Economic Survey 2016-17

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NOTES

The following figures/units are used in the Economic Survey:

BCM	billion cubic metres	kg	kilogram
BU	billion units	ha	hectare
MT	million tonnes	Bbl	billion barrels per litre
lakh	1,00,000		
million	10 lakh	billion	1,000 million/100 crore
crore	10 million	trillion	1,000 billion/100,000 crore

Acknowledgements

PREFACE

Last year, to its dismay, the Economic Division of the Ministry of Finance – the authors of this *Economic Survey* – discovered that there is indeed a higher form of flattery than imitation: brazen pirating, and that too on the most globally public of platforms, Amazon. The anguish suffered by this violation of our intellectual property rights was more than offset by the gratitude we felt in achieving wide circulation for the *Survey*. We strive to do better this year, risking that the *Survey* might be consigned to the ranks of popular fiction.

This year's *Survey* comes in the wake of a set of tumultuous international developments – Brexit, political changes in advanced economies-and two radical domestic policy actions: the GST and demonetisation.

Clearly, the *Survey* needs to do full justice to all these short term developments, or else it risks being Hamlet without the Prince of Denmark. To deify or demonise demonetisation that is the difficult question the world is asking, to which the Survey tries to respond. The *Survey* affords an opportunity to work through the complexities of the analytics, empirics, and potential impacts of demonetisation.

History, however, offers little guide for assessment and prognostication, given the unprecedented nature of this action. And economic models are notoriously unreliable in the face of structural breaks of the sort occasioned by demonetisation. Regardless of our assessments, at least the rich and complex process of arriving at them is shared fully and transparently with the reader. What we can definitely say is that there have been short-term costs but there are also potential long term benefits which we discuss in detail. Appropriate action can help minimize the former while maximizing the latter.

But these proximate developments – vital as they are – cannot allow a neglect of medium term economic issues. Balancing the jealous, demanding gods of demonetisationand other short-term challenges such as over-indebted balance sheets, on the one hand, and India's medium term economic future on the other, is the special challenge for this *Survey*.

Structurally, therefore, the *Survey* is divided into three sections: The Perspective, The Proximate, and The Persistent. And to entice the reader, we have a section called "Eight Interesting Facts About India". In Section I, the introductory chapter provides a broad overview of recent developments and a near-term outlook. The following chapter takes a long-term perspective to analyze where India stands on the underlying economic vision, arguing that overcoming some meta-challenges will require broader societal shifts in ideas. Economic reforms are not, or not just, about overcoming vested interests, they are increasingly about shared narratives and vision on problems and solutions.

Section II deals with four pressing near-term issues: demonetisation, the festering twin balance sheet challenge and ways to address it, fiscal policy of the center and states, and labour-intensive employment creation. It also includes a review of sectoral developments in the first half of the year.

Section III deals with more medium term issues. There are perhaps two broad themes to this section: the states (and cities) and Big Data. "Cooperative and competitive federalism" is not a glib mantra, it is India's unavoidable future. That requires shining the spotlight on the states and on India as a union of them.

Accordingly, we discuss themes of convergence of income and health outcomes across states, state finances, and mobility of goods and people across states. We also provide analytical narratives of the performance of those states-the "Other Indias," remote, rich in natural resources and more reliant than others on redistributive transfers-that tend to be crowded out as worthy objects of research and analysis by the successful Peninsular states. The chapter on cities points clearly to broadening the dynamism-laden dynamic of competition between states to encompass the cities: India needs not just competitive federalism but competitive sub-federalism as well.

For the first time, the *Economic Survey* has embraced Big Data. We mine this data to shed new light on the flow of goods and people within India. With some immodesty, we claim that this *Survey* produces the first estimate of the flow of goods across states within India, based on analyzing transactions level data provided by the Goods and Services Tax Network (GSTN). We also claim that this *Survey* furnishes exciting new evidence on the flows of migrants within India, based on detailed origin-destination passenger data provided by the Ministry of Railways and on a new methodology for analyzing the Census data.

