

GS SCORE

Gist of

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TEN NEW FACTS ON THE INDIAN ECONOMY

1. There has been a large increase in registered indirect and direct taxpayers

- A 50 percent increase in unique indirect taxpayers under the GST compared with the pre-GST system.
- Similarly, there has been an addition (over and above trend growth) of about 1.8 million in individual income tax filers since November 2016.

2. Formal non-agricultural payroll is much greater than believed

- More than 30 percent when formality is defined in terms of social security (EPFO/ESIC) provision.
- More than 50 percent when defined in terms of being in the GST net.

3. States' prosperity is correlated with their international and inter-state trade

- States that export more internationally, and trade more with other states, tend to be richer. But the correlation is stronger between prosperity and international trade.

4. India's firm export structure is substantially more egalitarian than in other large countries

- Top 1 percent of Indian firms account for 38 percent of exports; in all other countries, they account for a substantially greater share (72, 68, 67, and 55 percent of exports in Brazil, Germany, Mexico, and USA respectively). And this is true for the top 5 percent, 10 percent, and so on.

5. The clothing incentive package boosted exports of readymade garments

- The relief from embedded state taxes (ROSL) announced in 2016 boosted exports of ready-made garments (but not others) by about 16 percent.

6. Indian society exhibits strong son "Meta" Preference

- Parents continue to have children until they get the desired number of sons. This kind of fertility-stopping rule leads to skewed sex ratios but in different directions: skewed in favor of males if it is the last child, but in favor of females if it is not the last. Where there are no such fertility-stopping rules, ratios remain balanced regardless of whether the child is the last or not.

7. There is substantial avoidable litigation in the tax arena which government action could reduce

- The tax department's petition rate is high, even though its success rate in litigation is low and declining (well below 30 percent).
 - Only 0.2 percent of cases accounted for 56 percent of the value at stake; whereas
 - About 66 percent of pending cases (each less than Rs. 10 lakhs) accounted for only 1.8 percent of the value at stake.

8. **To re-ignite growth, raising investment is more important than raising saving**
 - Cross-country experience shows that growth slowdowns are preceded by investment slowdowns but not necessarily by savings slowdowns may not.
9. **Own direct tax collections by Indian states and local governments are significantly lower than those of their counterparts in other federal countries**
 - This share is low relative to the direct taxation powers they actually have.
10. **The footprint of climate change is evident and extreme weather adversely impacts agricultural yields**
 - The impact of weather is felt only with extreme temperature increases and rainfall deficiencies.
 - This impact is twice as large in un-irrigated areas as in irrigated ones.

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1

STATE OF THE ECONOMY: AN ANALYTICAL OVERVIEW AND OUTLOOK FOR POLICY

Context

The chapter highlights developments in Indian economy in the recent past and identifies priorities within macro-economic framework for short and medium term. The short term overview highlights key reforms undertaken in past year and identifies action point going forward. The medium term overview provides six priorities to be addressed in medium term to return to 8 per cent growth rate. Chapter also tries to answer reasons for opposite behaviour of Indian economy vis-a-vis world economy and provides outlook for 2017-18 and 2018-19.

Terminologies

Economic Trough: A **trough** is the stage of the **economy's** business cycle that marks the end of a period of declining business activity and the transition to expansion. In general, the business cycle is said to go through expansion, then a peak, followed by contraction and then finally bottoming out with the **trough**.

Foreign Exchange Reserves: Foreign exchange reserves consist of any foreign currency held by a centralized monetary authority. Foreign exchange reserves include foreign banknotes, gold reserves or IMF funds. Foreign reserve assets serve a variety of purposes, but are primarily used to give the central government flexibility and resilience; should one or more currencies crash or become rapidly devalued, the central banking apparatus has holdings in other currencies to help them withstand such markets shocks.

Price-Earnings Ratio: (P/E ratio) is the ratio for valuing a company that measures its current share price relative to its per-share earnings. The price-earnings ratio is also sometimes known as the price multiple or the earnings multiple. The P/E ratio can be calculated as: Market Value per Share / Earnings per Share.

Twin Balance sheet Problem: The balance sheets of both public sector banks (PSBs) and some corporate houses are in terrible shape and it has been seen as a major obstacle to investment and reviving growth.

Sovereign Ratings Upgrade: Moody's Investors Services upgraded India's sovereign ratings to Baa2 from its lowest investment grade (Baa3). It would bring down the costs of overseas borrowing for Indian companies.

Index of Industrial production: Index of Industrial Production (IIP) measures the quantum of changes in the industrial production in an economy and captures the general level of industrial activity in the country. It is a composite indicator expressed in terms of an index number which measures the short term changes in the volume of production of a basket of industrial products during a given period with respect to the base period. IIP is a short term indicator of industrial growth till the results from Annual Survey of Industries and National Accounts Statistics are available. The base year is always given a value of 100. The current base year for the IIP series in India is 2011-12. So, if the current IIP reads as 116 it means that there has been 16% growth compared to the base year. Index of Industrial Production is compiled and published every month by Central Statistics Office (CSO) of the Ministry of Statistics and Programme Implementation with a time lag of six weeks from the reference month.

Gist of Chapter

Overview: Short Term

The past year has been marked by some major reforms. The transformational Goods and Services Tax (GST) was launched in July 2017. At the same time, decisive action was taken to grasp the nettle of the Twin Balance Sheet (TBS) challenge, arguably the festering, binding constraint on Indian growth prospects. On the 4 R's of the TBS—Recognition, Resolution, Recapitalization, and reforms—recognition was advanced further, while major measures were taken to address two other R's. The new Indian Bankruptcy Code (IBC) has provided a resolution framework that will help corporates clean up their balance sheets and reduce their debts. And in another critical move, the government announced a large recapitalization package (about 1.2 percent of GDP) to strengthen the balance sheets of the public sector banks (PSBs). As these twin reforms take hold, firms should finally be able to resume spending and banks to lend especially to the critical, and currently-stressed sectors of infrastructure and manufacturing.

Macroeconomic developments this year have been marked by swings. In the first half, India's economy temporarily “decoupled,” decelerating as the rest of the world accelerated. The reason lay in the series of actions and developments that buffeted the economy: demonetization, teething difficulties in the new GST, high and rising real interest rates, an intensifying overhang from the TBS challenge, and sharp falls in certain food prices that impacted agricultural incomes.

In the second half of the year, the economy witnessed robust signs of revival. Economic growth improved as the shocks began to fade, corrective actions were taken, and the synchronous global economic recovery boosted exports. Further, policy action improve the business climate and India jumped 30 spots on the World Bank's Ease of Doing Business rankings, while similar actions to liberalize the foreign direct investment (FDI) regime helped in increasing flows by 20 percent. And the cumulative policy record combined with brightening medium-term growth prospects led to a sovereign ratings upgrade, the first in 14 years. Over the coming year, the government will need to focus on:

- The 4 R's, ensuring that the process of resolving the major indebted cases and recapitalizing the PSBs is carried to a successful conclusion, while initiating reforms of the PSBs that will credibly shrink the unviable ones and signal greater private sector participation in the future.
- The government will also need to stabilize GST implementation to remove uncertainty for exporters, facilitate easier compliance, and expand the tax base;
- Privatize Air India; and
- Manage threats to macroeconomic stability, notably from persistently high oil prices, and sharp, disruptive corrections to elevated asset prices.

Overview: The Medium Term

In the medium term, the following issues need to be addressed:

- First, India has created one of the most effective institutional mechanisms for cooperative federalism, the GST Council. The “cooperative federalism technology” of the GST Council could be used to create a common agricultural market, integrate fragmented and inefficient electricity markets, solve inter-state water disputes, implement direct benefit transfers (DBT), make access to social benefits portable across states, and combat air pollution.

- A major plank of government policy has been to rationalize government resources, redirecting them away from subsidies towards public provision of essential private goods and services at low prices, especially to the poor. Government data suggests that progress has been made in providing bank accounts, cooking gas, housing, power, and toilets (amongst others). The pace and magnitude of this improvement will depend upon the extent to which increased physical availability/provision is converted into greater actual use: toilet building into toilet use, bank accounts into financial inclusion, cooking gas connections into consistent gas offtake, and village electrification into extensive household connections.
- India has two underlying macro-economic vulnerabilities, its fiscal and current accounts, both of which tend to deteriorate when oil prices rise.
- Overcoming the fiscal vulnerability requires breaking the inertia of the tax-GDP ratio. It is striking that the center's tax-GDP ratio is no higher than it was in the 1980s, despite average economic growth of 6.5 percent, the most rapid in India's history. The GST could help break this fiscal stasis, with positive spillovers for macro-economic stability. Also, there is evidence of a noteworthy increase in the number of Income tax filers in the demonetization-GST period. Overcoming the fiscal vulnerability also requires halting the steady conversion of contingent liabilities into actual ones (typically through the assumption of state discom debts and public sector bank recapitalization), which has impeded progress in debt reduction even in the face of solid growth.
- Addressing the current account vulnerability requires raising the trajectory of export growth. Here, an important lesson is the need for macro-economic policy to support the development strategy. Reviving manufacturing and making the sector internationally competitive have been the twin goals of the Make in India program, underpinned by a strategy of reducing the costs of doing business. As a result, the share of manufacturing in GDP has improved slightly. However, the international competitiveness of manufacturing has not made great strides, reflected in the declining manufacturing export-GDP ratio and manufacturing trade balance. Changes in price competitiveness through policy action can make a major difference to export performance as highlighted in the government's export package for clothing. A policy implication is that the GST Council should conduct a comprehensive review of embedded taxes arising from products left outside the GST (petroleum and electricity) and those that arise from the GST itself (for example, input tax credits that get blocked because of "tax inversion," whereby taxes further back in the chain are greater than those up the chain). This review should lead to an expeditious elimination of these embedded export taxes, which could provide an important boost to India's manufacturing exports.

Box 1: The Increase in Income Taxpayers Post-Demonetization

One of the aims of demonetization and the Goods and Services Tax (GST) was to increase the formalization of the economy and bring more Indians into the income tax net, which includes only about 59.3 million individual taxpayers (filers and those whose tax is deducted at source in 2015-16), equivalent to 24.7 percent of the estimated non-agricultural workforce. Has this happened and to what extent?

At first blush, there does seem to have been a substantial increase in the number of new taxpayers. Between November 2016 – November 2017, 10.1 million filers were added compared with an average of 6.2 million in the preceding six years. A rigorous assessment of the impact of demonetization, however, must account for the pre-existing trend growth in new tax filers. This translates roughly into about 1.8 million additional tax payers due to demonetization-cum-GST, representing 3 percent of existing taxpayers.

Box 2: Do Export Incentives Work? The Clothing Package of 2016

The apparel sector has immense potential to drive economic growth, increase employment, and empower women in India. This is especially true as China's share of global apparel exports has come down in recent years. However, India has not, or not yet, capitalized on this opening. Instead, countries like Vietnam and Bangladesh are quickly filling the space left by China.

Thus, in June 2016, the Cabinet announced a Rs. 6,000 crore package for the apparel sector. The largest component of this package were rebates on state levies (ROSL) to offset indirect taxes levied by the states (the VAT) that were embedded in exports. This ROSL was over and above the duty drawbacks and other incentives (e.g., Merchandise Exports from India Scheme (MEIS)) that were given to offset indirect taxes embedded in exports.

A key question is: did the package succeed? The analysis shows that:

- The package increased exports of readymade garments (RMG) made of man-made fibres (MMFs).
- The package did not have a statistically positive impact on RMG made of other fibres (silk, cotton, etc.).

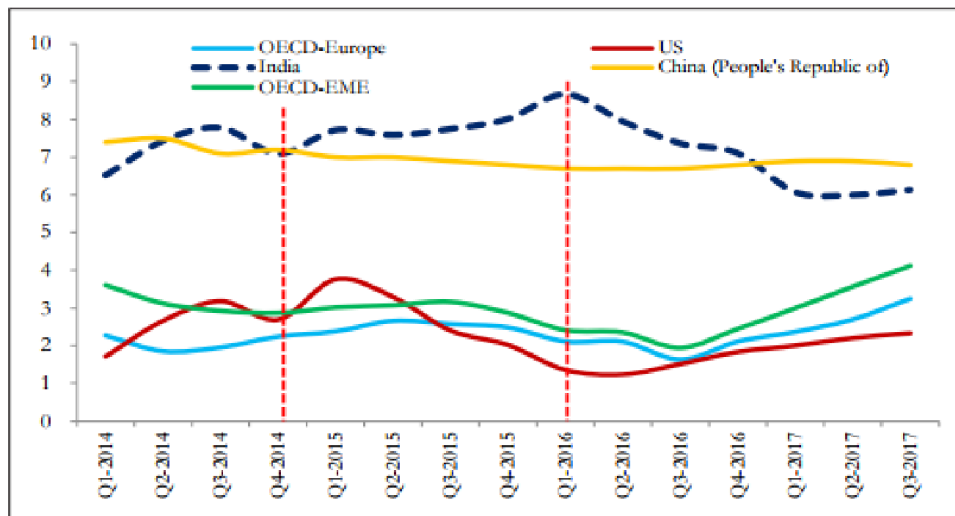
Finally, last year's Survey (Volume 1, Chapter 2) identified the unfinished agenda in terms of three meta-challenges: addressing inefficient redistribution; accelerating the limited progress in delivery of essential public services, especially health and education; and correcting the ambivalence toward property rights, the private sector, and price incentives. In the light of new analysis done for this Survey and of a broader retrospective evaluation it is worth re-emphasizing one and adding two others.

- The issue that needs re-emphasizing is education; the education challenge cannot be addressed soon enough given India's weak learning outcomes from education system.
- The first new issue—yet in some ways the oldest issue—is agriculture. Successful economic and social transformation has always happened against the background of rising agricultural productivity. The government's laudable objective of addressing agricultural stress and doubling farmers' incomes consequently requires radical follow-up action, including decisive efforts to bring science and technology to farmers, replacing untargeted subsidies (power and fertiliser) by direct income support, and dramatically extending irrigation via efficient drip and sprinkler technologies.
- The other issue is the challenge of employment. The lack of consistent, comprehensive, and current data impedes a serious assessment. Even so, it is clear that providing India's young and burgeoning labour force with good, high productivity jobs will remain a pressing medium-term challenge. An effective response will encompass multiple levers and strategies, above all creating a climate for rapid economic growth on the strength of the only two truly sustainable engines—private investment and exports.

