasing**. New Delhi.
- Government of India, Planning Commission. 2014. **India Transport Report: Moving India to 2032**. Report of the National Transport Development Policy Committee. New Delhi.
- Goyal, A. 2010. "Information, Direct Access to Farmers, and Rural Market Performance in Central India." *Applied Economics* 2 (3): 22–45.
- Goyal, S. 2007. **Learning Achievements in India: A Study of Primary Education in Orissa**. Washington, DC: World Bank.
- Goyal, S. and P. Pandey. 2013. "Contract Teachers in India." *Education Economics* 21 (5): 464–484.
- Greenstone, M. and R. Hanna. 2014. "Environmental Regulations, Air and Water Pollution, and Infant Mortality in India." *American Economic Review* 104 (10): 3038–3072.
- Gregory, R., C. Henn, B. McDonald, and M. Saito. 2010. "Trade and the Crisis: Protect or Recover." *Journal of International Commerce, Economics and Policy* 1 (02): 165–181.
- Gruss, B. 2014. "After the Boom—Commodity Prices and Economic Growth in Latin America and the Caribbean." Working Paper No. 14-154, International Monetary Fund, Washington, DC.
- Gupta, A. and D. Spears. 2017. "Health Externalities of India's Expansion of Coal Plants: Evidence from a National Panel of 40,000 Households." *Journal of Environmental Economics and Management*. Article in press.
- Gupta, P., R. Hasan, and U. Kumar. 2007. "What Constrains Indian Manufacturing?" in **Emerging Giants: China and India in the World Economy**, eds. B. Eichengreen, P. Gupta and R. Kumar, Oxford University Press.
- Guttikunda, S. 2015. **Emissions Projections in India**. [http://www.htap.org/meetings/2015/2015\\_Feb11-13/presentations/16.1.Guttikunda%20-%20Pollution%20India%20Scenarios%20-%202015.02.11.pdf](http://www.htap.org/meetings/2015/2015_Feb11-13/presentations/16.1.Guttikunda%20-%20Pollution%20India%20Scenarios%20-%202015.02.11.pdf).
- Hallward-Driemeier, M. and L. Pritchett. 2015. "How Business is Done in the Developing World: Deals versus Rules." *Journal of Economic Perspectives* 29 (3): 121–140.

- Hathi, P., L. Inha, S. Lamba, M. Kumar, and R. Murgai. 2016. "Interlinking WASH and Poverty in India: A Tool for Targeted Action." Working Paper, World Bank, New Delhi.
- Hausmann, R. 2014. "The Economics of Inclusion." *Project Syndicate*, November 7.
- Hausmann, R., C. A. Hidalgo, S. Bustos, M. Coscia, S. Chung, J. Jimenez, A. Simoes, and M. Yildirim. 2011. *The Atlas of Economic Complexity*. Cambridge, MA: Puritan Press.
- Herrera Dappe, M. and A. Suárez-Alemán. 2016. *Competitiveness of South Asia's Container Ports: A Comprehensive Assessment of Performance, Drivers, and Costs*. Washington, DC: World Bank.
- Hidalgo, C. and R. Hausmann. 2009. "The building blocks of economic complexity." *Proceedings of the National Academy of Sciences* 106 (26): 10570–10575.
- Himanshu, and A. Sen. 2013. "In-Kind Food Transfers-I." *Economic and Political Weekly* 48 (45–46): 46–54.
- Hoff, K. and P. Pandey. 2006. "Discrimination, Social Identities and Durable Inequalities." *American Economic Review* 96 (2): 206–211.
- Horton, S. and R. Steckel. 2013. "Malnutrition: Global Economic Losses Attributable to Malnutrition 1900–2000 and Projections to 2050." In *The Economics of Human Challenges*, edited by B. Lomborg. Cambridge: Cambridge University Press.
- Hsieh, C. and B. Olken. 2014. "The Missing Missing Middle." *Journal of Economic Perspectives* 28 (3): 89–108.
- Hsieh, C. and E. Moretti. 2015. "Why do Cities Matter? Local Growth and Aggregate Growth." Working Paper 21154, NBER, Cambridge, MA.
- Hsieh, C. and P. Klenow. 2009. "Misallocation and Manufacturing TFP in China and India." *Quarterly Journal of Economics* 124 (4): 1403–1448.
- . 2014. "The Life Cycle of Plants in India and Mexico." *Quarterly Journal of Economics* 129 (3): 1035–1084.
- Huang J., A. Gulati, and I. Gregory. 2017. *Fertilizer subsidies: which way forward?* Muscle Shoals, AL: International Fertilizer Development Center.
- International Food Policy Research Institute (IFPRI). 2016. *Global Nutrition Report 2016: From Promise to Impact: Ending Malnutrition by 2030*. Washington DC.
- International Finance Corporation (IFC). 2012. *Micro, Small and Medium Enterprise Finance in India: A Research Study on Needs, Gaps, and Way Forward*. Washington, DC.
- International Monetary Fund (IMF). 2017. *World Economic Outlook: Gaining Momentum?* Washington, April.
- Iyer, L. and A. Mani. 2012. "Traveling Agents: Political Change and Bureaucratic Turnover in India." *Review of Economics and Statistics* 94(3): 723–739.
- Johnson, S., J. McMillan, and C. Woodruff. 2002. "Courts and Relational Contracts." *Journal of Law, Economics, and Organization* 18 (1): 221–277.
- Jordan L.S. and B. Kamphuis. 2014. "Supply Chain Delays and Uncertainty in India: The Hidden Constraint on Manufacturing Growth." World Bank, New Delhi.
- Joshi, R. 2014. *Mobility practices of the urban poor in Ahmedabad (India)*. Bristol, UK: University of the West of England.