The striking findings are that India's internal integration is strong, and substantially stronger than conventional wisdom believes. For example, we estimate that 8-9 million Indians migrate for work every year, almost twice as big as current estimates. Similarly, India's internal trade is as extensive as that in other large countries.

But these results point to a central paradox: there is ostensibly free flow of goods, people, and capital across India and yet income and health outcomes are not converging. Across international borders we see strong evidence of convergence, with poorer, less healthy countries catching up and becoming less poor and more healthy. So the Indian paradox is doubly confounding: thicker international borders that are more impervious to the equalizing flows of factors of production lead to convergence but the supposedly porous borders within India perpetuate spatial inequality.

The *Survey* produces new estimates of the effectiveness of targeting of major current programs, contrasting the wedge between the number of poor in a district and the amount of funding it receives. This leads naturally to a discussion of providing a Universal Basic Income (UBI) that has emerged as a raging new idea both in advanced economies and in India. We discuss this idea as a conversation that the Mahatma might have had with himself, concluding that it merits serious public deliberation.

Last year's *Survey* said that it is ideas for India and for bettering India that matter, not their provenance or paternity. That is more true this year because we have drawn upon an even more diverse set of authors, within India and abroad, from public and private sectors, from academia, private sector, and civil society. It is also an honor that this year's *Survey* has a contribution from the Honorable Minister of Finance. And this year, we have no fear in the Survey being judged by its cover, which breaks ground with its creative design.

This year's *Survey* is different in coming in just one volume. The detailed review of the year gone by that was covered by the companion volume will now appear later in the year as a standalone document.

There has been a lot of recent discussion on the role and contents of the *Economic Survey*. What should the Survey aspire to? And here the answer is clear, offered by arguably the greatest economist, John Maynard Keynes. What he described as the essential ingredients for the master-economist easily extend to those for the master-*Survey*.

So, paraphrasing Keynes: "It must possess a rare combination of gifts .... It must draw upon mathematics, history, statesmanship, and philosophy-in some degree. It must understand symbols and speak in words. It must contemplate the particular, in terms of the general, and touch abstract and concrete in the same flight of thought. It must study the present in the light of the past for the purposes of the future. No part of man's nature or his institutions must be entirely outside its regard. It must be purposeful and disinterested in a simultaneous mood, its authors as aloof and incorruptible as artists, yet sometimes as near to earth as politicians."

Over three years, the *Survey* has probably fallen short of those lofty standards. But they have been – and must be – the aspiration for this and all *Surveys* to come.