Recent Developments***Understanding India's (Temporary) "Decoupling"***

Projecting India's growth for 2018-19 requires understanding of what happened in 2017-18. The latter was unusual, especially when set against the international context.

India's Comparative Growth, 2014Q1-2017Q3



Source: OECD, Survey calculations. Growth rate of seasonally adjusted real GDP.

Until early 2016, India's growth had been accelerating when growth in other countries was decelerating. But then the converse happened. The world economy embarked on a synchronous recovery, but India's GDP growth—and indeed a number of other indicators such as industrial production, credit, and investment—decelerated. There are five reasons for this:

- First, India's monetary conditions decoupled from the rest of the world. Until the middle of 2016, real policy interest rates were following the global trend downwards. Since then, the downward drift has continued in most other countries, with rates falling. But in India, for the same period, average real interest rates increased. This tightening of monetary conditions contributed to the divergence in economic activity in two ways. First, it depressed consumption and investment compared to that in other countries. Second, it attracted capital inflows especially into debt instruments, which caused the increase in demand for rupee and consequently rupee appreciates which causes dampening of exports.
- The second and third factors were one-off policy actions: Demonetization and GST. Demonetization temporarily reduced demand and hampered production, especially in the informal sector, which transacts mainly in cash. On the other hand, GST was introduced, affecting supply chains.
- The fourth factor exerting a drag on the Indian economy was the TBS challenge. This has been a drag for some time and its effects have cumulated as the non-performing assets have increased, the financial situation of stressed firms and banks have steadily worsened. This has reduced investment and consequently economic activity and, hence growth.
- The final factor was oil prices increase since 2017. It is estimated that a \$10 per barrel increase in the price of oil reduces growth by 0.2-0.3 percentage points, increases WPI inflation by about 1.7 percentage points and worsens the CAD by about \$9-10 billion dollars.

Outlook For 2017-18

Economic Activity

The key question going forward is whether the economy has troughed, and if so at what pace it will recover toward its medium term trend. High frequency indicators do suggest that a robust recovery is taking hold as reflected in a variety of indicators, including overall GVA, manufacturing GVA, the IIP, gross capital formation and exports.

Similarly, real non-food credit growth has rebounded to 4 percent in November 2017 on a year-on-year basis, while the squeeze on real credit to industry is abating. Moreover, the flow of non-bank resources to the corporate sector, such as bond market borrowing and lending by NBFCs, has increased, substituting in part for weak bank credit. Rural demand, proxied by motor cycle sales, and auto sales, are recovering.

Perhaps most significantly, the behavior of manufacturing exports and imports in the second and third quarters of this fiscal year has started to reverse.

The re-acceleration of export growth to 13.6 percent in the third quarter of FY2018 and deceleration of import growth to 13.1 percent, in line with global trends, suggest that the demonetization and GST effects are receding.

Services export and private remittances are also rebounding. On demonetization specifically, the cash-to-GDP ratio has stabilized. The stabilization also permits estimation of the impact of demonetization: about Rs. 2.8 lakh crores less cash (1.8 percent of GDP) and about Rs. 3.8 lakh crores less, high denomination notes (2.5 percent of GDP).

All this said, while the direction of the indicators is positive, their level remains below potential. IIP growth (April-November 2017 over same period in the previous year) is 3.2 percent, real credit growth to industry is still in negative territory, and the growth in world trade remains less than half its level of a decade ago. Moreover, even though the cost of equity has fallen to low levels, corporates have not raised commensurate amounts of capital, suggesting that their investment plans remain modest. In other words, the twin engines that propelled the economy's take-off in the mid-2000s – exports and investment – are continuing to run below take-off speed.

Macro-economic Indicators

Headline inflation for the first time crossed the RBI's 4 percent target in November, posting a rate of 5.2 percent in December 2017. The recent upswing in inflation stems from rising global oil prices, unseasonal increase in the prices of fruits and vegetables, and the 7th Pay Commission housing rent allowances, which mechanically increase inflation. Stripped of all these factors, underlying inflation has been increasing at a more modest pace, reaching 4.3 percent at end-December.

The current account deficit has also widened in 2017-18 and is expected to average about 1.5-2 percent of GDP for the year as a whole. Despite these developments, the overall external position remains solid. The current account deficit is well below the 3 percent of GDP threshold beyond which vulnerability emerges. Meanwhile, foreign exchange reserves have reached a record level of about \$432 billion at end-December 2017, well above prudent norms.

Fiscal Developments

The fiscal deficit for the first eight months of 2017-18 reached 112 percent of the total for the year, far above the 89 percent norm (average of last 5 years), largely because of a shortfall in non-tax revenue, reflecting reduced dividends from government agencies and enterprises. Expenditure also progressed at a fast pace, reflecting the advancing of the budget cycle by a month which gave considerable leeway to the spending agencies to plan in advance and start implementation early in the financial year. Partially offsetting these trends will be disinvestment receipts which are likely to exceed budget targets.

Reflecting largely fiscal developments at the center, a pause in general government fiscal consolidation relative to 2016-17 cannot be ruled out. In addition, the measured deficit for 2017-18 will include Rs. 80,000 crore (0.5 percent of GDP) in capital provided to public sector banks.

GST revenue collections are surprisingly robust given that these are early days of such a disruptive change. Thus far, collections are running at a rate of Rs. 10.5 lakh crore (five-month average, annualized), this against the collection of Rs 9.7 lakh crores in 2016-17 of taxes subsumed by GST.

Government measures to curb black money and encourage tax formalization, including demonetization and the GST, have increased personal income tax collections substantially (excluding the securities transactions tax). From about 2 percent of GDP between 2013-14 and 2015-16, they are likely to rise to 2.3 percent of GDP in 2017-18, a historic high.

Outlook for 2018-19

If macro-economic stability is kept under control, the ongoing reforms are stabilized, and the world economy remains buoyant as today, growth could start recovering towards its medium term economic potential of at least 8 percent.

- The acceleration of global growth should in principle provide a solid boost to export demand. Certainly, it has done so in the past, particularly in the mid-2000s when the booming global economy allowed India to increase its exports by more than 26 percent per annum. This time, the export response to world growth has been in line with the long-term average, but below the response in the mid-2000s. Perhaps it is only a matter of time until exports start to grow at a healthy rate.
- Private investment seems poised to rebound, as many of the factors exerting a drag on growth over the past year finally ease off. Translating this potential into an actual investment rebound will depend on the resolution and recapitalization process. If this process moves ahead expeditiously, stressed firms will be put in the hands of stronger ownership, allowing them to resume spending.
- Consumption demand, meanwhile, will encounter different tugs. On the positive side, it will be helped by the likely reduction in real interest rates in 2018-19 compared to the 2017-18 average. At the same time, average oil prices are forecast by the IMF to be about 12 percent higher in 2018-19, which will crimp real incomes and spending. And if higher oil prices requires tighter monetary policy to meet the inflation target, real interest rates could exert a drag on consumption.

Putting all these factors together, a pick-up in growth to between 7 and 7.5 percent in 2018-19 can be forecasted, re-instating India as the world's fastest growing major economy. This forecast is subject to upside potential and downside risks.

- The biggest source of upside potential will be exports. If the relationship between India's exports and world growth returns to that in the boom phase, then that could add another ½ percentage point to growth.
- Another key determinant of growth will be the implementation of the IBC process. Here timelines in resolution and acceptance of the IBC solutions must be a priority to kick-start private investment.
- Persistently high oil prices (at current levels) remain a key risk. They would affect inflation, the current account, the fiscal position and growth, and force macro-economic policies to be tighter than otherwise.

2

A NEW, EXCITING BIRD'S EYE VIEW OF THE INDIAN ECONOMY THROUGH THE GST

Context

As an information repository, the Goods and Services Tax (GST) embodies and heralds a radical alteration and enlargement in the understanding of the Indian economy. The GST is filed online, and data collected from it give new insights about Indian economy. These insights shall help government to form policies more appropriately. This chapter is a mere sampler, giving a hint of the insights that analysis of the GST will be able to provide in the future.

Terminologies

- **Composite Scheme under GST:** Taxpayers under this scheme pay a small tax (1 percent, 2 percent or 5 percent) on their turnover and are not eligible for input tax credits. This set up minimizes their administrative burden, but also makes it difficult for them to sell to larger firms, which would not be able to secure input tax credits on such purchases. The turnover limit for the composition scheme was changed from Rs.1 crore to Rs. 1.2 crore (in the October 2017 GST Council meeting) to Rs. 1.5 crore (in the November 2017 GST Council meeting).
- **Revenue Neutral Rate:** It is the tax rate that allows the government to receive the same amount of money despite of changes in tax laws.
- **Gross State Domestic Product:** **Gross State Domestic Product** (GSDP) is defined as a measure, in monetary terms, of the volume of all goods and services produced within the boundaries of the State during a given period of time, accounted without duplication.
- **Employees' Provident Fund Organisation:** The **Employees' Provident Fund Organisation** is an organization tasked to assist the Central Board of Trustees, a statutory body formed by the Employees' Provident Fund and Miscellaneous Provisions Act, 1952 and is under the administrative control of the Ministry of Labour and Employment, Government of India.
- **National Sample Survey Office:** The National Sample Survey Office (NSSO) headed by a Director General is responsible for conducting large scale sample surveys in diverse fields on All India basis. Primarily data are collected through nation-wide household surveys on various socio-economic subjects, Annual Survey of Industries (ASI), etc. Besides these surveys, NSSO collects data on rural and urban prices and plays a significant role in the improvement of crop statistics through supervision of the area enumeration and crop estimation surveys of the State agencies. It also maintains a frame of urban area units for use in sample surveys in urban areas.

Gist of Chapter

The chapter provides new insights; the topic wise list of new findings is given below:

Taxpayers

The GST has increased the number of unique indirect taxpayers by more than 50 percent from 6.4 million to 9.8 million. The profile of new filers is interesting. Of their total turnover, Business-to-Consumer (B2C) transactions account for only 17 percent of the total. The bulk of transactions are Business-to-Business (B2B) and exports, which account for 30-34 percent. Maharashtra, UP, Tamil Nadu and Gujarat are the states with the greatest number of GST registrants.

In the run-up to the GST, there was anxiety amongst the manufacturing states that the switch to a destination and consumption-based tax would transfer the tax base toward consuming states. Has this happened?

The answer is no, the data on the state-wise share of the total GST base shows that the top states are Maharashtra (16 percent), Tamil Nadu (10 percent), Karnataka (9 percent), Uttar Pradesh (7 percent), and Gujarat (6 percent). Analysis shows that each state's share in the GST base is almost perfectly correlated (coefficient of 0.95) with its share in overall GSDP. So the broadest tax bases still seem to be in the largest producing states. This also means that centre might have to pay less to states for revenue shortfall vis-a-vis their revenue in pre-GST regime.

Size Distribution of Inter-Firm Transactions

Knowing the nature of transactions between firms is critical to formulating policy, especially designing compliance procedures.

Firms are placed in five categories based on their annual turnover: below-threshold, less than Rs. 20 lakhs; below-composition limit, Rs. 20-100 lakhs (the current upper limit of the composition scheme is Rs. 150 lakhs); small and micro enterprises (SMEs), Rs. 1-5 crore; medium, Rs. 5-100 crore; and large firms above Rs. 100 crore. The data show that the distribution of turnover is very skewed. The registered below-threshold firms account for 32 percent of total firms but less than 1 percent of total turnover, while the largest account for less than 1 percent of firms but 66 percent of turnover, and 54 percent of total tax liability.

International Trade, Inter-state Trade and Economic Prosperity

GST returns provide direct data on inter-state trade and for the first time in India's history it is possible to know the state-wise distribution of international exports of goods and services due to GST data.

- Five states—Maharashtra, Gujarat, Karnataka, Tamil Nadu, and Telangana—in that order account for 70% of India's exports (Table 1). Further, overall economic development (reflected through per capita State's GSDP) is related to export performance. A state's GSDP per capita is highly correlated with its export share in GSDP for the major 20 states as shown:

Table: Share of States in Export of Goods and Services

State	% share	Cumulative
MH	22.3%	22.3%
GJ	17.2%	39.5%
KA	12.7%	52.3%
TN	11.5%	63.8%
TE	6.4%	70.1%
HR	4.9%	75.0%
UP	4.8%	79.8%

WE	3.2%	83.0%
AP	2.8%	85.8%
OD	2.0%	87.8%
DEL	1.9%	89.7%
RJ	1.8%	91.5%
KE	1.7%	93.2%
PUN	1.7%	94.8%
MP	1.3%	96.1%
GO	0.9%	97.0%

- Last year *Survey* had estimated that India's inter-state trade in goods was between 30 and 50 percent of GDP, a relatively high number compared to other countries. GST data suggests that India's internal trade in goods and services (excludes non-GST goods and services) is actually even higher: about 60 percent of GDP. The state wise distribution is given in table 2. The analysis, shows that, states that export the most are also the ones that import the most and the states that trade the most are the ones that are the most competitive, i.e. competitive means more exports than imports hence, these states run largest trade surpluses.

Table: States' Share in Interstate Trade and their Net Exports

State	Exports	State	Imports	State	Net Exports
MH	15.7	MH	13.7	HR	26.1
GJ	11.3	TN	7.8	GJ	20.1
HR	9.4	UP	7.8	OD	6.6
TN	8.4	KA	7.3	MH	5.0
KA	7.0	GJ	7.1	DEL	2.6
DEL	6.0	HR	6.9	TN	2.2
UP	5.6	DEL	5.7	CG	1.6
WE	4.0	WE	4.8	JH	0.3
RJ	3.8	RJ	4.7	AP	-1.2
AP	3.6	TE	4.7	KA	-1.3
PUN	3.2	AP	3.7	WE	-4.9
TE	3.0	PUN	3.7	RJ	-6.7
MP	2.4	MP	3.6	PUN	-7.0
OD	2.3	KE	3.1	UP	-9.6
JH	1.8	BH	2.0	MP	-10.4
CG	1.6	OD	1.9	TE	-14.7
KE	0.8	JH	1.7	KE	-20.1
BH	0.2	CG	1.6	BH	-23.6

Trading Superstars: Indian Export Egalitarian Exceptionalism

There is a growing literature that documents the emergence of exports superstars— firms that account for a disproportionately large share of exports. For example, in a sample of 32 countries, Freund and Pierola (2013) found that the top 1 percent of exporting firms account for over 50 percent of exports. Further, it is argued that having and fostering big-ness influences the sectoral composition of exports and also helps create comparative advantage and improve long-term prospects.