- Joshi, V. 2016. **India's Long Road: The Search for Prosperity**. Penguin Books, India.
- Kapur, D., T. V. Somanathan, and A. Subramanian. 2014. "Land Shackled." **Business Standard**, July 20.
- Kathuria, A. K., E. Orbach, and D. Anand. 2014. **Institutional Arrangements for Nutrition in India: An Assessment of Capacity**. Report No. ACS8021. Washington, DC: World Bank.
- Kaur, R., S. P. Wani, A. K. Singh, and K. Lal. 2012. "Wastewater Production, Treatment and Use in India." National Report presented at the 2<sup>nd</sup> Regional Workshop on Safe Use of Wastewater in Agriculture, UN Water, New Delhi, May 16–18.
- Khemani, S., E. Dal Bo, C. Ferraz, F. Finan, J. Stephenson, C. Louise, A. Odugbemi, D. Thapa, S. Abrahams. 2016. **Making Politics Work for Development: Harnessing Transparency and Citizen Engagement**. World Bank, Washington DC.
- Khera, R. 2017. "Impact of Aadhaar in Welfare Programmes." <https://ssrn.com/abstract=3045235>
- Kingdon, G. G., S. Sinha, V. Kaul, G. Bhargava, and K. Pental. 2016. **Value for Money from Public Education Expenditure on Elementary Education in India**. World Bank, Washington DC.
- Kochhar, K., U. Kumar, R. Rajan, A. Subramanian, and I. Tokatlidis. 2006. "India's Pattern of Development: What Happened, What Follows?" **Journal of Monetary Economics** 53(5): 981-1019.
- Kone, Z. L., M. Y. Liu, A. Mattoo, C. Ozden, and S. Sharma. 2016. "Internal Borders and Migration in India." Working Paper, World Bank, Washington DC.
- Koske, I., I. Wanner, R. Bitetti, and O. Barbiero. 2015. "The 2013 Update of the OECD's Database on Product Market Regulation." Economics Department Working Paper No. 1200, Organisation for Economic Co-operation and Development, Paris.
- Krishna, K.L., A. A. Erumban, D. K. Das, S. Aggarwal, and P.C. Das. 2017. "Industry Origins of Economic Growth and Structural Change in India." Working Paper 273, Center for Development Economics, Delhi School of Economics, New Delhi.
- Krishnan, K. P. and T. V. Somanathan. 2017. "The Civil Service." In **Rethinking Public Institutions in India**. eds. D. Kapur, P. B. Mehta, and M. Vaishnav. New Delhi: Oxford University Press.
- Laffont J. J. and J.T. Tirole. 1993. **A Theory of Incentives and Procurement**, MIT Press, Cambridge
- Lahoti, R. 2016. "Questioning the "Phenomenal Success" of Aadhaar-linked Direct Benefit Transfers for LPG." **Economic and Political Weekly** 51(52).
- Lahoti, R., J. Y. Suchitra, and P. Goutam. 2012. "Subsidies for Whom: The Case of LPG in India," **Economic and Political Weekly** 47 (44): 16–18.
- Laporšek, S. and M. Vodopivec. 2014. "Labor Regulation in India: How Do Other Countries at a Similar Development Level Compare?" **Manuscript**, World Bank, Washington DC.
- Li, Y. and M. Rama. 2015. "Households or Locations? Cities, Catchment Areas, and Prosperity in India." Policy Research Working Paper 7473, World Bank, Washington, DC.
- Lima, R. R. S. 2012. "Complexo Eletronico: Evolucao Recente e os Desafios para o Setor e para a Atuacao do BNDES" in: Lage de Sousa (Org.). 'BNDES 60 Anos: Perspectivas Setoriais' Limited Edition, Vol. I, pages 42-96, BNDES, Rio de Janeiro, Brazil.
- Lobell, D. B., A. Sibley, and I. J. Ortiz-Monasterio. 2012. "Extreme Heat Effects on Wheat Senescence in India." **Nature Climate Change** 2 (3): 186–189.

- Lobell, D. B., W. Schlenker, and J. Costa-Roberts. 2011. "Climate Trends and Global Crop Production since 1980." *Science* 333 (6042): 616–20.
- Lopez-Acevedo, G., D. Medvedev, and V. Palmade. 2016. *South Asia's Turn: Policies to Boost Competitiveness and Create the Next Export Powerhouse*. Washington, DC: World Bank.
- Maccini, S. and D. Yang. 2009. "Under the Weather: Health, Schooling, and Economic Consequences of Early-Life Rainfall." *American Economic Review* 99 (3): 1006–26.
- McKinsey Global Institute. 2014. *From Poverty to Empowerment: India's Imperative for Jobs, Growth and Effective Basic Services*.
- Milanovic, B. and S. Yitzhaki. 2002. "Decomposing World Income Distribution: Does the World Have a Middle Class?" *Review of Income and Wealth* 48 (2): 155–178.
- Misra, S. and A. K. Suresh. 2014. "Estimating Employment Elasticity of Growth for the Indian Economy." Working Paper Series No. 6, Reserve Bank of India, Mumbai.
- Mohan, R. 2016. *Transporting India to the 2030s: What do we need to do?* India Policy Brief 072016. New Delhi.
- Moore, C. and S. A. Prillaman (2015) "To Train Millions a Week, Skill India Needs Wider Net." *IndiaSpend* December 23, 2015.
- Moretti, E. (2014. "Are Cities the New Growth Escalator?" Policy Research Working Paper 6881, World Bank, Washington, DC.
- Muralidharan, K. 2016. *A New Approach to Public Sector Hiring in India for Improved Service Delivery*. India Policy Forum, New Delhi.
- Muralidharan, K., J. Das, A. Holla, and A. Mohpal. 2016a. "The Fiscal Cost of Weak Governance: Evidence from Teacher Absence in India." Working Paper 20299, NBER, Cambridge, MA.
- Muralidharan, K., P. Niehaus, and S. Sukhtankar. 2016b. "Building State Capacity: Evidence from Biometric Smartcards in India." *American Economic Review* 106 (10): 2895–2929.
- Muralidharan, K., A. Singh, and A. J. Ganimian. 2017a. "Disrupting Education? Experimental Evidence on Technology-Aided Instruction in India." Working Paper 22923, NBER, Cambridge, MA.
- Muralidharan, K., P. Niehaus, and S. Sukhantar. 2017b. "Direct Benefits Transfer in Food: Results from One Year of Process Monitoring in Union Territories." UC San Diego. [http://econweb.ucsd.edu/~kamurali/papers/Other%20Writing/20170905\\_UT\\_DBT\\_Report.pdf](http://econweb.ucsd.edu/~kamurali/papers/Other%20Writing/20170905_UT_DBT_Report.pdf)
- Naqvi, H. 2016. "Lakhs vie for 40,000 Sanitation Jobs." *Hindustan Times*. Available at: <https://www.pressreader.com/india/hindustan-times-jalandhar/20160902/281921657483269>.
- Narain, A. 2016. "Electronics in South Asia." World Bank, Washington DC. <https://openknowledge.worldbank.org/handle/10986/25118>
- Narayan, A. and R. Murgai. 2016. "Looking Back at Two Decades of Poverty and Well-Being in India." Policy Research Working Paper 7626, World Bank, Washington, DC.
- National Council of Applied Economic Research (NCAER). 2009. "Moving to Goods and Services Tax in India: Impact on India's Growth and International Trade." Report prepared for the Thirteenth Finance Commission Government of India. New Delhi.
- Nayyar, G. and K. Kim. 2016. "Internal migration in India." Working Paper, World Bank, Washington, DC.