With the new GST data it is possible to construct firm-level exports and thus check volume of exports superstars in India. The results are striking, the top 1 percent of firms accounted for 72, 68, 67, and 55 percent of exports in Brazil, Germany, Mexico, and USA respectively but only 38 percent in the case of India. This suggests India is an exception. The implications of such an Indian export structure are unclear. The evidence argues in favour of superstars, because they are dynamic and their expansion can have spillover effects on other firms. But concentration can have disadvantages, including impeding competition.

Informality of the Indian Economy

It is said that formal sector accounts for only 8% of the total employment and informal sector accounts for 92% of the employment, meaning most of the employment is concentrated in informal sector.

The GST data throw up new data that allows a better re-examination of the extent of formality/informality in the Indian economy. The survey defines informality or rather formality defined in at least two senses. First, when firms are providing some kind of social security to employees (for example contribution towards Provident fund). A second definition of formality is when firms are part of the tax net. Since new data on the GST is available, one can define tax formality as firms having registered under the GST. Based on these definitions, the magnitude of formal sector firms, turnover, tax liabilities, tax paid, exports, and payroll can be estimated.

The following are the key findings.

- About 0.6 percent of firms, accounting for 38 percent of total turnover, 87 percent of exports, and 63 percent of GST liability are what might be called in the “**hard core**” **formal sector** in the sense of being both in the tax and social security net.
- At the other end, 87 percent of firms, representing 21 percent of total turnover, are **purely informal**, outside both the tax and social security nets.
- Formal non-farm employment from a social security perspective is estimated at about 7.5 crores, or 31 percent of the non-agricultural workforce including government Non-farm employment. The tax-based numbers exclude government employees and also non-farm payroll that takes place in sectors currently outside the GST such as health and education. Taking all these into account, and adding back government employment, nearly 53 percent of the non-agricultural workforce (240 million) is in the formal sector. These estimates for formal non-farm payroll, ranging from 31 percent in the case of social security-defined formality and 53 percent in the case of tax-defined formality, are considerably greater than current beliefs about the size of formal sector non-farm payroll.
- Similarly, the size of the formal sector (defined here as being either in the social security or GST net) is 13 percent of total firms in the private non-agriculture sector but 93 percent of their total turnover.

Prelims Facts

- New data on the international exports of states suggests a strong correlation between export performance and states’ standard of living/ development captured by per capita GSDP.

- Internal trade is about 60 percent of GDP.
- The GST has increased the number of unique indirect taxpayers by more than 50 percent.
- Formality defined in terms of being part of the GST, suggests a formal sector employment as 53 percent, of the non-agricultural work force.

Table: Formality of the Indian Economy

Enrolled in EPFO/ESIC																				
Registered under GST	Number of Firms/Enterprises (in Lakhs)			Share in Total Turnover			Share in Tax liabilities			Tax Rate (%)			Share in Exports			Employees (crore)				
	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total	Yes	No	Total		
Yes	4.0	88.3	92.3	38.4	41.0	79.3	63.5	36.5	100.0	16.3	7.0	11.0	86.7	13.3	100.0	4.5	6.7	11.2		
No	0.9	619.8	620.6	13.8	6.9	20.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5	9.2	10.8		
Total	4.9	708.1	712.9	52.2	47.8	100.0	63.5	36.5	100.0	-	-	-	86.7	13.3	100.0	6.0	15.9	22.0		

3

INVESTMENT AND SAVING SLOWDOWNS AND RECOVERIES: CROSS-COUNTRY INSIGHTS FOR INDIA

Context

India has witnessed historic high of investment and savings in year 2000s. But it is now followed by gradual decline. Slowdown of investment and saving is still going on. In this chapter we will be able to see cross-country experience to study the pattern of investment and saving slowdowns as well as recoveries, in order to obtain Policy lessons for India.

In this regards some findings are made. One finding is that investment slowdowns have an impact on growth. But it had been also observed that savings slowdown has not affected substantially on growth.

Another is that recoveries from investment slowdowns, especially those associated with balance sheet difficulties tend to be slow. Notably, some degree of automatic bounce-back is absent so that the deeper the slowdown, the slower and shallower the recovery.

The policy conclusion is urgent prioritization of investment revival to arrest more lasting growth impacts, as the government has done with plans for resolution of bad debts and recapitalization of public sector banks.

Terminologies

- **Gross fixed capital formation:** Gross fixed capital formation (GFCF) refers to the net increase in physical assets (investment minus disposals) within the measurement period. Gross fixed capital formation includes purchases of plant, machinery, and equipment; the construction of infrastructure (roads and railways, schools and hospitals, private residential dwellings, industrial buildings, etc.) and land improvement.
- **Growth:** Growth in economic terms corresponds to the increase in GDP (gross domestic production).
- **Gross domestic saving:** Gross Domestic Saving is GDP minus final consumption expenditure. It is expressed as a percentage of GDP.
- **Shortfall:** Difference between the average of investment (saving) in the slowdown year and subsequent two years; and the average of the previous five years shows shortfall.
- **Slowdown episode:** If there are two or more consecutive slowdown years.
- **Balance-sheet:** A statement of the assets, liabilities, and capital of a business or other organization at a particular point in time, detailing the balance of income and expenditure over the preceding period.

Gist of Chapter

Introduction

This chapter looks in to the analysis of investment and savings slowdowns in India. It also looks for problem associated with recoveries.

Since 2010, discussions of India's growth have centered on one simple question: how to achieve *8-10 percent growth*? To solve this problem government has implemented many *structural reforms* in recent years. The government has taken various steps for boosting growth, controlling inflation and curbing corruption.

With some reforms, it was believed that *domestic saving and investment* will soon start to accelerate. But neither saving nor investment has shown accelerated growth. The ratio of gross fixed capital formation to GDP climbed from 26.5 percent in 2003, reached a peak of 35.6 percent in 2007, and then slid back to 26.4 percent in 2017.

The ratio of domestic saving to GDP has registered a similar evolution, rising from 29.2 percent in 2003 to a peak of 38.3 percent in 2007, 29 percent in 2016.

Such sharp swings in investment and saving rates have never occurred in India's; nor does other country seem to have gone through such a large investment boom and bust.

Which sectors are responsible for the saving/investment decline in India?

Answer to this question is- *Essentially, private investment and household/government saving*. Private investment accounts for 5 percentage points out of the 6.3 percentage point overall investment decline over 2007-08 and 2015-16. The fall in saving, by about 8 percentage points over the same period, has been driven almost equally by a fall in household and public saving. The fall in household saving has in turn been driven by a fall in physical saving, partly offset by an increase in the holding of financial assets. Within the latter, there has been a shift from currency and bank deposits towards market instruments (shares and debentures).

Identifying Investment and Saving Slowdowns

Before going in to details; Investment and saving slowdowns are defined using a specific set of conditions. These conditions are-

1. **Shortfall, shortfall** is difference between (a) the average of investment (saving) in the **slowdown year** and subsequent two years; and (b) the average of the previous five years. (*"Slowdown year" is defined as one where the shortfall in that year exceeds a certain threshold*).

Slowdown episode = If there are two or more consecutive slowdown years.

2. The average investment rate for the 5 years prior to the slowdown year is at least 15 percent of GDP.

Until recently, India had not experienced either type of slowdown (investment and saving slowdowns). Current slowdown – *in which both investment and saving have slumped* – is the first in India's history. The investment slowdown started in 2012, subsequently intensified, that for 2016. With the slowdown now having lasted at least five years, it has already surpassed the typical duration of slowdown episodes; it was continued through 2017, reached the six-year duration recorded in the exceptionally severe cases. *Yet because the investment decline has been so gradual, the magnitude of the shortfall so far is relatively less severe* – it remains a moderate 21 percentage points, well under the average magnitude.

Saving Versus Investment

From above discussion it has been clear that saving and investment had slumped simultaneously. This prompt us to ask question should policies that boost investment be given greater priority over those that saving? Answer to this question *often prescribed is that both problems need to be tackled simultaneously*.

In deeper analysis about *savings* it has been found that countries experiencing **positive savings** do not necessarily experience sustained **growth** increases. Rather, *countries that experience growth transitions eventually see sustained higher rates of saving*.

While studying *investment* it has been noted that, *a one percentage point fall in investment rate is expected to dent growth by 0.4-0.7 percentage points*. These results are robust to different time periods and specifications. The relationship of saving with growth not only remains insignificant but turns mildly negative. Thus fall in savings does not affect very harshly as fall in investment do. So let us now go deep in to investment analysis.

Not only are investment episodes followed by slower growth (unlike saving episodes), this is also true of 'pure' episodes of investment slowdowns, i.e. those not accompanied by slowdown in saving. A further classification of the investment slowdowns can be attempted: *those that are driven primarily by a fall in private investment and those that are not*. Data on the private investment component of aggregate gross fixed capital formation is available from the WDI database. *It is clear that three-fifths(60%) of the episodes are caused by a fall in private investment*.

Understanding 'India-Type' Investment Slowdowns

India's investment slowdown is relatively moderate in magnitude. Furthermore, it has a specific nature, in that it is a *balance sheet related slowdown*. In other words, many companies have had to curtail their investments because their finances are stressed, as the investments they undertook during the boom have not generated enough revenues to allow them to service the debts that they have incurred.

Conclusion

As discussed in context sole motto of undergoing these studies is to find out *policy lessons for India*. The notion that growth is constrained by *saving* has a long and illustrious pedigree. As we concluded *it is clear that investment slowdowns are more detrimental to growth than saving slowdowns*. So, policy priorities over the shortrun must focus on reviving investment. Mobilizing saving, for example via attempts to unearth blackmoney and encouraging the conversion of gold into financial saving or even courting foreign saving are, *important but perhaps not as urgent as reviving investment*. Any way Share of financial saving is already rising in aggregate household savings so we do not have to worry about savings as we must in case of investment.

Important question one must ask is: how will the investment slowdown reverse, so that India can regain 8-10 percent growth?

India's investment decline seems particularly difficult to reverse, *partly because it stems from balance sheet stress and partly because it has been usually large*. Cross-country evidence indicates a notable absence of automatic bounce-backs from investment slowdowns. The deeper the slowdown, the slower and shallower the recovery. At the same time, it remains true that some countries in similar circumstances have had fairly strong recoveries, suggesting that policy action can decisively improve the outlook. So there is clear and urgent policy agenda which the government has launched;

- 1) *With the step-up in public investment since 2015-16; and now, given the constraints on public investment with policies to decisively resolve the Twin balance sheet challenge.*
- 2) *These steps will have to be followed up, along with complementary measures: easing the costs of doing business further, and creating a clear, transparent, and stable tax and regulatory environment.*
- 3) *In addition, creating a conducive environment for small and medium industries to prosper and invest will help revive private investment.*

The focus of investment-incentivizing policies has to be on the big and small alike. The 'animal spirits' need to be conjured back.

Prelims Facts

1. **Gross fixed capital formation includes** purchases of plant, machinery, and equipment; the construction of infrastructure (roads and railways, schools and hospitals, private residential dwellings, industrial buildings, etc.) and *land improvement*.
2. GDP = Market value all final goods & services produced within country for a given time period.
GDP @ Market Price = GDP @ Factor cost + Taxes – Subsidies.
3. Gross domestic saving is the Gross Domestic Product minus final consumption. The saved money is either kept with the public or is invested back. When the money is invested back, we come to the figures known as **Capital Formation**.
4. Various investment models:
 - *Public Private Partnership Model*: PPP means combining the best benefit from both public and private investments.
 - Domestic Investment Model – It can be from Public, Private or PPP. Foreign Investment Model – It can be 100% FDI or Foreign-Domestic Mix. Sector Specific Investment Models (In SEZ or MIZ etc). Cluster Investment Model (Eg: Food Processing Industries).
5. **Animal spirits**: Animal Spirits is a term used by John Maynard Keynes to explain why decisions are made even in times of uncertainty. This is a term that refers to the emotions and instincts that guide the behaviour of investors and consumers in a market economy.
6. Ratio of gross fixed capital formation to GDP was 26.4 percent in 2017.
7. The ratio of domestic saving to GDP was 29 percent in 2016.

4

RECONCILING FISCAL FEDERALISM AND ACCOUNTABILITY: IS THERE A LOW EQUILIBRIUM TRAP?

Context

Today we need fiscal accountability which will ensure, a low and declining dependence of states (2nd tier) and Panchayat (3rd tier) on devolved resources and a high and rising share of direct taxes in total taxes.

India's second and third tiers of government tend to under-perform relative to these standards. The extent of tax and functional devolution to these tiers is one possible explanation. However, one key finding is that these tiers under-collect direct taxes. (Even though they have related powers).

Whether this could lead to a LOW EQUILIBRIUM TRAP of weak direct tax collection leading to inadequate service delivery provision, and accountability? In this chapter we will try to find out answers to such questions.

Terminologies

- **Fiscal Federalism:** Fiscal federalism is defined as financial relations between units of governments in a federal government system. Fiscal federalism is part of broader public finance discipline. The term was introduced by the German-born American economist Richard Musgrave in 1959. Fiscal federalism deals with the division of governmental functions and financial relations among levels of government.
- **Fiscal decentralization:** Fiscal decentralization (FD) means devolution of power and responsibilities of national (central), government towards sub-national (local), governments. Attaining economic efficiency, equality and macroeconomic stability can be considered among the main issues of concern for FD.
- **Low Level Equilibrium Trap:** The theory of Low Level Equilibrium Trap has been developed by R.R. Nelson for underdeveloped countries. It states that when per capita income increases above the minimum specific level, population tends to increase. But when the growth rate reaches an upper physical limit as the per capita income increases, the growth starts declining.
- **Disposable Personal Income:** Disposable personal income (DPI) is the amount of money that households have available for spending and saving after income taxes have been accounted for. Disposable personal income is often monitored as one of the many key economic indicators used to gauge the overall state of the economy.

Gist of Chapter

Introduction

Taxation is not just a vehicle for raising state revenue. It can also be critically important for economic and political development. There is a social contract between citizens and the state. *“The state’s role is to create the conditions for prosperity for all by providing essential services and protecting the less well-off via redistribution. The citizen’s part of the contract is to hold the state accountable when it fails to honor that contract.”*

But when citizens fail to pay taxes they lose their interest to hold state accountable. If a citizen does not pay, he becomes a free rider (using the service without paying), and cannot complain if the state provides a poor quality service. Only, if he pays and uses the service then he will try to hold the state accountable. *Taxation is the economic glue that binds citizens to the state in a necessary two-way relationship.*

But does this glue rely on taxation (direct taxation in particular)?

Direct taxes are felt more by the taxpayers. Direct taxes feel more like expropriation (Taking out of an owner's hands, especially taking property by public authority) because they reduces citizens' *disposable income*. With indirect taxes, citizens are burdened but that sense is leavened to the extent that citizens feel they are exercising choice. Thus, those who pay direct taxes take direct responsibility to hold state responsible to provide necessary services. This is the glue we were talking about in preceding para, that binds citizens to the state in a necessary two-way relationship.

Direct Taxation at Various Levels

1. **At Centre Level:** (i) Economic and political development has been associated with a rising share of direct taxes in total taxes. (ii) Advanced countries collect a substantially higher proportion of their taxes as direct taxes in comparison to emerging markets. (iii) *India has the lowest share of direct taxes in total taxes.*
2. **At State Level:** (i) Important legal argument is that resources received by the states as part of successive Finance Commission verdicts are not "devolved" resources but shared resources. (ii) Center is merely collecting the taxes in the divisible pool on behalf of the states, and sharing it with them. (iii) Resources from the divisible pool to the states have the strong whiff of devolution.
3. **At the Local Level:**
 - a) **Rural Local Governments (RLGs)**, reliance on *own resources are just 6 per cent* (40 percent for third-tier governments in Brazil and Germany). And Panchayats *raise about 4 percent* of their overall resource envelope in the form of direct taxes. (19 and 26 percent in Brazil and Germany respectively).
 - b) India's **Urban Local Governments (ULGs)** are much closer to international norms. Their own revenues as a share of total revenues are actually higher than Brazil and Germany, while their direct tax share (about 18 percent of total revenues) is only marginally lower than Brazil (19 percent) and somewhat lower than Germany (26 percent).

This is evidence that ULGs have emerged more fiscally empowered than RLGs so far in India. (Considered only selected large cities, for which data are available, and which may have larger own resource bases than smaller ones.)

About local governments

The famous 73rd amendment to the Constitution (1992) recognized Panchayats as institutions of self-government. The simultaneous 74th amendment bestowed the same status on urban local governments. RLGs or Panchayats were mandated to have three tiers (at the district, intermediate and village levels) in states with population of **over 20 lakh**. States were mandated to devolve such functions and authorities to RLGs which would enable them to function as institutions of self-governance. Illustratively, the Constitution listed 29 matters which could be the focus of their governance, such as agriculture and land reforms, minor irrigation, small scale industries, rural communication, drinking water, poverty alleviation programmes. States are mandate to constitute a State Finance Commission (SFC) to determine the share of their financial resources going to the local tiers, analogous to the Finance Commissions at the union level.

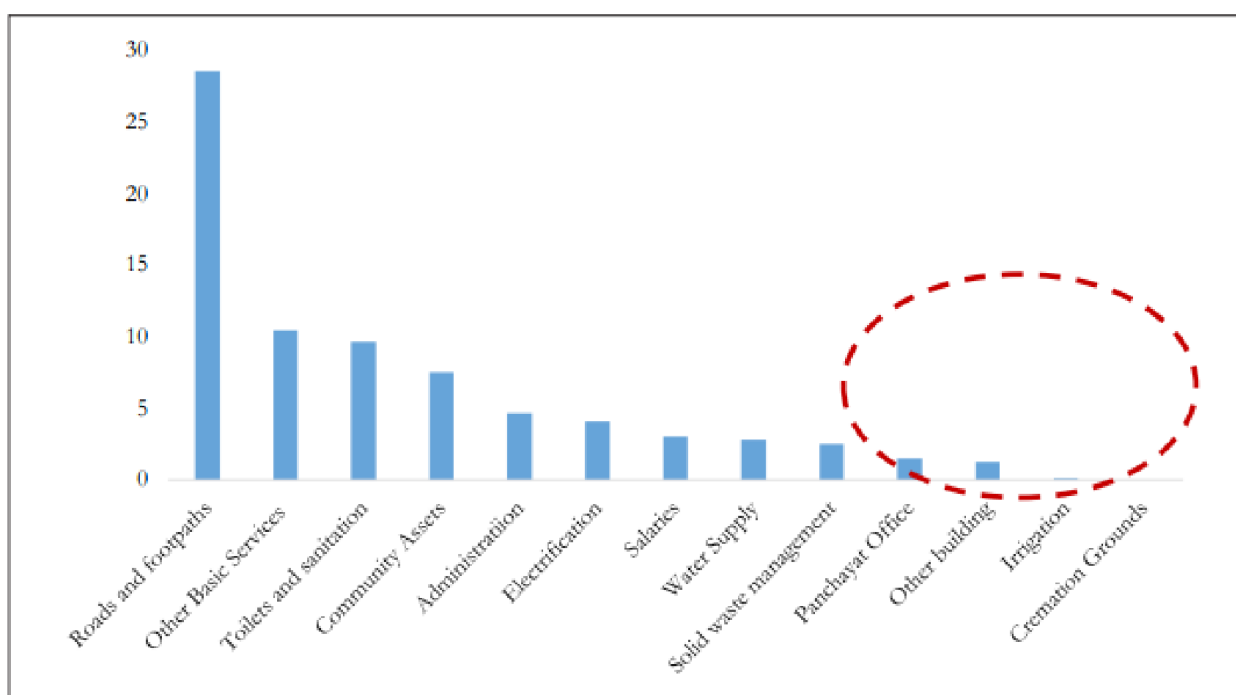
Expenditure patterns of different tiers of government

- (i) The central and state governments spend on an average 15-20 times more per capita than do RLGs. ULGs spend about 3 times more. More importantly, this gap has persisted over time despite per capita spending by RLGs increasing almost four-fold since 2010-11.
- (ii) ULGs generate about 44 per cent of their total revenue from own sources.
- (iii) RLGs, in contrast, rely overwhelmingly (about 95 percent) on devolution.
- (iv) Given the overwhelming reliance on devolved funds which, to a large extent, are tied to sectors and schemes, it is not surprising that gram Panchayats (GP) spend the bulk of such funds on earmarked areas, such as roads, other basic services, sanitation and community assets. The spending on purely local public goods like irrigation is not a priority out of such funds.

Some issues related with local governance

- (i) In many states, RLGs and ULGs have not been devolved enough taxation powers. Successive Devolution Reports of the Ministry of Panchayati Raj (MoPR) show that the share of revenues assigned to local governments in many states are much less vis-à-vis expenditure assignments.
- (ii) Even though most states have constituted State Finance Commission SFCs, very few seem to have accepted their recommendations. As per the latest MoPR Devolution Report (2015-16) the percentage of acceptance of such recommendations varies from as low as 11 percent in Karnataka, to above 50 percent in West Bengal, Andhra Pradesh and Rajasthan, to full acceptance in Kerala.

Sectoral Share of GP Expenditure out of Devolved Funds (2014-16)



Why is revenue collection, especially from direct taxes, so poor?

RLGs collect less than 10 percent of their total resources from own revenues and ULGs around 45 percent. **States have not devolved enough taxation powers to the Panchayats.** For example, the permissible taxes for Panchayats include property and entertainment taxes but not land taxes or tolls on roads (except

local Panchayat roads). The property taxes collected at the second and third tiers of government are (a) land tax assessed and collected at the state level; and (b) building tax, including property/house tax, collected at the municipality (ULG) and Gram Panchayat (RLG) levels. So the revenue collection remains low at RLG level. Even though local governance has some power to collect taxes, they do not have enough infrastructures to collect it, which is main reason why direct revenue collection is so poor.

Conclusion: A Low Equilibrium Trap?

The status quo can be an equilibrium desired by all actors with higher tiers (both Centre and states) using their devolution powers to control and influence lower levels; and the latter, unable and unwilling to tax their proximate citizens, need outside resources even if they are not always untied. But this is a low-equilibrium, perhaps even a trap.

Fiscal model of the states and third tier institutions could forever be based on outside resources which—like foreign aid and natural resources or other forms of ‘redistributive resource transfers’ — come with weak accountability mechanisms and weak own resource generation capacity.

Redistributive Resource Transfers’ (RRT) to a state is defined as gross devolution to the state adjusted for the respective state’s share in aggregate gross domestic product.

RRT can be defined as the gross devolution net of the amount the state would have received as per its contribution in the country-wide fiscal effort measured by the state’s share in aggregate own tax revenue. According to the Survey, **the top 10 recipients** are: Sikkim, Arunachal Pradesh, Mizoram, Nagaland, Manipur, Meghalaya, Tripura, Jammu and Kashmir, Himachal Pradesh and Assam (all ‘Special Category’ states).

Annual per capita RRT flows for all the north-eastern states (except Assam) and Jammu and Kashmir have exceeded the annual per-capita consumption expenditure that defines the all-India poverty lines, especially the rural.

States and third tier fiscal institutions are not the only ones unable or unwilling to collect direct taxes but Centre too. At the end it is concluded that self-reinforcing cycle of inadequate delivery, low direct taxes, weak accountability, and inadequate delivery is perhaps the heart of the governance challenge in India.

Prelims Facts

1. **Like India, even Germany and Brazil also has three tier system of governance.**
2. 73rd amendment to the Constitution (1992) recognized Panchayats as institutions of self-government. The 74th provided same status on urban local governments.
3. RLGs or Panchayats were mandated to have three tiers (at the district, intermediate and village levels) in states with population of over **20 lakh**. This amendment is not applicable in some special areas and in the states like Nagaland, Mizoram.
4. **15th Finance Commission** will make recommendations for the five years commencing 1 April 2020 till 31 March 2025; the commission will recommend devolution of shareable central taxes to States. It will also review several important aspects of federal fiscal finance. It will make its report available by 30th October 2019. N.K. Singh, former bureaucrat and ex-Member of Parliament will be Chairman of 15th Finance Commission.

5

IS THERE A "LATE CONVERGER STALL" IN ECONOMIC DEVELOPMENT? CAN INDIA ESCAPE IT?

Context

The present era is of unprecedented prosperity for developing countries. And India is also witnessing high growth rate. We can see that the poorer countries are growing faster than richer countries leading to "economic convergence". The convergence process is accelerating for the last 20-30 years.

There is a fear that there can be a slowdown in this process of convergence for countries like India. There could be 4 reasons for this, backlash against globalization, difficulties of transferring resources from low productivity to higher productivity sectors, challenge of upgrading human capital to the demands of a technology-intensive workplace, and coping with climate change-induced agricultural stress.

So far, India defied these challenges but in future these challenges need to be decisively addressed. This chapter analyse on this point.

Terminologies

- a) **Economic Convergence:** It is the process of poorer countries "catching-up" with richer countries and closing gaps in standards of living, has been a big driver of some of these developments.
- b) **Divergence Big Time:** Many poor countries fall in low-income trap for a long time and were not catching up at all. So they were growing more slowly than richer countries.
- c) **Convergence with a Vengeance:** Means since the mid-1980s the number of poor countries growing faster than advanced economies has substantially increased and rate of catch-up also accelerated.
- d) **Premature De-industrialization:** It is the tendency for manufacturing in late converger to peak at lower levels of activity and earlier in the development process.
- e) **Good Growth:** It comprises growth accounted for by labor share shifts into good (Productive) sectors and their productivity growth.
- f) **Lewisian Transformation in Labour:** Is related to the labour shift from the farm to the non-farm sector involving a transition from low-productivity jobs to high productivity ones.
- g) **Learning Poverty Headcount (LPC):** It measures the number of children who do not meet the basic learning benchmark.
- h) **Learning Poverty Gap (LPG):** It measures the gap between the basic learning benchmark and the average scores of those students who did not meet the benchmark.

Introduction

- This is best of economic times for humanity and poorer countries (including India), because the **global bads** (war, violence, deprivation and poverty) are at unprecedentedly low levels and **global goods** (standards of living, access to essential services, and material well-being more generally) have improved at a historically unprecedented pace.
- Since the mid-1980s, the process of catch-up has broadened, as the number of poor countries growing faster than advanced economies has substantially increased.
- In 1960, India was a **low-income** country. In 2008 we attained **lower middle-income** status and if per capita income grows at 6.5% per year, we would reach **upper-middle income** status by 2020.
- Reasons for middle income trap:
 - i) Country would be squeezed out of manufacturing and other dynamic sectors by poorer, lower-cost competitors.
 - ii) Lack the institutional, human, and technological capital to carve out niches higher up the value-added chain.

Four Headwinds:

- Late convergence in the process of economic development means post **global financial crisis (GFC)** convergence. Even without succumbing to apocalyptic pessimism, the risk of a Late Convergence Stall needs to be taken seriously because of four headwinds:
 - a) **Hyper (rapid) Globalization Repudiation:** Early convergers (Japan, South Korea and China) benefited from the process of rapid/hyper globalization as all able to post **average export growth** rates of over 15% for the 30 years of their convergence periods.
 - In late convergence it reduces exporting opportunities of developing countries because they came late to convergence and now face a very different global trading environment from their predecessors.
 - Means trading opportunities available to the early convergers specifically the ability to export may no longer be available.
 - As a consequence of convergence, over time, the world is becoming more equal in the distribution of the underlying output.
 - And the gravity model suggests there will also be increased trade. But this will benefit more to the countries those accounts higher portion in world output.
 - b) **The Difficulties of Structural Transformation:** Means difficulties of transferring resources from low productivity to higher productivity sectors. Successful development requires 2 kinds of structural transformations:
 - i) A shift of resources from low productivity to high productivity sectors and
 - ii) A larger share of resources devoted to sectors that have the potential for rapid productivity growth.
 - **Thwarted Structural Transformation** wherein resources shift instead from informal, low productivity sectors to ones that are marginally less informal/more productive.