- NITI Aayog-IDFC Institute. 2017. **Ease of Doing Business: An Enterprise Survey of Indian States**. New Delhi.
- Nunn, N. 2007. "Relationship-Specificity, Incomplete Contracts, and the Pattern of Trade." **Quarterly Journal of Economics** 122 (2): 569–600.
- OECD. 2013. "Protecting Jobs, Enhancing Flexibility: A New Look at Employment Protection Legislation." Chapter 2 of the 2013 Edition of the OECD Employment Outlook.
- OECD. 2016. "Getting Skills Right: Assessing and Anticipating Changing Skill Needs."
- OECD. 2017. **OECD Economic Surveys: India**.
- Olley, G. S. and A. Pakes. 1996. "The Dynamics of Productivity in the Telecommunications Equipment Industry." **Econometrica** 64(6):1263–97.
- Ostry, J.D., A. Berg, and C. G. Tsangarides. 2014. "Redistribution, Inequality, and Growth." International Monetary Fund Staff Discussion Note, Washington DC.
- Paes de Barros, R., F. Ferreira, J. Vega, and J. Saavedra Chanduvi. 2009. **Measuring Inequality of Opportunities in Latin America and the Caribbean**. World Bank, Washington DC.
- Pande, R., J. Johnson and E. Dodge. 2016. "How to Get India's Women Working? First, Let them out of the House." **IndiaSpend**, April 9.
- Pandey, P., S. Goyal, and V. Sundararaman. 2008. "Community Participation in Public Schools: The Impact of Information Campaigns in Three Indian States. **Policy Research Working Paper, Impact Evaluation Series No. 26**. Human Development Department, South Asia Region, World Bank.
- Persson, T. and G. E. Tabellini. 2002. **Political Economics: Explaining Economic Policy**. MIT press, Cambridge MA.
- Polaski, S. 2016. "The Future of Work in India and Beyond." **Indian Journal of Human Development** 10 (1): 1–9.
- Powers, N., Blackman, A., Lyon, T.P. and Narain, U., 2011. "Does disclosure reduce pollution? Evidence from India's green rating project." **Environmental and Resource Economics**, 50(1), p.131.
- Pratham. 2017. **Annual Status of Education Report (Rural) 2016**. ASER Center.
- Pritchett, L. and L. H. Summers. 2014. "Asiaphoria Meets Regression to the Mean." Working Paper 20573, NBER, Cambridge, MA.
- Pritchett, L. and M. Spivack. 2013. "Estimating Income/Expenditure Differences across Populations: New Fun with Old Engel's Law." Working Paper 339, Center for Global Development, Washington, DC.
- Pritchett, L. and Y. Aiyar. 2014. "Value Subtraction in Public Sector Production: Accounting versus Economic Cost of Primary Schooling in India." Working Paper 391, Center for Global Development, Washington, DC.
- PwC. 2015. **The World in 2050: Will the Shift in Global Economic Power Continue?** United Kingdom.
- Rama, M., T. Bételle, Y. Li, P. K. Mitra, J. L. Newman. 2015. **Addressing Inequality in South Asia**. Washington, DC: World Bank.
- Ramankutty, N., A. Evan, C. Monfreda, and J. A. Foley, Farming the Planet. 1: The Geographic Distribution of Global Agricultural Lands in the Year 2000, *Glob. Biogeochem. Cycles*, 22, GB1003, doi:10.1029.
- Rao, M., K. D. Rao, A. K. S. Kumar, M. Chatterjee, and T. Sundararaman. 2011. "Human Resources for Health in India." **Lancet** 377 (9765):587–598.

- Reis, J. G. and T. Farole. 2010. **Trade and the Competitiveness Agenda**. Economic Premise No. 18. Washington, DC: World Bank.
- Rastogi, C., R. Banomyong, and A. Khanna. 2016. **Improving Connectivity and Supply Chains**. Mimeo, World Bank, Washington DC.
- Rockström, J., et al. 2009 "A Safe Operating Space for Humanity." *Nature* 461.7263: 472-475.
- Saigal, M. and C. Guzder. 2013. **Logistics Game Changers: Transforming India's logistics industry**. KPMG India.
- Sankar, D. and T. Linden. 2014. **How Much and What Kind of Teaching is there in Elementary Education in India? Evidence from Three States**. Report No. 67, Discussion Paper Series, South Asia Region, World Bank.
- Sarkar, P., V. Mathur, V. Maitri, and K. Kalra. 2007. "Potential for Economic Gains from Inland Water Transport in India." **Transportation Research Record: Journal of the Transportation Research Board** (2033): 45-52.
- Sekhri, S. 2013a. "Sustaining Groundwater: Role of Policy Reforms in Promoting Conservation in India." New Delhi: India Policy Forum.
- . 2013b. **Missing Water: Agricultural Stress and Adaptation Strategies in Response to Groundwater Depletion in India**. Charlottesville, VA: Department of Economics, University of Virginia.
- Shekar M., J. Kakietek, J. D. Eberwein, and D. Walters. 2017. **An Investment Framework for Nutrition: Reaching the Global Targets for Stunting, Anemia, Breastfeeding, and Wasting**. Washington, DC: World Bank.
- Singh, A. 2011. "The Changing Landscape of Public Expenditure and Investments in Indian Agriculture." **Indian Journal of Agricultural Economics** 66 (3): 301–13.
- Singh, A., M. Sharma and M. Sadana. 2015. "Assessing the Most Ambitious Public Financial Inclusion Drive in History: An Early Dip-Stick Assessment of Bank Mitr's under Pradhan Mantri Jan Dhan Yojana." **Microsave India Focus Note** No. 114.
- Sinha, S., R. Banerji, and W. Wadhwa. 2016. "Teacher Performance in Bihar, India: Implications for Education." **Directions in Development**, Human Development, World Bank.
- Sivadasan, J. 2009. "Barriers to Competition and Productivity: Evidence from India." **The BE Journal of Economic Analysis & Policy** 9 (1): 1–64.
- Steckel R. H. 2008. "Heights and Human Welfare: Recent Developments and New Directions." Working Paper 14536, NBER, Cambridge, MA.
- Subramanian, A. 2017. "Transforming Indian Agriculture: Do We Need to Love Some Agriculture Less and the Rest More?" **Contemporary Themes in India's Economic Development and the Economic Survey**, Module 9, New Delhi.
- Sukhantar, S. 2016. "India's National Rural Employment Guarantee Scheme: What do we really know about the World's Largest Workfare Program?" **India Policy Forum**.
- Summers, L. H. and L. Pritchett. 2014. "Asiaphoria meets Regression to the Mean." Working Paper 20573, NBER, Cambridge, MA.