- **Manufacturing is critically important sector for ensuring successful transformations.** This sector exhibits unconditional convergence toward the world frontier, so that it can become an escalator for rapid growth.
 - In India the sectors like **manufacturing, finance, telecommunications, and professional services** have high levels of productivity and potential for unconditional convergence.
- c) **Human Capital Regression:** It poses the challenge of upgrading human capital to the demands of a technology-intensive workplace. Human capital is one key difference between early convergence based on manufacturing and late convergence against the strong headwinds of automation and the globalization backlash.
- In early convergence Lewisian transformation, i.e. shifts in labor from farm to factory were possible because of alignment of human capital endowment (educated but relatively unskilled labour) with the sector associated with structural transformation.
 - But in late convergence players failed to provide even the basic education necessary for some structural transformation. In this the technology will increasingly favor skilled human capital, where the requisite skills will include adaptability and the ability to learn continually.
 - So growth will be based less on comparative advantage and more on some absolute human capital attainment.
 - The data on learning outcomes for a group of advanced and emerging economies shows during the 1980s and 1990s, educational attainment of the middle income countries was below that of advanced economies. If this gap persists or widens the kind of transformation enjoyed by the late convergers might prove more difficult for the late convergers, including India.
- d) **Climate Change-induced Agricultural Stress:** There is need to produce enough food to a growing population and this is only possible if agricultural labor productivity grew rapidly enough.
- Unlike GDP, agricultural productivity levels across countries are increasingly diverging, not converging. So, growth rates for richer countries have been consistently greater than for developing countries and for poorest, and these growth rates have even declined post-GFC.
 - Indian agricultural productivity growth has been stagnant, averaging roughly 3 percent over the last 30 years because Indian agriculture is **vulnerable to temperature increase and still heavily dependent on precipitation.** And if this situation continues then farmer revenues could decline by up to 20-25% in non-irrigated areas.
 - Therefore for the late convergers (like India), agricultural productivity is critical not just for feeding people but for ensuring human capital accumulation in those who move from agriculture to the modern sectors.
 - Agriculture could yet come back to haunt the structural transformation fortunes of the late convergers.

Lessons for India:

- Since 1980, India has been rapidly catching up, posting an average per capita GDP growth rate of 4.5% which is substantially greater than registered previously. But this fast growth has occurred with limited transfer of labour resources from low productivity to high productivity and dynamic sectors, and despite relatively modest agricultural growth.

- The risk for India and for the other late convergers is that resources (especially labour) will move from low productivity, informal sectors to other sectors that are marginally less formal and only marginally more productive. That is the “late converger stall” that India must avoid.
- Keys to sustaining India’s dynamic growth trajectory:
 - Rapidly improving human capital, i.e. healthy individuals, including all women, with the basic education to continually learn and adapt.
 - Rapidly improving agricultural productivity against the headwinds of climate change and water scarcity.
 - The hyper-globalization backlash in advanced countries, over which India has little control, must recede to create a favorable external climate to sustain rapid growth.

The Learning Poverty Count (LPC) and Learning Poverty Gap (LPG) in Rural Primary Education:

India’s primary school enrollment is now nearly universal for both boys and girls at elementary level. Yet, both cross-country evidence and evidence from India suggests that educational outcomes are in commensurate with years of schooling: learning lags attending, as per **Annual Survey of Education Reports (ASER)** that have over time tested a sample of children between the ages of 5 and 16 in rural India. Students are tested in terms of a set of tasks in **reading** and **arithmetic**: On math and reading, India’s roughly 40-50 % of children in rural India in grades 3 to 8 cannot meet the fairly basic learning standard. It is clear that learning levels of children in rural India are far below where they should be.

Current trends suggest that if technology goes forward with the same pace even more human capital intensive. So the wedge between the opportunities offered to the future labour force and the capabilities to take advantage of them will widen even further. That is the true magnitude of India’s human capital challenge.

Conclusion

- There is no Late Converger Stall, as yet, but it would be wise to act to head it off. India has so far defied these headwinds but will continue to do so only if the challenges are decisively addressed.

Prelims Facts

- **Global Financial Crisis:** The crisis became manifested with the failure, merger or crash of several financial institutions, mainly in the USA in 2008. The banks and the other financial institutions faced an insolvency threat. Across the globe, millions lost their jobs.
- Early and Late convergence happens before and after GCC respectively and not before or post LPG.
- **1980-1997:** Era of divergence in which low-income countries fell further behind.
- **1998-2007:** An early period of convergence running from the East Asian Financial Crisis until the Global Financial Crisis.
- **2008-2017:** The most recent period of “late convergence.”
- Currently India is **middle income country** and heading towards **upper-middle income** status.
- **Gross Domestic Product:** The total value of everything produced by all the people and companies in the country. GDP is best way to measure a country’s economy.

6

CLIMATE, CLIMATE CHANGE, AND AGRICULTURE

Context

Using district-level data on temperature, rainfall and crop production, this chapter documents a long-term trend of rising temperatures, declining average precipitation, and increase in extreme precipitation events.

Rise in temperatures lower the rainfall significantly and the number of "dry days" are greater, than normal. These become more adverse in unirrigated areas (and hence rainfed crops) compared to irrigated areas (and hence cereals).

The chapter states that minimizing susceptibility to climate change requires drastically extending irrigation via efficient drip and sprinkler technologies (realizing "more crop for every drop"), and replacing untargeted subsidies in power and fertilizer by direct income support.

Terminologies

- **Minimum Support Price (MSP):** Minimum Support Price (MSP) is a form of market intervention by the Government of India to insure agricultural producers against any sharp fall in farm prices.
- **Malthusian Theory of Population Growth:** According to Thomas Malthus, the English economist and demographer, the population tends to increase faster than the means of subsistence.
- **Un-irrigated areas:** Defined as districts where less than 50% of cropped area is irrigated bear the brunt of the vagaries of weather.
- **Dry-land Area:** Areas, which receive rainfall less than 750 mm. The farming in such areas called as Dry-land farming.
- **Rain-fed Area:** The rain-fed areas, which receive more than 750 mm. The farming in such areas called as Rain-fed farming.
- **Drip Irrigation:** Drip irrigation, also known as **trickle irrigation**, functions as its name suggests. Water is delivered at or near the rootzone of plants, drop by drop.
- **Weather:** It is refer to annual realizations of temperature and precipitation. Pertains to the condition of atmosphere at any place at a specific time or for a short period of time (Generally for hours or days).
- **Climate:** It refers to long-term patterns in temperature and precipitation variables. Average weather conditions of a specified area for a considerable time i.e. 30-35 years.
- **IMD:** It the principal agency responsible for meteorological observations, weather forecasting and seismology. IMD is headquartered in Delhi.

- **IPCC:** The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. It does not conduct any research nor does it monitor climate related data or parameters.

- **Pradhan Mantri Fasal Bima Yojana:** It is a crop insurance scheme in India.

Objectives: To provide insurance coverage and financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pests & diseases; to stabilise the income of farmers to ensure their continuance in farming; to encourage farmers to adopt innovative and modern agricultural practices and to ensure flow of credit to the agriculture sector.

Implementing Agency (IA): The Scheme shall be implemented through a multi-agency framework by selected insurance companies under the overall guidance & control of the Department of Agriculture, Cooperation & Farmers Welfare (DAC&FW), Ministry of Agriculture & Farmers Welfare (MoA&FW), Government of India (GOI) and the concerned State in co-ordination with various other agencies; viz Financial Institutions like Commercial Banks, Co-operative Banks, Regional Rural Banks and their regulatory bodies, Government Departments viz. Agriculture, Co-operation, Horticulture, Statistics, Revenue, Information/Science & Technology, Panchayati Raj, etc.

- **Sir Arthur Lewis Theory:** The Nobel Prize winner, Sir Arthur Lewis (among others), argued that economic development is always and everywhere about getting people out of agriculture and of agriculture becoming over time a less important part of the economy (not in absolute terms but as a share of GDP and employment). But this must happen along with, and in the context of, rapid productivity growth in agriculture, to produce greater food supplies for the people, provide rising farm incomes, and permit the accumulation of human capital.

Gist of Chapter

Indian agriculture is witnessing the harsher prospects of its vulnerability to long-term climate change.

The last few seasons have witnessed a problem of plenty: farm revenues declining for a number of crops despite increasing production and market prices falling below the Minimum Support Price (MSP). But in the medium to long term, the ghost of Malthus looms over Indian agriculture. Productivity will have to be increased, and price and income volatility reduced, against the backdrop of increasing resource constraints.

Shortages of water and land, deterioration in soil quality, and of course climate change-induced temperature increases and rainfall variability, are all going to impact agriculture. Thus analysing the impact of climate change on agriculture is must.

Agriculture matters for economic reasons because it still accounts for a substantial part of GDP (16 percent) and employment (49 percent). Poor agricultural performance can lead to inflation, farmer distress and unrest, and larger political and social disaffection—all of which can hold back the economy. Thus economic and social development is about facilitating this transition in the context of a prosperous agriculture and of rising productivity in agriculture because that will also facilitate good urbanization and rising productivity in other sectors of the economy.

But Indian agriculture sector is more vulnerable than China due to the vagaries of weather because close to 52 percent (73.2 million hectares area of 141.4 million hectares net sown area) of it is still un-irrigated and rainfed.

Long Run Agricultural Performance:

- Real agricultural growth since 1960 has averaged about 2.8% in India. Before Green Revolution it was less than 2% and 3% in following period until 2004. In the period after the global agricultural commodity surge, growth increased to 3.6%.
- The volatility of agricultural growth in India has declined substantially over time: from a standard deviation of 6.3% between 1960 and 2004 to 2.9% since 2004. In particular, production of cereals has become more robust to drought.

Impact of Weather on Agricultural Productivity:

- With significant implications in the context of looming climate changes is that the impact of temperature and rainfall is highly non-linear and felt almost only when temperature increases and rainfall shortfalls are extreme.
- These extreme shocks affects almost **twice in un-irrigated** areas than irrigated areas.
- Chart shows percentage decline in response to temperature increase and rainfall decrease.

	Extreme Temperature Shocks	Extreme Rainfall Shocks
Average Kharif	4.0%	12.8%
Kharif, Irrigated	2.7%	6.2%
Kharif, Un-irrigated	7.0%	14.7%
Average Rabi	4.7%	6.7%
Rabi, Irrigated	3.0%	4.1%
Rabi, Un-irrigated	7.6%	8.7%

- Key finding is that these impacts are significantly **more adverse in un-irrigated areas** (and hence rain-fed crops such as pulses) compared to irrigated areas (and hence crops such as cereals).
- Temperature increases have been particularly felt in the North-East, Kerala, Tamil Nadu, Kerala, Rajasthan and Gujarat. Parts of India, for example, Punjab, Odisha and Uttar Pradesh have been the least affected.
- Increase in precipitation in Gujarat and Odisha and also Andhra Pradesh have been noticed.

Crop Impacts:

- Crops grown in rain-fed area pulses in both kharif and rabi are vulnerable to weather shocks while the cereals both rice and wheat are relatively more immune.
- 1°C increase in temperature reduces wheat production by 4 to 5%.
- In the last decade (2004-2014), the impact of rainfall shocks in yields remains unchanged, but the effect of temperature shock increases threefold (relative to the first decade).
- However, since there is no secular trend in this impact, it cannot be ascertained whether the findings for the last decade are a one-off, or the start of a new long run trend with dramatically adverse consequences for Indian agriculture.

Impact on Farm Revenue:

- Extreme temperature shocks reduce farmer incomes by 4.3% and 4.1% whereas extreme rainfall shocks reduce incomes by 13.7% and 5.5% during kharif and rabi respectively.
- In a year where temperatures are 1°C higher farmer incomes would fall by 6.2% during the kharif season and 6% during rabi in un-irrigated districts.
- Similarly, in a year when rainfall levels were 100 mm less than average, farmer incomes would fall by 15% during kharif and by 7% during the rabi season.
- A study by the IMF, finds that **for emerging market economies** a 1°C increase in temperature would reduce agricultural growth by 1.7%, and a 100 mm reduction in rain would reduce growth by 0.35%.
- Inter-governmental Panel on Climate Change (IPCC), predict that temperatures in India are likely to **rise by 3-4° C by the end of the 21st century.**
- Models of climate change also predict an increase in the variability of rainfall in the long-run, with a simultaneous increase in both the number of dry-days as well as days of very high rainfall.
- Farmer income losses from climate change could be between 15 % and 18 % on average, rising to anywhere between 20 % and 25 % in un-irrigated areas.

In the long-run, we may be able to change technologies or alter the crops they grow in response to sustained increases in temperature and changes in precipitation. Further it is possible that irrigation networks might expand, mitigating to some extent the adverse impacts of climate change. However in the present scenario, the impact is severe.

Conclusions and Policy Implications:

- Impact of temperature and rainfall is felt only in the extreme; that is, when temperatures are much higher, rainfall significantly lower, and the number of “dry days” greater, than normal.
- In the 1960s, less than 20% of agriculture was irrigated; today this number is in the mid-40s.
- The challenge is that the spread of irrigation will have to occur against a backdrop of extreme groundwater depletion, especially in North India. India pumps **more than twice** as much groundwater as China or United States.
- Fully irrigating Indian agriculture, that too against the backdrop of water scarcity and limited efficiency in existing irrigation schemes, will be a defining challenge for the future.
- Technologies of drip irrigation, sprinklers, and water management captured in the “**more crop for every drop**” campaign hold the key future to Indian agriculture.
- The power subsidy needs to be replaced by direct benefit transfers so that power use can be fully costed and water conservation furthered.
- Weather-based models and technology (drones for example) need to be used to determine losses and compensate farmers within weeks.
- According to Subramanian it is vital to make a clear distinction between two agricultures in India:
 1. The well-irrigated, input-addled, and price & procurement supported cereals grown in Northern India, where the challenge is for policy to change the form of the very generous support from prices and subsidies to less damaging support in the form of direct benefit transfers.
 2. Another agriculture (broadly, non-cereals in central, western and southern India) where the problems are very different: inadequate irrigation, continued rain dependence, ineffective procurement, and

insufficient investments in research and technology (non-cereals such as pulses, soybeans, and cotton), high market barriers and weak post-harvest infrastructure (fruits and vegetables), and challenging non-economic policy (livestock).

- The cooperative federalism “technology” of the GST Council that brings together the Center and States could be promisingly deployed to further agricultural reforms and durably raise farmers’ incomes.