- Sunderlin, W.D., A. Angelsen, B. Belcher, P. Burgers, R. Nasi, L. Santoso, L. and S. Wunder. 2005. "Livelihoods, Forests, and Conservation in Developing Countries: An Overview." *World Development* 33(9): 1383-1402.
- Tewari, M., and N. Godfrey. 2016. **Better Cities, Better Growth: India's Urban Opportunity**. London, Washington DC, and New Delhi: New Climate Economy, World Resources Institute, and Indian Council for Research on International Economic Relations.
- Tewari, M., S. Alder, and M. Roberts. Forthcoming. "India's Urban and Spatial Development in the Post-Reform Period: An Empirical Analysis." Background Paper, New Climate Economy, London.
- UN Department of Economic and Social Affairs. 2011. **Sex Differentials in Childhood Mortality**. New York: United Nations.
- Vaishnav, M. 2017. **When Crime Pays: Money and Muscle in Indian Politics**. Yale University Press and Harper Collins.
- Van Donkelaar, A., R. Martin, M. Brauer, N. C. Hsu, R. Kahn, R. Levy, A. Lyapustin, A. M. Sayer, and D. Winker. 2016. "Global Estimates of Fine Particulate Matter using a Combined Geophysical-Statistical Method with Information from Satellites, Models, and Monitors." *Environmental Science and Technology* 50: 3762–3772.
- Van Leemput, E. 2016. "A Passage to India: Quantifying Internal and External Barriers to Trade." International Finance Discussion Paper 1185, Board of Governors of the Federal Reserve System, Washington, DC.
- Van Leemput, E. and E. A. Wiencek. 2017. "The Effect of the GST on Indian Growth." IFDP Note, Board of Governors of the Federal Reserve System, Washington, DC.
- Vandeplas, A., Minten, B. and Swinnen, J., 2013. Multinationals vs. cooperatives: The income and efficiency effects of supply chain governance in India. *Journal of agricultural economics*, 64(1), pp.217-244.
- Walker, M. 2011. "PISA 2009 Plus Results-Performance of 15-year-olds in Reading, Mathematics and Science for 10 Additional Participants. **Australian Council for Educational Research**.
- Wilson, D. and R. Purushothaman. 2003. "Dreaming with BRICs: The Path to 2050." Global Economics Paper No. 99, Goldman Sachs.
- World Bank. 2003. **World Development Report 2004: Making Services Work for Poor People**. Washington, DC.
- . 2005. **World Development Report 2006: Equity and Development**. Washington, DC.
- . 2006. **Inclusive Growth and Service Delivery: Building on India's Success**. Washington, DC.
- . 2011. **World Development Report 2012: Gender Equality and Development**. Washington, DC.
- . 2012. **World Development Report 2013: Jobs**. Washington, DC.
- . 2014. **Republic of India: Accelerating Agricultural Productivity Growth**. World Bank, Washington, DC.
- . 2015a. **India's Highways Public-Private Partnership Programs: Addressing Current Challenges and Moving Forward**. Washington, DC.
- . 2015b. **Labor Market Impacts and Effectiveness of Skills Development Programs in India**. New Delhi.
- . 2016a. **World Development Report 2016: Digital Dividends**. Washington, DC.

- . 2016b. **World Development Report 2017: Governance and the Law**. Washington, DC.
- . 2016c. **India Land Governance Assessment National Synthesis Report**. Washington, DC.
- . 2016d. **Doing Business 2017: Equal Opportunity for All**. Washington DC.
- . 2017a forthcoming. "From Schemes to Systems: Social Protection for a Transforming India." Social Protection Working Paper Series, Washington, DC.
- . 2017b. **Uncharted Water: The New Economics of Water Scarcity**. Washington, DC.
- . 2017c. **Trouble in the Making? The Future of Manufacturing-Led Development**. Washington, DC.
- . 2017d. **India Development Update: Unlocking Women's Potential**. New Delhi.
- . 2017e. **South Asia Economic Focus Spring 2017: Globalization Backlash**. Washington DC.
- . 2017f. **World Development Report 2018: Learning to Realize Education's Promise**. Washington DC.
- . 2017g. **Doing Business 2018: Reforming to Create Jobs**. Washington DC.
- . 2017h forthcoming. **South Asia Hotspots**. Washington DC.
- World Bank and Institute for Health Metrics and Evaluation. 2016. **The Cost of Air Pollution: Strengthening the Economic Case for Action**. Washington, DC.
- World Bank-Public Affairs Centre. 2016. **Implementation of the Right to Public Services Act in India: A Quantitative Assessment**. Washington, DC.
- Wunder, S., F. Noak, and A. Angelsen. Forthcoming. "Crops and Forests." **Environment and Development Economics**.
- Zhang, F. Forthcoming. **In the Dark: How Much Do Power Sector Distortions Cost to South Asia?** World Bank, Washington DC.



## Annex 1. Overview of statistical capacity

India has a Statistical Capacity Indicator (SCI) score of 77.78 (out of 100).<sup>266</sup> Based on this score, the key challenge for India is the periodicity of data collection and data openness. More frequent collection and timely release of data on consumption, jobs and other non-monetary indicators of well-being are identified as the key challenges for the country.

Section 1: General Information about the Statistical System	
Legal status of NSO	Ministry of Statistics and Programme Implementation
Statistical Legislation (latest)	Collection of Statistics Rules (1959, 2008, 2011)
NSDS/Statistical masterplan	Strategic Plan 2011-2016

Section 2: Micro data						
Type of census/survey	Latest (Year)	Second Latest (Year)	Representativeness (national, regional, urban/rural)	Data Accessibility (open access/with permission/no access)	Disaggregation (Y/N)	
					Sex	Regional
Censuses						
Population census	2011	2001	Village/ward	Open access	Y	Y
Agriculture census	2010-11	2005-06	Tehsil	Open access (reports)		Y
Business/establishment census	2013-14	2005	Village/ward	Open access	Y	Y
Surveys						
Household Survey on income/consumption	2011-12	2009-10	District / urban/rural	Open access	Y	Y
Household survey on education	2014	2007-08	District / urban/rural	Open access	Y	Y
Household survey on health <sup>267</sup>	2014	2004	District / urban/rural	Open access	Y	Y
Labor force Survey (LFS, household survey on labor only)	2011-12	2009-10	District / urban/rural	Open access	Y	Y
Business/establishment survey	2014-15 (organized manufacturing)	2013-14 (organized manufacturing)	State/ urban/ rural	Open access	Y	Y

<sup>266</sup> The SCI covers three dimensions of statistical capacity: methodology, source data and periodicity. For each dimension, a country is scored against specific criteria, using information available from the World Bank, the International Monetary Fund (IMF), the United Nations (UN), the United Nations Education, Science and Culture Organization (UNESCO), and the World Health Organization (WHO). A composite score for each dimension and an overall score combining all three dimensions are derived for each country on a scale of 0-100. A score of 100 indicates that the country meets all the criteria.

<sup>267</sup> This refers to the NSS Health Surveys. Comprehensive data on health is also collected by the National Family Health Survey (NFHS), the latest year for which unit level data is available is 2005-06.