Facts for Prelims

- **Kharif crops:**
 - From July to October
 - Harvest in September to October
 - Known as Monsoon Crops
 - In Arabic, Kharif means autumn
 - Kharif crops need a lot of water.
 - The Kharif crops include rice, maize, sorghum, Tea, Coffee, Rubber, Sesame, Guar, cereals like pearl millet, Arhar Dhal, soybeans, oilseeds, cotton etc.
- **Rabi crops:**
 - Sown in October – November
 - Harvest in February – April
 - Known as Winter Season Crops
 - Require cold weather for growth
 - Consumes less water
 - The rabi crops include wheat, barley, oats, cereals, pulses, linseed, oilseeds, Chickpea, Rape and Mustard Seed.
- **Zaid crops:**
 - Sown in March to June (between Kharif and Rabi)
 - Needs warm dry weather for growth and longer day length for flowering
 - Vegetables and Seasonal fruits
- The **minimum support prices** are announced by GoI at the beginning of the sowing season for certain crops on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP).
- **Un-irrigated areas:** Districts where less than 50% of cropped area is irrigated bear the brunt of the vagaries of weather.
- **Value of production** is measured as the product of yields per hectare and prices.
- **India pumps more than twice as much groundwater** as China or United States. Indeed global depletion is most alarming in North India.

- The Indo-Gangetic plain, and parts of Gujarat and Madhya Pradesh are well irrigated. But parts of Karnataka, Maharashtra, Madhya Pradesh, Rajasthan, Chattisgarh and Jharkhand are still extremely vulnerable to climate change on account of not being well irrigated.

GS SCORE

7

GENDER AND SON META-PREFERENCE: IS DEVELOPMENT ITSELF AN ANTIDOTE?

Context

Over the last 10-15 years, India's performance on the indicators of women's agency, attitudes, and outcomes has improved. The improvement has been such that India's situation is comparable to that of a cohort of countries after accounting for levels of development. However, on several other indicators, notably employment, use of reversible contraception, and son preference, India has some distance to traverse because development has not proved to be an antidote.

Within India, there is significant heterogeneity, with the North-Eastern states (a model for the rest of the country) consistently out-performing others and not because they are richer; hinterland states are lagging behind but the surprise is that some southern states do less well than their development levels would suggest.

The challenge of gender is long-standing, probably going back millennia, so all stakeholders are collectively responsible for its resolution. India must confront the societal preference, even meta-preference for a son, which appears inoculated to development.

The skewed sex ratio in favor of males led to the identification of "missing" women. But there may be a meta-preference manifesting itself in fertility stopping rules contingent on the sex of the last child, which notionally creates "unwanted" girls, estimated at about 21 million. Consigning these odious categories to history soon should be society's objective. This chapter analyses the situation of India on parameters related to women.

Terminologies

- **“Beti Bachao, Beti Padhao”:** **Beti Bachao, Beti Padhao** is a social campaign of the Government of India that aims to generate awareness and improve the efficiency of welfare services intended for girls. The scheme was launched with an initial funding of Rs.100 crore (US\$16 million).
- **Child Sex Ratio:** In India, the **Child Sex Ratio** is defined as the number of females per thousand males in the age group 0–6 years in a human population. Thus it is equal to $1000 \times$ the reciprocal of the **sex ratio** (ratio of males to females in a population) in the same age group, i.e. under age seven. Some of the reasons for neglect of girl child and low child sex ratio are son preference and the belief that it is only the son who can perform the last rites, that lineage and inheritance runs through the male line, sons will look after parents in old age, men are the bread winners etc. Exorbitant dowry demand is another reason for female foeticide/infanticide. Small family norm coupled with easy availability of sex determination tests may be a catalyst in the declining child sex ratio, further facilitated by easy availability of Pre-conception sex selection facilities.

- **Global Gender Gap Index:** The **Global Gender Gap Report** is published by the World Economic Forum. The report examines four overall areas of inequality between men and women in 130 economies around the globe, over 93% of the world's population:
 - a) *Economic participation and opportunity* – outcomes on salaries, participation levels and access to high-skilled employment
 - b) *Educational attainment* – outcomes on access to basic and higher level education
 - c) *Political empowerment* – outcomes on representation in decision-making structures
 - d) *Health and survival* – outcomes on life expectancy and sex ratio. In this case parity is not assumed, there are assumed to be fewer female births than male (944 female for every 1,000 males), and men are assumed to die younger. Provided that women live at least six percent longer than men, parity is assumed. But if it is less than six percent it counts as a gender gap.
- **Gender Inequality Index (GII):** The **Gender Inequality Index (GII)** is an index for measurement of gender disparity that was introduced by the United Nations Development Programme (UNDP). According to the UNDP, this index is a composite measure to quantify the loss of achievement within a country due to gender inequality. It uses three dimensions to measure opportunity cost: **reproductive health, empowerment, and labor market participation.**
- **Demographic and Health Survey:** The **Demographic and Health Surveys (DHS)** Program is responsible for collecting and disseminating accurate, nationally representative data on health and population in developing countries. The project is implemented by ICF International and is funded by the United States Agency for International Development (USAID) with contributions from other donors such as UNICEF, UNFPA, WHO, and UNAIDS.
- **National Family Health Survey:** The National Family Health Survey (NFHS) is a large-scale, multi-round survey conducted in a representative sample of households throughout India. The survey provides state and national information for India on fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, anaemia, utilization and quality of health and family planning services.

Gist of Chapter

Introduction

As the advanced world grapples with the fallout from the endemic harassment of women, and as the evidence grows about the intrinsic and instrumental value in raising the role and status of women in society, it is time to ask: how is India faring and how much progress has been made? Is India the land of the empowered woman imagined by Subramania Bharati or the helpless, oppressed woman described by Maithlisharan Gupt?

Thus recognizing the long-run objective of elevating the role and status of women while also responding to prominent incidents of violence against women, the government in January 2015 launched “Beti Bachao, Beti Padhao”, it targeted the worsening Child Sex Ratio (CSR) in India through a mass campaign aimed at creating awareness and changing social norms.

Findings of the Economic Survey

- On 14 out of 17 indicators relating to agency, attitude, and outcomes, India's score has improved over time. On seven of them, the improvement is such that in the most recent period India's performance is better than or at par with that of other countries, accounting for the level of development.

- The progress is most notable in the agency women have in decision-making regarding, household purchases and visiting family and relatives. There has been a decline in the experience of physical and sexual violence. Education levels of women have improved dramatically but incommensurate with development.
- On 10 of 17 indicators, India has some distance to traverse to catch up with its cohort of countries. For example, women's employment has declined over chronological time, and to a much greater extent, in development time. Another such area is in the use of female contraception: nearly 47 percent of women do not use any contraception, and of those who do, less than a third use female controlled reversible contraception. These outcomes can be disempowering, especially if they are the consequence of restrictions on reproductive agency.
- While there is considerable variation within the Indian states and across dimensions, the broad pattern is one of the North-Eastern states doing substantially better than the hinterland states even in development time; hinterland states are lagging, some associated with their level of development and some even beyond that; surprisingly, some southern states such as Andhra Pradesh and Tamil Nadu fare worse than expected given their level of development.
- Perhaps the area where Indian society—and this goes beyond governments to civil society, communities, and households—needs to reflect on the most is what might be called “son preference” where development is not proving to be an antidote. Son preference giving rise to sex selective abortion and differential survival has led to skewed sex ratios at birth and beyond, leading to estimates of 63 million “missing” women.
- But there is another phenomenon of **son meta-preference** which involves parents adopting fertility “stopping rules” – having children until the desired number of sons are born. This meta-preference leads naturally to the notional category of “unwanted” girls which is estimated at over 21 million. In some sense, once born, the lives of women are improving but society still appears to want fewer of them to be born.
- Collective self-reflection by Indian society on son preference and son meta-preference is necessary. Initiatives such as Beti Bachao Beti Padhao and Sukanya Samridhi Yojana and the mandatory maternity leave rules inaugurated by this government are important steps focused on addressing the underlying challenge.

Performance of the Indian States

To shed some light on this, the scores of the Indian states across all the dimensions are averaged. The variables are calibrated such that the maximum score is 100 percent.

Findings:

- a) Most North-Eastern states (with the exception of Tripura and Arunachal Pradesh) and Goa are the best performer.
- b) Kerala is the next best performer.
- c) The lagging performers are Bihar, Rajasthan, Madhya Pradesh, Uttar Pradesh, Jharkhand and, surprisingly, Andhra Pradesh.
- d) Delhi's performance actually worsens in a decade.
- e) The worst Indian score is 57.6 (Bihar) and the best is 81 (Sikkim) with most of India scoring between 55 and 65 (about 40 per cent away from the frontier). Indian states have some distance to traverse to reach the theoretical frontier.

- f) The North-Eastern states have much better gender scores given their levels of income (they are well above their line of best fit). On the other hand, accounting for their levels of income, Andhra Pradesh, Haryana, Bihar and Tamil Nadu perform less well.
- g) Since not many women use methods of reversible contraception, they have little control over when they start having children, but only seem to have control over when they stop having children. This could affect other milestones early on in a woman's life; for example, women may not get the same access to employment that men do.
- h) Increased incomes of men allows Indian women to withdraw from the labor force, thereby avoiding the stigma of working; higher education levels of women also allow them to pursue leisure and other non-work activities all of which reduce female labor force participation.
- i) The structural transformation of Indian agriculture due to farm mechanization results in a lower demand for female agricultural laborers.

Son Preference: Skewed Sex Ratio at Birth (SRB)

- Issues relating to son preference are a matter for Indian society as a whole to reflect upon. Because it is a long-standing historical challenge, all stakeholders are collectively responsible for its existence and for its resolution.
- The biologically determined natural sex ratio at birth is 1.05 males for every female. Any significant deviation from this is on account of human intervention – specifically, sex-selective abortion. In the case of China, the one-child policy interacted with the underlying son-preference to worsen the sex ratio from 1070 in 1970 to 1156 in 2014. India's sex ratio during this period also increased substantially even without the one-child policy from 1060 to 1108 whereas if development acted as an antidote, it should have led to improvements in the sex ratio.
- Most striking is the performance of Punjab and Haryana where the sex ratio (0-6 years) is approaching 1200 males per 1000 females, even though they are amongst the richest states.
- The stock of missing women as of 2014 was nearly 63 million and more than 2 million women go missing across age groups every year (either due to sex selective abortion, disease, neglect, or inadequate nutrition).

Son “Meta” Preference: Sex Ratio of Last Child (SRLC) and “Unwanted” Girls

- While active sex selection via fetal abortions is widely prevalent, son preference can also manifest itself in a subtler form. Parents may choose to keep having children until they get the desired number of sons. This is called son “meta” preference. A son “meta” preference – even though it does not lead to sex-selective abortion – may nevertheless be detrimental to female children because it may lead to fewer resources devoted to them.
- The important thing to note is that this form of sex selection alone will not skew the sex ratio – either at birth or overall. Therefore, a different measure is required to detect such a “meta” preference for a son. One indicator that potentially gets at this is the sex ratio of the last child (SRLC). A preference for sons will manifest itself in the SRLC being heavily skewed in favor of boys. On the other hand, an SRLC of close to 1.05:1 would hold for households that have strictly more than 1 child is 1.07. Similarly, 0.86 is the sex ratio of the second child among families that had strictly more than 2 children.

- For India, the sex ratio of the last child for first-borns is 1.82, heavily skewed in favor of boys compared with the ideal sex ratio of 1.05. This ratio drops to 1.55 for the second child for families that have exactly two children and so on.

What does data implies?

Families where a son is born are more likely to stop having children than families where a girl is born. This is suggestive of parents employing “stopping rules” – having children till a son is born and stopping thereafter. The only exception to this pattern is with regards to the first child. Even parents who have a first-born son are likely to continue having children, which reflects a pure family size preference – Indian parents, on average, want to have at least two children.

Reasons for preference

The reasons for such a son preference, including patrilocality (women having to move to husbands’ houses after marriage), patrilineality (property passing on to sons rather than daughters), dowry (which leads to extra costs of having girls), oldage support from sons and rituals performed by sons.

Such meta preference gives rise to “unwanted” girls—girls whose parents wanted a boy, but instead had a girl.

Conclusion

Encouragingly, gender outcomes exhibit a convergence pattern, improving with wealth to a greater extent in India than in similar countries so that even where it is lagging it can expect to catch up over time.

Because the challenge is historical and longstanding, no one stakeholder is responsible for creating it or solving it. On gender, society as a whole—civil society, communities, households— and not just any government must reflect on a societal preference, even meta-preference for a son, which appears inoculated to development. The adverse sex ratio of females to males led to 63 million “missing” women. But the metapreference manifests itself in fertility-stopping rules contingent on the sex of the last child, which notionally creates “unwanted” girls, estimated at about 21 million. Tellingly, for example, skewed sex ratios characterize families of Indian origin, even in Canada.

The state and all stakeholders have an important role to play in increasing opportunities available for women in education and employment. Understanding the importance of its role, the government has launched the Beti Bachao Beti Padhao and Sukanya Samridhi Yojana schemes. It has also made 26 weeks maternity leave mandatory for women employed in the public and private sectors. Further, every establishment that has more than 50 employees is now required to offer creche facilities. These steps will offer support to women in the workforce. In this somewhat unequal contest between the irresistible forces of development and the immovable objects that are cultural norms, the former will need all the support it can get – and then some.

8

TRANSFORMING SCIENCE AND TECHNOLOGY IN INDIA

Context

Innovations in science and technology are integral to the long-term growth and dynamism of any nation. The pursuit of science also creates a spirit of enquiry and discourse which are critical to modern, open, democratic societies.

However, India under-spends on research and development (R&D), even relative to its level of development. A doubling of R&D spending is necessary and much of the increase should come from the private sector and universities. To recapture the spirit of innovation that can propel it to a global science and technology leader from net consumer to net producer of knowledge India should invest in educating its youth in science and mathematics, reform the way R&D is conducted, engage the private sector and the Indian diaspora, and take a more mission-driven approach in areas such as dark matter, genomics, energy storage, agriculture, and mathematics and cyber physical systems. Vigorous efforts to improve the "ease of doing business" need to be matched by similar ones to boost the "ease of doing science."

This chapter discusses about the status of R&D in India and steps needed to boost the "ease of doing science."

Terminologies

- **Dark matter:** Dark matter is a hypothetical type of matter distinct from ordinary matter such as protons, neutrons, electrons, and neutrinos. It does not emit or interact with observable electromagnetic radiation, such as light, and is thus invisible to the entire electromagnetic spectrum. It influences the universe's large-scale structure, the formation of galaxies, and affects the cosmic microwave background.
- **Genomics:** Genomics is an interdisciplinary field of science focusing on the structure, function, evolution, mapping, and editing of genomes.
- **Cyber Physical Systems:** Cyber-Physical Systems (CPS) are integrations of computation, networking, and physical processes. Embedded computers and networks monitor and control the physical processes, with feedback loops where physical processes affect computations and vice versa.
- **STEM research:** STEM is a curriculum based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics — in an interdisciplinary and applied approach. Rather than teach the four disciplines as separate and discrete subjects, STEM integrates them into a cohesive learning paradigm based on real-world applications.
- **Patents:** A patent is an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem. To get a patent, technical information about the invention must be disclosed to the public in a patent

application. Patent protection means that the invention cannot be commercially made, used, distributed, imported or sold by others without the patent owner's consent.

- **WIPO:** WIPO was created in 1967 “to encourage creative activity, to promote the protection of intellectual property throughout the world”. WIPO undertakes activities in three main areas, namely (i) the progressive development of international intellectual property law; (ii) assistance to developing countries to build intellectual property capacity at national and regional levels and encourage more effective use of IP as tool for economic development; and (iii) services to industry and the private sector to facilitate the process of obtaining intellectual property protection in multiple countries.
- **Science and Engineering Research Board:** Science and Engineering Research Board is an autonomous body chaired by the Secretary to the Government of India in the Department of Science and Technology. The Board was set up for promoting basic research in science and engineering and to provide financial assistance to scientists, academic institutions, R&D laboratories, industrial concerns and other agencies for such research.
- **Ucchatar Avishkar Yojana:** UAY promotes industry sponsored, outcome-oriented research projects with an outlay of Rs.475.00 crore for a period of two years beginning 2016-17. The project cost is met to the extent of 50% by the Ministry of Human Resource Development (MHRD) and 25% each by the Industry and the participating Ministry/Department. As regards funds released to NGOs, Department of Science & Technology has informed that Rs.455.512 lakh during 2015-16 and Rs.453.676 lakh during 2016-17 have been released to the NGOs, who are engaged in adaptive research and development (R&D) primarily in rural and difficult areas.
- **INSPIRE:** Innovation in Science Pursuit for Inspired Research (INSPIRE) is an innovative programme sponsored and managed by the Department of Science & Technology for attraction of talent to Science. The basic objective of INSPIRE is to communicate to the youth of the country the excitements of creative pursuit of science, attract talent to the study of science at an early age and thus build the required critical human resource pool for strengthening and expanding the Science & Technology system and R&D base.
- **Ramalingaswami Re-entry Fellowship:** The scheme is conceptualized with the aim of attracting highly skilled researchers (Indian nationals) working overseas in various cutting edge disciplines of biotechnology (agriculture, health sciences, bio-engineering, energy, environment, bioinformatics and other related areas), by providing them an attractive avenue to pursue their R&D interests in Indian institutions.
- **Visiting Advanced Joint Research Faculty Scheme:** It enables NRIs and overseas scientific community to participate and contribute to research and development in India. The Science and Engineering Research Board (SERB), a Statutory body of the Department will implement the Scheme. The VAJRA Faculty is provided a lump-sum amount of US\$ 15000 in the first month of residency in a year and US\$ 10000 p.m. in the other two months to cover their travel and honorarium. While no separate support is provided for e.g. accommodation, medical / personal insurance etc. the host institute may consider providing additional support. The Indian collaborator and the overseas faculty will jointly frame a research plan and the application duly endorsed by the Head of the Institution will be submitted online by the Indian collaborator.
- **Ramanujan Fellowship Scheme:** The fellowship is meant for brilliant scientists and engineers from all over the world to take up scientific research positions in India, i.e. for those scientists who want to return to India from abroad. The fellowships are scientist-specific and very selective. The Ramanujan Fellows could work in any of the scientific institutions and universities in the country and they would be eligible for receiving regular research grants through the extramural funding schemes of various S&T agencies of the Government of India.

Gist of Chapter

Introduction

Science, technology, and innovation have instrumental and intrinsic value for society. They are key drivers of economic performance and social well-being. But they are also important for deeper reasons: a scientific temper, with its spirit of enquiry, the primacy accorded to facts and evidence, the ability to challenge the status quo, the adherence to norms of discourse and the elevation of doubt and openness. The open spirit of inquiry that is fundamental to science can provide a bulwark against the darker forces of dogma, religious obscurantism, and nativism that are threateningly resurfacing around the world.

Contribution of India

Its historical contributions to science have been many, ranging from one of the most important innovations in the history of mathematics – the first use of zero – as revealed in the Bakhshali manuscript (carbon dated to AD 200–400), to important contributions made (amongst others) by Aryabhata, Brahmagupta, Bhaskara, Madhava of Sangamagrama, and to the stellar contributions made by names such as CV Raman, S. N. Bose, Srinivasa Ramanujan in the last century.

Independent India has chalked up many accomplishments: from the nuclear energy program, the hybrid seeds program that underpinned the Green Revolution to the space program, including the Mangalyaan mission which highlighted India's niche of doing cost-effective, high-technology research.

Most recently, India's important participation (involving three major Indian research institutions) in the Laser Interferometer Gravitational-wave Observatory (LIGO) experiment successfully detected the existence of gravitational waves. And India's vaccines and generic-drugs have saved millions of lives the world over.

Why scientific development needed?

It will help in addressing India's most pressing development challenges in addition to maintaining a decent, open society. Investing in science is also fundamental to India's security: the human security of its populations; the resilience needed to address the multiple uncertainties stemming from climate change; and the national security challenges stemming from new emerging threats, ranging from cyber-warfare to autonomous military systems such as drones.

Given the dizzying pace and expansion of scientific research and knowledge on the one hand, and a generally higher importance given to careers in engineering, medicine, management and government jobs amongst India's youth on the other, India needs to rekindle the excitement and purpose that would attract more young people to the scientific enterprise.

Status in India

- Investments in Indian science, measured in terms of Gross Expenditure on R&D (GERD), have shown a consistently increasing trend over the years. GERD has tripled in the last decade in nominal terms – from Rs. 24,117 crores in 2004-05 to Rs. 85,326 crores in 2014-15 and an estimated Rs.1,04,864 crores in 2016-17 – and double in real terms. However, as a fraction of GDP, public expenditures on research have been stagnant – between 0.6-0.7 percent of GDP – over the past two decades.
- About three-fifths of the public investment is spread over the key government science funding agencies like Atomic Energy, Space, Earth Sciences, Science and Technology and Biotechnology,
- India's spending on R&D (about 0.6 percent of GDP) is well below that in major nations such as the US (2.8), China (2.1), Israel (4.3) and Korea (4.2).

- In most countries, the private sector carries out the bulk of research and development even if government must play an import funding role. However, in India, the government is not just the primary source of R&D funding but also it's the primary user of these funds.
- Government expenditure on R&D is undertaken almost entirely by the central government. There is a need for greater State Government spending, especially application oriented R&D aimed at problems specific to their economies and populations.
- Private investments in research have severely lagged public investments in India. India has no firms in five of the top ten R&D sectors as opposed to China that has a presence in each of them.
- In India universities play a relatively small role in the research activities of the country. Universities in many countries play a critical role in both creating the talent pool for research as well generating high quality research output. However, publicly funded research in India concentrates in specialized research institutes under different government departments. This leaves universities to largely play a teaching role – a decision that goes back to the 1950s. It is now widely acknowledged that whatever the merits of the decision at the time, this disconnection has severely impaired both teaching as well as the research enterprise in the country.
- East Asian countries like China, Japan, and Korea, have seen dramatic increases in R&D as a percentage of GDP as they have become richer. India, on the other hand, has only seen a slight increase. In fact, in 2015, there was a sizeable decline in R&D spending even as GDP per capita continued to rise. At its current rate, India would just barely reach GERD of 1 percent of GDP by the time it was as rich as the USA.
- Indian Ph.D. students obtain their degrees either within India or abroad, especially in the US.
- In 2013, India ranked 6th in the world in scientific publications. Its ranking has been increasing as well. Between 2009-2014, annual publication growth was almost 14 percent. This increased India's share in global publications from 3.1 percent in 2009 to 4.4 percent in 2014 as per the Scopus Database. However, there is a downside to the increase in publications.
- The Nature Index (which publishes tables based on counts of high-quality research outputs in the previous calendar year covering the natural sciences) – ranked India at 13 in 2017. But there is still a considerable lag in levels between India and the other two large countries, and the rate of improvement in China between 2001 and 2011 is dramatically better than India's.
- According to the WIPO, India is the 7th largest Patent Filing Office in the World. However, India produces fewer patents per capita. Unless there is a greater focus on R&D, rising income alone will not allow India to catch up in the near future.
- India's patent applications and grants have grown rapidly in foreign jurisdictions, the same is not true at home. Residential applications have increased substantially since India joined the international patent regime in 2005. However, the number of patents granted fell sharply post 2008 and has remained low. While Indian residents were granted over 5000 patents in foreign offices in 2015, the number for resident filings in India was little over 800.

Reasons for decrement in grants

- The decrease in grants could have been due to a stricter examination process. But evidence suggests that there is a severe backlog and high rate of pendency for domestic patent applications.
- Due to manpower shortages there is a backlog of almost 2 lakh patents pending examination. In 2016-2017, there were only 132 examiners for all patent applications in India. This has meant that patent examination and granting can take 5 or more years.

- Given the rapid rate of technological obsolescence, the inordinate delay in processing patents penalizes innovation and innovators within the country.
- Addressing patent litigation issues will also be crucial to ensuring that the patent system effectively rewards innovation.

Expanding R&D in India: The Way Forward

Clearly, India needs to redouble its efforts to improve science and R&D in the country first and foremost by doubling national expenditures on R&D with most of the increase coming from the private sector and universities. But the metrics also need to go beyond papers and patents to a broader contribution to providing value for society. Thus steps needed are:

- No country can create a vibrant superstructure of R&D with weak foundations of primary and secondary education for so many of its young. Thus there is a need to improve math and cognitive skills at the school level.
- India needs to gradually move to have a greater share of an investigator-driven model for funding science research. A step in this direction occurred in 2008, with the establishment of the Science and Engineering Research Board (SERB), a statutory body of DST. This body has sanctioned about three and half thousand new R&D projects to individual scientists. It is a promising start that needs to expand with more resources and creative governance structures.
- The private sector should be incentivized to both undertake more R&D but to also support STEM research through CSR funds. Efforts like the 50:50 partnership with SERB for industry relevant research under the Uchatar Avishkar Yojana (UAY) is a good example of what could help make such partnerships fruitful.
- State governments too need to recognize the need to invest in application oriented research aimed at problems specific to their economies and populations. This would both strengthen state universities as well as provide much needed knowledge in areas such as crops, ecology and species specific to a state.
- Universities have students but need additional faculty support, while research institutes have qualified faculty but are starved of bright young students brimming with energy and ideas. A closer relationship between the two in specific geographic and spatial settings would help nurture research in areas reflecting the fields of science in which the national research centers have strengths.
- Take a mission driven approach to R&D
 - a) India needs at least one mission that is directed towards the basic sciences. India is one of the leading countries in high energy physics and relevant mathematics.
 - b) Genomic research lies at the heart of the future of the life sciences. Currently several countries have launched ambitious national genomic research projects e.g. UK Biobank Study; Finnish Birth Cohort Study; Partners HealthCare Biobank; China Kadoori Biobank. These studies are collecting detailed phenotype information, as well as blood and tissue samples, to study the determinants and life-course of biological pathways and disease. India already has a strong foundation of life science research institutes which together can make significant contributions in this area.
 - c) Renewable energy is the future and India has made a major commitment to investment in renewable energy. India has lagged in manufacturing renewable energy generation systems. Substantial investments in energy storage systems will ensure that India can be a leader in manufacturing energy storage systems.

- d) A National Mission of Mathematics will improve mathematics teaching at all levels of higher education, seek to establish five institutes of mathematical sciences within existing institutions, conduct annual district, state and national math Olympiad competitions with sizeable scholarships for all winners, with the overall goal of rapidly increasing India's human capital and research profile in mathematics within a decade.
- e) Improving Indian agricultural productivity, which still lags other countries such as China, as well as creating resilience to the looming challenges in terms of rising temperatures, variable precipitation, water scarcity, increase in pests and crop diseases requires a major thrust in agricultural science and technology. A national mission could help overcome the weaknesses in existing institutions of agricultural research and technology.
- There are today more than 100,000 people with PhDs, who were born in India but are now living and working outside India (more than 91,000 in the U.S. alone). However, with the strength of India's economy and growing anti-immigrant atmosphere in some Western countries, India has an opportunity to attract back more scientists. There has been an increase in the number of Indian scientists returning to work in India during the last five years, but the numbers are still modest. There are a number of government programs such as the Ramanujan Fellowship Scheme, the Innovation in Science Pursuit for Inspired Research (INSPIRE) Faculty Scheme and the Ramalingaswami Re-entry Fellowship, that provide avenues to qualified Indian researchers residing in foreign countries, to work in Indian institutes/universities, and the Visiting Advanced Joint Research Faculty Scheme (VAJRA). These schemes could be enhanced to take advantage of opportunities to recruit in a way to build whole research groups; the inducements should be such as to allow them to do good research (laboratory resources, ability to hire post-docs, housing etc.) rather than financial, to ensure that home grown talent has a level playing field.
 - Indian science and research institutes need to inculcate less hierarchical governance systems, that are less beholden to science administrators and encourage risk-taking and curiosity in the pursuit of excellence. Hence it is imperative that there be greater representation of younger scientists in decision making bodies in their areas of expertise.
 - If science is to garner greater support from society, it will require scientists to engage more vigorously with society. Much of science is – and should be – a public good, and hence that will always require substantial public funding. This will require much greater efforts at science communication whether through the media or through regular tours and lectures for school and college students as well the general public. Scientists need to create broad public support for their work and not treat it as an entitlement, given the many claims on the public purse.

Prelims Facts

- Innovations in the history of mathematics – the first use of zero – as revealed in the Bakhshali manuscript (carbon dated to AD 200–400)
- India's important participation (involving three major Indian research institutions) in the Laser Interferometer Gravitational-wave Observatory (LIGO) experiment successfully detected the existence of gravitational waves. And India's vaccines and generic-drugs have saved millions of lives the world over.
- As a fraction of GDP, public expenditures on research have been stagnant – between 0.6-0.7 percent of GDP – over the past two decades.
- About three-fifths of the public investment is spread over the key government science funding agencies like Atomic Energy, Space, Earth Sciences, Science and Technology and Biotechnology.