	2015-16 (unorganized non-farm)	2010-11 (unorganized non-farm)				
Section 3: Macro data						
Does the country subscribe to the IMF SDDS or participate in the eGDDS?			Yes, India subscribes to SDDS			
If eGDDS - eGDDS Data Category	Periodicity		Timeliness			
	e-GDDS	Country	e-GDDS	Country		
National accounts:GDP by Production and Expenditure at Current and Constant Prices	Q	Q	1Q	2M		
Consumer price index	M	M	2M	6W		
Central government operations	Q	M	1Q	1M		
Balance of payments	Q	Q	1Q	1Q		
External debt	Q	Q	2Q	3M		
Merchandise trade	M	M	12W	5W		
Production index	M	M	12W	6W		
Employment	A	5Y	3Q	Usually within a year		
Unemployment	A	5Y	3Q	Usually within a year		
Producer Price Index (Wholesale Price Index)	M	M	2M	2W		

Section 4: Compliance with WBGs core data standards			
	WBG Standard	Compliant (Y/N)	Actual yearly interval or %
Household survey of income or consumption	One every 3 years	N	One every 5 years
PPP price survey	One every three years	N	ICP intervals
CRVS (Sample Registration System)	<input type="checkbox"/> 80% of births registered <input type="checkbox"/> 60% of deaths registered with cause of death	Y	

Section 5: Statistical Capacity Indicators	
Method	80.0
Source Data	80.0
Periodicity	73.33
Overall (Memo: Overall Average all IDA)	77.78 (out of 100)

Section 6: Data Openness Indicators	
Open Data Barometer Score	33.15 (out of 100)
Open Data Index Score	55 (out of 100)

# INDIA: SYSTEMATIC COUNTRY DIAGNOSTIC

## Volume 2: Debating the India SCD





## Volume 2: Debating the India SCD

The India Systematic Country Diagnostic (SCD) is based on the premise that India is so vast and diverse that it is impossible to provide a single or comprehensive description or diagnostic of all of the opportunities and challenges that confront the country. Instead the team, based on extensive research and dialogue, have identified three overarching themes that seem to have constrained progress over much of the country, across many of its sectors and over a long period of time. These have therefore emerged as the enduring constraints that have been persistent, even when recognized by policy makers and experts.

This SCD argues that the challenges encountered elsewhere, and the remedies that have been applied in other economies, may be less relevant for India. Instead there are three principle challenges to the goal of attaining middle class status that need to be addressed: First, on almost any reasonable metric of abundance, India seems constrained in the availability of natural resources – especially its fixed factors of production – land and water. Second, for growth to be sustained over decades it will also need to be inclusive. In policy terms, this requires a focus on productivity-led economic growth that generates good jobs. Finally, to meet these goals a huge reform and governance agenda confronts India as the country must adapt its institutions and policy frameworks to increase the efficiency of government, tackle entrenched interests and enable a transition to a public sector that can deliver services effectively to its citizens.

Reflecting India's diverse economic challenges, a wide range of comments was received on what ails the country and what propels the economy. Extensive and often conflicting comments were received from a wide range of sources that include (but are not restricted to): civil society, the Government of India, internal peer reviewers of the World Bank, the private sector and a host of interested individuals. It seems fair to suggest that most commentators concurred with the broad constraints identified in the SCD.

Some commentators expressed admiration that resource and environmental issues gained recognition in a prominent economic assessment of India. Predictably there were dissenting views, suggesting that this focus is misleading and deserves at best parenthetical acknowledgement, but not emphasis.

Likewise, while most commentators agreed that governance was the binding and ubiquitous constraint - to some the prominence given to this topic is undeserved. To these readers technological change, combined with new reforms, will be sufficient to bring governance performance to a level that is commensurate with a middle-class country.

Perhaps the greatest divergence of opinion emerged in discussions of technology. This SCD takes a largely agnostic position on the prospects of technology for India and the world. The literature though vast, remains uncertain and provides little quantitative evidence about what the future might hold. Hence it would be conjectural for this SCD to pick any particular technology scenario(s), as the more likely. To technology optimists, tomorrow holds a promise of many more highly paid jobs in India, a boost to average labor productivity, a solution to governance challenges and an answer to the burgeoning footprint of pollution. Many more commentators were less sanguine about the effects of technology on the Indian economy – fearing job losses for repetitive low-skill tasks, India losing her comparative advantage in several export industries and new challenges from “emergent” toxins (e.g. pharmaceuticals, plastic and micro-fibers in drinking water or food chains).

The remainder of this volume provides a summary of the main comments and debates that ensued during the review and consultation of this document. To provide an accurate account of the views expressed extensive quotes have been provided, without attribution to preserve anonymity.

It is hoped that this SCD will continue to catalyze further informed debate.

Comments for this volume have been drawn from a series of well sequenced dialogues and events that were designed to help create a “tatonnement” process to ensure that representatives of all key stakeholders were included in the deliberations and their views considered. This include several rounds of large external and internal consultations with key stakeholders; informal meetings in-country with leading academics, opinion makers, government counterparts and development partners; feedback via posting the draft document on the Bank’s external page; and written comments from Government of India.

A series of external consultations have been held over the past few months including with representatives of Central Ministries and line departments (New Delhi: January 11, 2018), private sector (Mumbai: August 1, 2017), development agencies (New Delhi: March 1, 2018), think tanks and civil society (New Delhi: August 17, 2017, New Delhi: January 29, 2018) and multi-stakeholder consultations in several states (Bhubaneswar: September 20, 2017, Shillong, February 14, 2018, Guwahati: February 13, 2018).

## Technology

Several comments were made about how technology should become an essential component to improve development effectiveness in the country. Specific requests for technology support were made for the Power sector to improve efficiency in energy (storage in pumps, etc.), and water use (in thermal plants); for modernisation of small rural enterprises in the Food Processing sector; and enhancing bamboo production to use as substitute for timber and tiles. In addition, the need to invest in clean technologies for liquid and solid waste management to address the needs of rapid urbanisation was highlighted. Deeper and broader application of technology is recommended in data collection and use to improve monitoring of development projects. Due to advancement of technology and increased automation, lot of jobs in many sectors would become obsolete. For instance, due to increased use of artificial intelligence, many jobs in the BPO/ ITES industry, in which India holds an edge, will come under stress. Jobs in manufacturing will reduce adding to the jobs deficit. On the other hand, technological advances will enable self-employment and small firms to become viable routes to 'good jobs' – thus calling into question the SCD's emphasis on the need for firms to grow in order to create good jobs. It was suggested that analysis is needed to predict the sectors in which good quality jobs would appear in significant number in the medium term so that the skill focus could be calibrated accordingly.

- "Technology should become an essential component to improve development effectiveness in conjunction with national initiatives such as Digital India"
- "Arunachal and Nagaland could benefit immensely if the latest technology pertaining to bamboo which was centered around China could be brought to these places through institutions like the WB and NEC"
- "If waste water recycling technologies etc. could be adopted the consumption of one sector could supplement available water for the other sector"
- "Bank could provide support to technology for energy efficiency (storage in pumps, etc.)"
- "World Bank should support the food processing industry ... provide technology and financial support apart from capacity development of the sector to enable them to reorganize and incentivize market forces to design/develop a three-tier cooperative model (on the lines of Amul) that would be self-sustaining and increase income of farmers"
- "NE region produced over 40% of India's total bamboo production and after the amendment to the Indian Forests Act 1927, more thrust could be given to bamboo production and use including as timber and tiles replacing other materials"

## Health

It was commented that it is important to recognize the relatively low public expenditure on health; understand and elaborate upon the poverty-health status link; and discuss the weak and limited current medical insurance eco-system. More work is required on developing the 'how' of effective nutrition and early childhood development initiatives while also triangulating evidence from diverse sources towards enhanced accountability of health service providers. Challenges to last mile delivery of health services to remote populations remain unresolved and discussion on this needs to be added. There was a suggestion to continue to support sanitation as a strategy to reduce disease burden in the country.

- "Bank should articulate in detail on the 'how' especially with regard to nutrition and early childhood development initiatives"
- "The weak last-mile delivery of the public sector was a serious impediment to enhanced growth"
- "Lack of sanitation is responsible for 60 percent of disease burden; hence, proper sanitation is a critical need. Bank needs to consider it as a part of its overall sanitation program"

- ❑ “Public expenditures on health and education are way below the norm”
- ❑ “For remote island populations last mile delivery of health services still remains a serious problem in Assam”

#### Education

It was commented that significant investments in physical assets like school buildings has not led to sustained rise in enrollment or learning outcomes. With relatively low public expenditure in the education sector, it is important to carry out a comprehensive analysis on the path towards high quality education incorporating issues such as attendance, teacher training, physical infrastructure of schools and scientific learning tools. At a higher level, commentators suggested that it would be important to understand the existing mismatch between education system, employability and market needs; the rural-urban divide in education system and how technology-based solutions and entrepreneurship could support the sector's needs.

- ❑ “A huge number of schools and other physical assets have been developed but the quality of teaching staff remains dismally poor...”
- ❑ “The education system itself needed a major shift to align itself to employability and market needs”
- ❑ “More effort should be put in building entrepreneurship capability”
- ❑ “What are the core changes needed to bring basic urban-rural divide in education on par and does the Bank have any study on this?”

#### Jobs and Employment

A key point that was made was that broader policy analysis is required involving identification of sectors that will likely absorb more/less labour, for instance due to automation, to calibrate the skilling focus: re-training of existing workforce, swifter deployment of workers redundant in one sector to others, and appropriate social security measures. This should be supported by a deeper examination of potential for job creation including opportunities for self-employment in rural areas particularly in the non-farm sector to indicate rural skilling needs and policy framework requirements. Commentators highlighted the presence of a much larger unorganised sector in the country suggesting more focus on it for its employment potential along with diagnostic discussion on how to improve the innovation ecosystem and entrepreneurial culture in the country. Specific focus on generation of non-farm rural jobs that will attract women will be useful.

- ❑ “It was necessary to intervene in ancillary areas to re-skill and train rural youth so that there could be value addition to village products which would then have a better market”
- ❑ “More focus should be given to the huge unorganized sector in the country in any discussion of economic growth and growth rate etc.”
- ❑ “Non-farm sector development in rural India is weak and should grow faster to absorb manpower from agriculture”
- ❑ “Within the informal sector apart from jobs, the target should be livelihoods and opportunities that the environment provided for self-employment”
- ❑ “More women were now involved directly in agriculture as men moved to cities for wage work”

#### Enhancing public sector capabilities

This could be achieved through systemic changes with an impetus on more transparency, clearer separation of powers, accountability, better public finance management, and citizen oversight. It was agreed that capacity building to support improved governance and better accountability was needed at all



levels of government and across multiple sectors to especially strengthen the last mile delivery of government services. There were requests to examine reform of Public Sector Enterprises and poor uptake of certain government schemes and projects. Commentators suggested comprehensive discussion on needs of institution strengthening along with training and exposure for functionaries. Some state representatives felt that improving state capacity would be critical to attract private investment. However, more conceptual clarity was needed on the idea of strengthening public sector institutions. The kind of political engagement necessary for the effectiveness of this effort needed to be built in along with a discussion on checks and balances, roles and conflicts. Commentators across different groups felt strongly about the need to modernize data collection and use. This would improve government's capacity to effectively track development programs using smart data systems and new technologies while also pushing for systemic changes. Reliability and not availability is the key data challenge in the country. Improving reliability of data will involve – simplification of formats, data collection, and evaluation. A focus on more devolution of powers and greater decentralization would strengthen local governments for improved effectiveness at local level in a country with vast diversity and enhance accountability of public service providers, especially at the village level. Several donor representatives felt there was a need for a more holistic approach in donor cooperation on this issue so that their resources and knowledge could be used optimally.

- “The weak last-mile delivery of the public sector was a serious impediment to enhanced growth”
- “Developing accountability (strengthening public sector) is an area that needed strengthening”
- “Bank could help modernize data collection and availability in India”
- “Private investment was very low in the northeast region including Mizoram and want the Bank's support (including IFC's) to attract private sector finance”
- “The need to support this sector (data) to enable effective tracking of development programs”
- “A practice of assessing and strengthening checks-and-balances, including clarifying conflict-of-interest guidelines, given that discretion and judgement are often the reality”
- “Reform in this area (statistical data) was critical including collection, evaluation, simplification of formats etc”.
- “In the issue of decentralization for better service delivery was the Bank looking at the larger issue of devolution of powers?”
- “The Amar Jyoti model developed as a holistic approach to rehabilitation could be used more widely and replicated wherever possible in the country”

#### Partnering with India's States

Stating that each state had different needs, context and priorities, several state representatives welcomed the idea of direct engagement. In addition, it was suggested that the World Bank should consciously partner with laggard states to promote inclusive growth and to help attract private sector finance. There was an idea to explore the possibility of a dispute resolution mechanism to swiftly deal with disagreements between state team preparing proposals and the evaluation teams of the World Bank and the Government of India – this will also help achieve a balance between the national government's objectives and the concerned state government's agenda. There were also comments related to considering cross-cutting themes which are relevant for all the states such as financial management, performance measurement and reform of public sector enterprises.