- India's spending on R&D (about 0.6 percent of GDP) is well below that in major nations such as the US (2.8), China (2.1), Israel (4.3) and Korea (4.2).
- India's spending on R&D lags upper-middle income and high-income countries such as China, Israel, and the U.S.
- According to the WIPO, India is the 7th largest Patent Filing Office in the World.
- Laser Interferometer Gravitational-wave Observatory: The goal of the Laser Interferometric Gravitational-Wave Observatory (LIGO) is to detect and study gravitational waves (GWs) of astrophysical origin. Direct detection of GWs holds the promise of testing general relativity in the strong-field regime, of providing a new probe of exotic objects such as black holes and neutron stars and of uncovering unanticipated new astrophysics. LIGO, a joint Caltech–MIT project supported by the National Science Foundation, operates three multi-kilometer interferometers at two widely separated sites in the United States.
- Mangalyaan mission: Mangalyaan is the Mars Orbiter Mission successfully Launched by Indian Space Research Organization (ISRO).

The main objectives are to develop the technologies required for designing, planning, management and operations of an interplanetary mission comprising the following major task:

- Orbit manoeuvres to transfer the spacecraft from Earth-centred orbit to heliocentric trajectory and finally, capture into Martian orbit.
- Development of force models and algorithms for orbit and attitude computations and analysis.
- Navigation in all phases.
- Maintain the spacecraft in all phases of the mission.
- Meeting power, communications, thermal and payload operation requirements.
- Incorporate autonomous features to handle contingency situations.

The scientific objectives deal with the following major aspect:

- Exploration of Mars surface features by studying the morphology, topography and mineralogy.
- Study the constituents of Martian atmosphere including methane and CO₂ using remote sensing techniques.
- Study the dynamics of the upper atmosphere of Mars, effects of solar wind and radiation and the escape of volatiles to outer space.
- The mission would also provide multiple opportunities to observe the Martian moon Phobos and also offer an opportunity to identify and re-estimate the orbits of asteroids seen during the Martian Transfer Trajectory.

9

EASE OF DOING BUSINESS' NEXT FRONTIER: TIMELY JUSTICE

Context

The government's efforts to make business and commerce easy have been widely acknowledged. Alongwith that next frontier to be gained on the ease of doing business is addressing pendency, delays and backlogs in the appellate and judicial arenas. These are hampering dispute resolution and contract enforcement, discouraging investment, stalling projects, hampering tax collections but also stressing tax payers, and escalating legal costs. This chapter recommends how to handle the issue of pendency of cases.

Terminologies

- **National Judicial Data Grid:** The National Judicial Data Grid (NJDG) is a part of the on-going e-Courts Integrated Mission Mode Project. NJDG will work as a monitoring tool to identify, manage & reduce pendency of cases. It will also help to provide timely inputs for making policy decisions to reduce delay and arrears in the system, facilitate better monitoring of court performance and systemic bottlenecks, and, thus, facilitate better resource management. The NJDG will cover all categories of cases, including those relating to juvenile justice system.
- **Writs in India:** A writ is a formal written order issued by a Court. Any warrant, orders, directions, and so on, issued by the Supreme Court or the High court are called writs. A writ petition can be filed in the High Court (Article 226) or the Supreme Court (Article 32) of India when any of your fundamental rights are violated. The jurisdiction with the High Courts (Article 226) with regards to a writ petition is wider and extends to constitutional rights too.
- **Injunctions:** An injunction commands an act that the court regards as essential to justice, or it prohibits an act that is deemed to be contrary to good conscience. It is an extraordinary remedy, reserved for special circumstances in which the temporary preservation of the status quo is necessary.
- **Code of Civil Procedure:** The **Code of Civil Procedure, 1908** is a procedural law related to the administration of civil proceedings in India. The Code is divided into two parts: the first part contains 158 sections and the second part contains the First Schedule, which has 51 Orders and Rules. The sections provide provisions related to general principles of jurisdiction whereas the Orders and Rules prescribe procedures and method that govern civil proceedings in India.
- **Cooperative Federalism:** Cooperative federalism implies the Centre and states share a horizontal relationship, where they “cooperate” in the larger public interest. It's visualized as an important tool to enable states' participation in the formulation and implementation of national policies.
- **Ease of Doing Business Report:** The ease of doing business index is an index created by Simeon Djankov at the World Bank Group. It is an aggregate figure that includes different parameters which define the ease of doing business in a country. India makes it to Top 100 in 'ease of doing business'

- **Insolvency and Bankruptcy Code (IBC), 2016:** The Code highlights insolvency processes for individuals, companies and partnership firms. It may be noted that, under IBC debtor and creditor both can start 'recovery' proceedings against each other. The code will be able to protect the interests of small investors and make the process of doing business a cumbersome-less process.

Gist of Chapter

Introduction

India jumped thirty places to break into the top 100 for the first time in the World Bank's Ease of Doing Business Report (EODB), 2018. The rankings reflect the government's reform measures on a wide range of indicators. India leaped 53 and 33 spots in the taxation and insolvency indices, respectively, on the back of administrative reforms in taxation and passage of the Insolvency and Bankruptcy Code (IBC), 2016. It also made strides on protecting minority investors and obtaining credit, and retained a high rank on getting electricity, after a 70 spot rise in EODB, 2017 due to the government's electricity reforms.

This striking progress notwithstanding, India continues to lag on the indicator on enforcing contracts, marginally improving its position from 172 to 164 in the latest report, behind Pakistan, Congo and Sudan.

The importance of an effective, efficient and expeditious contract enforcement regime to economic growth and development cannot be overstated. A clear and certain legislative and executive regime backed by an efficient judiciary that fairly and punctually protects property rights, preserves sanctity of contracts, and enforces the rights and liabilities of parties is a prerequisite for business and commerce.

Steps taken by government to improve the contract enforcement regime:

- The Government: scrapped Over 1000 Redundant Legislation
- Rationalized Tribunals
- Amended The Arbitration And Conciliation Act, 2015
- Passed The Commercial Courts, Commercial Division And Commercial Appellate Division Of High Courts Act, 2015
- Reduced Intra-Government Litigation
- Expanded the Lok Adalat Programme to reduce the burden on the judiciary.
- The government has also advanced a prospective legislative regime to ensure legal consistency, reducing chaos due to unpredictable changes in regulations.
- The judiciary has simultaneously expanded the seminal National Judicial Data Grid (NJDG) and is close to ensuring that every High Court of the country is digitized, an endeavor recognized in EODB, 2018.

Status in India

- Delays and pendency of economic cases are high and mounting in the Supreme Court, High Courts, Economic Tribunals, and Tax Department, which is taking a severe toll on the economy in terms of stalled projects, mounting legal costs, contested tax revenues, and reduced investment more broadly.
- The average age of pending cases across these tribunals is 3.8 years.
- The creation of tribunals at different points in time did not alter pendency at the High Courts of the country nor their ability to deal with other economic cases.

- Delays and pendency stem from the increase in the overall workload of the judiciary, in turn due to expanding jurisdictions and the use of injunctions and stays; in the case of tax litigation, this stems from government persisting with litigation despite high rates of failure at every stage of the appellate process.
- Actions by the Courts and government acting together can considerably improve the situation.
- The volume of economic cases is smaller than other case categories, their average duration of pendency is arguably the worst of most cases, nearly 4.3 years for 5 major High Courts.
- The average pendency of tax cases is particularly acute at nearly 6 years per case.

Reasons for Pendency

- One reason for the rising pendency of economic cases at the High Courts could simply be the generalized overload of cases. Further, economic and commercial cases are usually complex, require economic expertise in their handling and disposal, and hence, require more judicial time. In some instances, however, this increased overload is due to the expansion of discretionary jurisdictions by Courts, without any countervailing measures that either balance the scope of other jurisdictions or improve overall administration and efficiency. For example, Articles 226 and 227 of the Constitution of India empower High Courts with carefully circumscribed writ jurisdiction. In practice, however, High Courts have permissively and expansively interpreted this provision over a period of time, which has resulted in a substantial increase in Article 226 cases.
- Some High Courts of the country retain a unique original jurisdiction, under which the High Court, and not the relevant lower court, transforms into the Court of first instance for some civil cases. These cases occupy a significant share of the Court's docket. The Delhi and Bombay High Courts have original jurisdictions that occupy nearly 10-15% of their workload.
- The Supreme Court, like the High Courts, has less capacity to deal with mounting economic cases because of rising overall pendency. In the case of the SC, the burden derives in part from Special Leave Petitions under Article 136 of the Constitution of India, which empowers any party to approach the Supreme Court directly from any court or tribunal. Initially invoked only in "exceptional circumstances", SLPs are now an overwhelming feature of practice at the Supreme Court.
- Rising pendency also results from the injunction of cases by Courts. Lengthy interim orders, ex parte ad interim stays, increasing rate of pendency of cases at final arguments, and few final judgments in IPR cases are common traits of IPR practice across different High Courts. Nearly 50% of these cases are pending at the stage of pleadings, which is the stage at which parties are required to complete formal requirements before hearing.

Costs of delay

- **For example:** The project costs (stocks) of stayed projects—at the time they were originally stayed—amounted close to 52,000 crores in six infrastructure ministries that are currently stayed by court injunctions, as well as the average duration of their stays.
- The overall impact of rising pendency at Appellate Tribunals, High Courts and the Supreme Court, coupled with the rising use of injunctions and other blunt instruments has led to spiraling legal expenses of Corporate India.

Total spending on Administration of Justice by States and the Centre constitutes approximately 0.08-0.09% of GDP which is low when compared to other countries, especially common law countries.

The Government may consider including efforts and progress made in alleviating pendency in the lower judiciary as a performance-based incentive for States. Further, expenditure may be prioritized for filing, service and other delivery related issues that tend to cause the maximum delays. However, building additional judicial capacity may not be effective unless existing capacity is fully utilized. The higher judiciary is currently operating at 63.6% of existing capacity.

Policy Implications (Steps needed)

Pendency, delays and injunctions are overburdening courts and severely impacting the progress of cases, especially economic cases, through the different tiers of the appellate and judicial arenas. The Government and the Courts need to both work together for largescale reforms and incremental improvements to combat a problem that is exacting a large toll from the economy. Some of the following steps may be considered:

1. Expanding judicial capacity in the lower courts and reducing the existing burden on the High Courts and Supreme Court;
 - For a smooth contract enforcement regime, it may be imperative to build capacity in the lower judiciary to particularly deal with economic and commercial cases, and allow the High Courts to focus on streamlining and clarifying questions of law. For the same, amendments to the Code of Civil Procedure, Commercial Courts Act and other related commercial legislations should be considered. These measures must be buttressed by efforts to train judges, particularly in commercial and economic cases by judicial academies.
 - Downsizing or removing original and commercial jurisdiction of High Courts, and enabling the lower judiciary to deal with such cases. Early results from the Delhi High Court suggest that reducing the size of original side jurisdiction in 2016 allowed the court more time to reduce its overall pendency.
 - Courts may revisit the size and scale of their discretionary jurisdictions and avoid resorting to them unless necessary, to reclaim the envisaged constitutional and writ stature of the higher judiciary.
 - Existing judicial capacity ought to be fully utilized.
2. The tax department exercising greater self restraint by limiting appeals, given its low success rate. This could either take the form of ex ante rules limiting appeals, for example, to no more than one in four High Court verdicts or no more than one in three arbitration cases; or, given the long shadow of the 3 Cs (CBI, CVC, and CAG) in inducing bureaucratic risk-aversion, perhaps an independent Panel could be created to decide on further appeals of tax verdicts against the Department. Further, the number of tiers of scrutiny may be limited to three forums for taxation cases.
3. Substantially increasing state expenditure on the judiciary, particularly on their modernization. The Government may consider incentivizing expenditure on court modernization and digitization. This needs to be supported with greater provision of resources for both tribunals and courts. Moreover, legislations (and perhaps even judicial decisions that expand or introduce new jurisdictions) should be accompanied by judicial capacity and public expenditure memorandums, which adequately lay out the necessary provisions required to address increasing judicial requirements, and ensure their adequate funding. The amounts required may be negligible but the returns enormous.
4. Building on the success of the Supreme Court in disposing tax cases, creating more subject-matter and stage-specific benches that allow the Court to build internal specializations and efficiencies in combating pendency and delay.

5. Reducing reliance on injunctions and stays. Courts may consider prioritizing stayed cases, and impose stricter timelines within which cases with temporary injunctions may be decided, especially when they involve government infrastructure projects.
6. Improving the Courts Case Management and Court Automation Systems. To free up judicial time, initiatives like the Crown Court Management Services of the UK that are dedicated to the management and handling of administrative duties, may be considered.

Format of special-sized benches in Supreme Court

The Supreme Court is the highest court of the land that deals with a wide array of cases. When not dealing with substantial questions of law or constitutional issues requiring the constitution of special-sized benches, the Court sits in benches comprising of two judges to decide cases from High Courts and other forums of the country. The benches are expected to hear and decide cases from a wide range of subject matters inter alia constitutional law, criminal law, civil law, commercial law, and taxation. However, the Court's recent experiment with constituting an exclusive bench for taxation produced impressive results, which may be replicated for other subject matters, and emulated by other High Courts that do not have special rosters for daily hearings.

Besides reducing pendency and backlog, this phase of the Supreme Court saw a large number of judgments on law, and permitted the Court to discharge its envisaged role of clarifying and settling legal questions.

There are other profound benefits of dedicated subject-matter benches. Such benches ensure that the Supreme Court speaks in one voice, and there is continuity and consistency of legal jurisprudence. Further, they create efficiencies by allowing the judge to focus on the specialized branch of law placed before her. The model may be replicated for other commercial and economic areas of law as and when necessary at the Supreme Court, and should be replicated by every High Court of the country.

Conclusion

Recent experience with the GST has shown that vertical cooperation between the center and states—Cooperative Federalism—has brought transformational economic policy changes. Perhaps there is a horizontal variant of that— one might call it the Cooperative Separation of Powers—that could be applied to the relationship between the judiciary on the one hand, and the executive/legislature on the other. There are, of course, clear lines of demarcation and separation of powers between the two to preserve independence and legitimacy. Even while respecting these lines, it should be possible and desirable for these branches to come together to ensure speedier justice to help overall economic activity.

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