- “Direct engagement of the World Bank with the states ... should be promoted, as each state had its own priorities and had developed some expertise in certain specific sectors”

- “The Bank should consciously partner with laggard states like Bihar, Jharkhand and Odisha as otherwise it would mean deepening the existing inequality rather than promoting inclusive growth”
- “Private investment was very low in the northeast region including Mizoram and wanted the Bank’s support (including IFC’s) to attract private sector finance”
- “World Bank and DEA should create a kind of dispute resolution cell or mechanism as often a lot of precious time was lost in disagreements and wrangling between technical team of the state preparing the proposals and the Bank’s evaluation team”
- “Bank’s work in the country should look at the cross-cutting themes of financial management and performance measurement which were relevant for all states”

#### Engaging the Private Sector

This issue was raised by several commentators, particularly representatives from the states indicated keenness to attract private investment and shared lack of much success in doing this. They wanted to know the process of involving the private sector for financing and service delivery in the development process. What would be the role of government in ensuring private sector service delivery and the various models for the government to engage with private sector effectively and efficiently. In this context, donors and civil society pointed to addressing issues like the changing market scenarios; transparency and access to markets for all; and support/guidance to the private sector on “responsible business” practices.

- “The state could benefit from understanding various models to engage better with the private sector and in this the WB experience could be vital”
- “How the Bank proposed to involve the private sector in the development process and address such issues as the changing markets, transparency and access to markets for all”
- “Bank should also look at improving the private sector and not just the public sector to ensure they had guidance from support institutions on the latest rules of “responsible business” and best practices in the world”

#### Understanding the different dimensions of Rural India

It was highlighted that an ecosystem could be considered for rural transformation to include support for rural enterprises in key sectors such as food processing, traditional arts and crafts, and emerging areas that have high potential to employ the rural youth. Further, recent studies had shown appreciable improvement in the rural sector and also in improved standard of living. It was felt that an ecosystem for rural transformation should be developed and implemented. This would include support to MSMEs (micro, small and medium enterprises), producer-owned enterprise, enterprises owned by women, better market access for rural produce, improved productivity and incomes among other things. Commentators felt that the distressed rural artisan-craftsmen sector which could potentially pull up rural growth and employment and reduce migration needs deeper examination. Analysis of enterprises in farm equipment, food processing and other farm related sectors for rural growth and employment and strengthen the agriculture sector would be useful.

- “With support of the WBG an ecosystem for rural transformation should be developed and implemented. This would include support to MSMEs, producer owned enterprise, micro enterprises, enterprises owned by women, better market access for rural produce, improved productivity and incomes among other things”
- “The Bank’s focus was on development of cities though the large rural sector comprising agriculture, artisan-craftsmen, and the weaving industry were suffering through years of neglect”

- “Pilot studies at specific sites should be undertaken to find out the reasons for decline in the traditional rural food processing industry which would help to make the picture clearer on how to position the industry vis a vis the organized sector and make it a self-sustaining competitive industry”

#### Agriculture

To make the analysis holistic, it was suggested that farm and off-farm linkages be examined more deeply to explore strengthening of the agriculture value chain. This would involve supporting related industry such as farm equipment (production and hiring), food processing, and modern warehouses and cold chains to prolong the shelf life of farm produce and reduce wastage. Several commentators suggested focus on farmer incomes along with support to increasing agricultural productivity and resilience. Connecting farmers to markets and easy credit, ensuring appropriate and sustained price realization, stabilization of incomes and insurance solutions for reducing risk are significant factors for enhancement of farmer incomes. It was noted that this would involve strengthening the complete value chain including post-harvest management systems including warehousing, and sustainable and efficient use of natural resources of land and water to examine ways of promoting widespread use of water-efficient technology and implementation of land use policies that is quick and not prone to legal hassles. Importance of fisheries was pointed out by more than one commentator. Further, rejuvenation of farming extension services need to be explored with new technologies and methods that are currently available. The emphasis was on transforming agriculture into a lucrative business making it an attractive livelihood option especially for the rural youth.

- “With new technology coming into farming, and farmers becoming more educated, newer extension methods were necessary to give required impetus to agriculture”
- “On women in the rural sector ... (there is) strong need to come up with innovative financial products where a loan of half to one million Rupees could be accessed by individuals or SHGs who had demonstrated a good track record with micro finance and micro enterprises. Some study in this area that would verify the bankable status of such women was needed”
- “Youth were leaving agriculture and moving to other sectors for employment ... this was a serious concern and ways had to be found to retain youth in agriculture”

#### Cities

Several comments across different groups related to rapid urbanization, growing migration from rural to urban areas and the need for necessary policies, infrastructure and services. Affordable housing was raised several times as a critical need which currently remains largely unfulfilled. It will involve examination of land use management in cities and town planning framework, both of which could be strengthened significantly across the country. This along with provision of public services like transport, water, electricity, education, health care and waste management must be part of the urban strategy. Rural areas in urban periphery deserve attention especially the framework and implementation of policies on land use conversion from agriculture to residential or business to support planning for infrastructure provision and growth. Deeper examination was also needed of social protection strategies for the poor as people and land-use shifts. Lessons could be shared from experience elsewhere and within the country.

- “Need for sustainable urbanization and affordable housing”
- “Would smart cities planned for India take the marginalized sections into consideration and provide necessary social infrastructure along with employment?”

- “Lack of opportunity and growth in the rural sector was pushing a large number of people to move to towns and cities where though their income was better, it was also bringing many problems.”
- “A bit confused with the diagnostic study as it seemed to gloss over the plethora of problems growing cities would create in the future unless addressed from the start”
- “Land-use conversion also suffered from adhocism and poor implementation even as the requirement for land was increasing with growing townships and cities”
- “Lessons could also be learnt (in line with Lighthouse concept) from Maharashtra and Gujarat where the town planning schemes for urban land management had done reasonably well”

#### Inclusion

It was suggested that the SCD makes a stronger case for why inclusive growth is key to sustained growth; elaborate the Inclusion vs. Equality discussion; and sharpen narrative's focus on the absolute poor. A deeper analysis was needed to support financial and digital inclusion strategies. Several CSO representatives suggested greater focus and analysis of the gender dimension across all pillars of SCD including issues such as women's economic empowerment, gender-based violence, women's sexual and reproductive health, women's access to markets and technology, and needs of adolescent girls especially educational. The “Disability” sector needed to be examined exclusively and for different disabilities including discussion on health, education, skilling and employment needs. Different commentators from government and CSOs suggested explicit inclusion of Scheduled Castes and Tribes, senior citizens, transgender community, those suffering from drug addiction, adolescents, and the tea plantation workers. Some commentators highlighted the 115 “aspirational” districts identified by the government for critical development support and wondered if the SCD had a specific strategy for these districts.

- “Ending discrimination based on class, caste, gender, race, or religion may or may not reduce overall inequality. And reducing overall inequality, could be achieved by increasing equality within a discriminated group”
- “To link GBV with the overall themes of growth and inclusion, the SCD could discuss the prevalence of GBV across India and the extent that risks of GBV impede women for being included in the economy and from accessing services, including finance”
- “Need to look at “disability sector” exclusively and differently for different disabilities and this needed to be covered in the SCD report as it involved a large segment of population”
- “The Government was going to focus strongly on the 115 “aspirational districts” which needed development on priority, ... whether the World Bank had any special plan for such districts in the coming five years of engagement”
- “Tea industry in Assam was the largest employer and about 20% of the population lived in tea gardens. ... one of the most socially excluded populations. He said that due to the limitations of an archaic law (viz., the Plantation Labour Act 1951) that regulated tea estates, none of the centrally sponsored schemes like ICDS or SSA could be implemented in these areas. Hope the WB would partner with UNICEF to garner public support for amending the plantation Act as the central Ministry of Labour appeared unmoved by the situation”
- “Though the Bank's study had a focus on gender gap but there was no reference to marginalized and poor communities like the transgender or inter-sex community”

- “More needed to be done in the area of sexual and reproductive health of women”
- “Want to know about the WB’s approach to two areas: (1) deepening financial inclusion, and (2) framework for digital inclusion”

#### Infrastructure

Government representatives of almost all Northeast states highlighted the need for adequate physical and digital infrastructure critical for development. Poor infrastructure is a barrier to growth even when social indicators such as literacy and women participation in workforce are relatively high. There were several requests to share lessons from World Bank’s experience particularly in the development of inland waterways, modernisation and mechanization of ports for their efficient functioning, creation of water storage structures for delivery to end-users for irrigation and drinking water, and harnessing of solar & wind energy.

- “Digital connectivity had been missed out in the WB document and it was as important as physical connectivity”
- “The Bank was also doing an inland water transport project in West Bengal. Hope that lessons from these projects would be shared for the benefit of all”
- “The sector (Shipping) would benefit most from technical advice and international experience sharing and this would help the ports upgrade to a level comparable to the best in Asia and even the developed world”
- “Western Rajasthan had potential for a solar park and wind power exploitation and that area should be explored for possible collaboration”

#### Regional cooperation

An important issue which came up was that the SCD could highlight lessons on managing Brahmaputra river system including trans-boundary dialogue with China, Bangladesh and Bhutan. Several commentators suggested more work on promoting cross learning and enhanced business with countries across South Asia. A commentator noted the absence of a South Asian approach in the SCD and suggested that India could learn a lot from Bangladesh and Sri Lanka and perhaps have more business with Bhutan and Nepal.

- “Not enough research and study had gone into understanding the Brahmaputra river system and without such study policy making on the river would be unproductive”
- “The river system should enable multi-sectoral development and it was necessary to have more trans-boundary dialogue (China, Bangladesh and Bhutan) and create trust among all stakeholders for mutual benefit”
- “Absence of a South Asian approach in the Bank study and India could learn a lot from Bangladesh and Sri Lanka and perhaps have more business with Bhutan and Nepal”

#### Credit access

It was suggested that lessons from successful models of increasing access to finance would be useful especially where land titling is communal, unclear or cumbersome. Similar analysis is needed for areas with little or no access to banking services and for increased access for SMEs. Digital finance and use of “social collateral” can help improve financial access of the poor but how far could such ideas be part of the solution for a robust and wide spread system of credit access? As more women were now involved directly in agriculture due to men moving to the cities for wage work, credit access required a gendered perspective for conceptualizing an effective program. For example, do women cultivators have access to credit and markets or technology?

- “More women were now involved directly in agriculture as men moved to cities for wage work and this fact required a gendered perspective for conceptualizing an effective program (did women cultivators have access to credit and markets or technology?)”
- “Cumbersome land titling and coding mechanism effectively reduces credit access in Assam”
- “A very new entity called North East Small Finance Bank had successfully expanded operations and disbursed loans using “social collateral” but ironically the largest Bank in the region, the Assam Gramin Vikas Bank had not done so well. This needed closer study”
- “Assam should focus on developing SMEs and also digital finance systems including something like what “Catalyst” had done in Jaipur [an initiative of USAID and GoI], as these would help the safe mobility of the workforce and ensure financial inclusion of the poor”

#### Natural resources

Several commentators from the Northeast highlighted the need to foster and protect the region’s biodiversity and wildlife conservation. What could perhaps be examined is better coordination among multiple agencies involved to improve management practices for habitat enhancement, real time alert system, curbing poaching activity, strong wildlife conservation measures and strengthening forest department. It is recommended that there needs to be focus on quality of natural resources including soil fertility, groundwater levels, air quality and promotion of sustainable and efficient use of natural resources of land and water. It is important tasks for the government is to impute the correct value of natural resources including water and learn to measure the cost in terms of use of these resources for development purposes.

- “How far the Bank was willing to work on forest protection including curbing degradation apart from protecting wildlife species vulnerable to poaching? India had not learnt from Bhutan ... want the Bank to highlight best practices from other states and countries”
- “Multiple agencies were doing their own thing and there was little coordination and concerted action”
- “It would be critical to focus on quality of natural resources including things like soil fertility, groundwater levels, air quality etc as these were imperative for sustainable development”
- “The government needed to impute the correct value to its natural resources including water and also learn to measure the cost in terms of use of these resources for development purposes”

#### Donor coordination

It was commented that there needs to be better cooperation and coordination among the multilateral and bilateral donors to avoid duplication and wastage of resources, and to jointly address areas of common interest, including knowledge sharing. There was also a need to recognize upfront the UN Sustainable Development Goals in the SCD. The World Bank could identify its priority areas so that it became clear where synergistic cooperation could take place and which areas had to be picked up by other bilateral and multilateral agencies. Several donor organizations were investing in parallel systems to the government agencies for provision of services and this may not be a sustainable approach.

- “A strong plea for concerted action and coordination of the various development agencies and the Bank and ... most were doing work in the same sectors though not in a similar way necessarily”
- “It was necessary to have some understanding among development partners to avoid duplication and wastage of resources.”

- “The analysis of the Bank for India should have mentioned the SDG upfront as the GOI had embraced it and it allowed for sectoral linkages”
- “The Bank should identify its priority areas so that it became clear where synergistic cooperation could take place and which areas had to be picked up by others”

#### Knowledge sharing

Regarding knowledge sharing, several comments related to Bank’s role as a knowledge manager/broker across a wide range of themes bringing in relevant knowledge from within and outside the country as well as to use Indian experiences for benchmarking purposes in specific areas and sharing in general. There were recommendations to strengthen this “knowledge management” role for the benefit of all the sectors in the economy.

- “The Bank (as a knowledge manager) could also facilitate collaboration of India with other countries and promote south-south cooperation, Indo African cooperation etc and enable lab to lab partnership in scientific research so that all concerned could gain from sharing of knowledge and experience”
- “A portal of best practices had been created called “Governance Knowledge Centre” which was a repository of best practices across states and documented success stories with both centrally sponsored schemes and state government schemes. ... whether it would be possible to look into it and revive the portal as there was a great demand now for such a facility”