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ABBREVIATIONS

AMD	Ahmedabad	LKO	Lucknow
AMRUT	Atal Mission for Rejuvenation and Urban Transformation	LUD	Ludhiana
		MCG	Municipal Corporation of Gurgaon
ARV	Annual Rateable Value	MDG	Millennium Development Goals
ASICS	Annual Survey of India's City-Systems	MIC	Middle Income Countries
BBMP	Bruhat Bangalore Mahanagara Palike	MNDWI	Modified Normalized Difference Water Index
BBR	Bhubaneswar	MODIS	Moderate Resolution Imaging Spectroradiometer
BLR	Bengaluru	MoUD	Ministry of Urban Development
BPL	Bhopal	MPCE	Monthly Per Capita Expenditure
CDR	Chandigarh	MUM	Mumbai
CFPI	Consumer Food Price Index	NASA	National Aeronautics and Space Administration
CHN	Chennai	NDBI	Normalized Difference Built-up Index
CMM	Cohort-based Migration Metric	NITI	National Institution for Transforming India
CPI	Consumer Price Index	NRSA	National Remote Sensing Agency
CPI- IW	Consumer Price Index for Industrial Workers	NSS	National Sample Survey
CPI-AL	Consumer Price Index for Agricultural Labour	O&M	Operation and Maintenance
CRIS	Centre for Railway Information System	OLI	Operational Land Imager
CSO	Central Statistics Office	PAT	Patna
CSS	Centrally Sponsored Schemes	PCA	Principal Component Analysis
DCRF	Debt Consolidation and Reconstruction Facility	PDL	Public Disclosure Laws
DDN	Dehradun	PPP	Purchasing Power Parity
DEM	Digital Elevation Model	PSU	Public Sector Unit
DIPP	Department of Industrial Policy & Promotion	PUN	Pune
DL	Delhi	PWD	Public Works Department
ETM	Enhanced Thematic Mapper	RAI	Raipur
FAR	Floor Area Ratio	RAN	Ranchi
FFC	Fourteenth Finance Commission	RMB	Renminbi
FRBM	Fiscal Responsibility and Budget Management Act	SAVI	Soil Adjusted Vegetation Index
FRL	Fiscal Responsibility Legislation	SBM	Swachh Bharat Mission
FSI	Floor Space Index	SCM	Smart Cities Mission
GBM	Gradient Boosting Model	SDL	State Development Loan
GDP	Gross Domestic Product	SRS	Sample Registration Survey
GIS	Geographical Information System	SUR	Surat
GSDP	Gross State Domestic Product	TFC	Thirteenth Finance Commission
HPEC	High Powered Expert Committee	TFR	Total Fertility Rate
HRIDAY	Heritage City Development and Augmentation Yojana	TVM	Thiruvananthapuram
HUDA	Haryana Urban Development Authority	UA	Urban Agglomeration
HYD	Hyderabad	UAV	Unit Area Value
IL&FS	Infrastructure Leasing & Financial Services Limited	UDAY	Ujwal DISCOM Assurance Yojana
IMF	International Monetary Fund	ULBs	Urban Local Bodies
IMR	Infant Mortality Rate	UN	United Nations
ISRO	Indian Space Research Organization	UNICEF	United Nations Children's Fund
ITB	Intermediate Treasury Bill	USGS	United States Geological Survey
JNNURM	Jawaharlal Nehru National Urban Renewal Mission	UTS	Unreserved Ticketing System
JPR	Jaipur	VAT	Value Added Tax
JUSCO	Jamshedpur Utilities and Services Company Ltd.	WAH	Weighted Average Hybrid
KOL	Kolkata	WDI	World Development Indicators
KPR	Kanpur	WEO	World Economic Outlook
LANDSAT	Land Remote-Sensing Satellite (System)	WHO	World Health Organization
LE	Life Expectancy	WPI	Wholesale Price Index

Eight Interesting Facts About India

- **Indians on The Move**

  New estimates based on railway passenger traffic data reveal annual work-related migration of about 9 million people, almost double what the 2011 Census suggests.

Annual New Migrants (in millions)
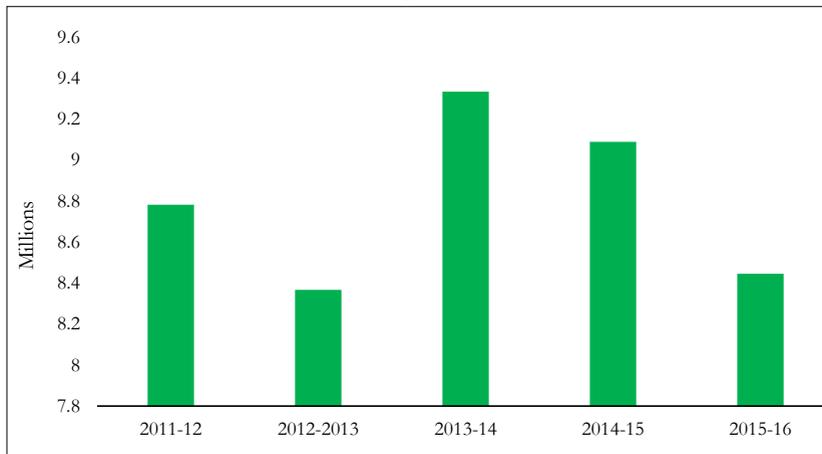
- **Biases in Perception**

  China's credit rating was upgraded from A+ to AA- in December 2010 while India's has remained unchanged at BBB-. From 2009 to 2015, China's credit-to-GDP soared from about 142 percent to 205 percent and its growth decelerated. The contrast with India's indicators is striking.

Poor Standards: Ratings Agencies - China and India
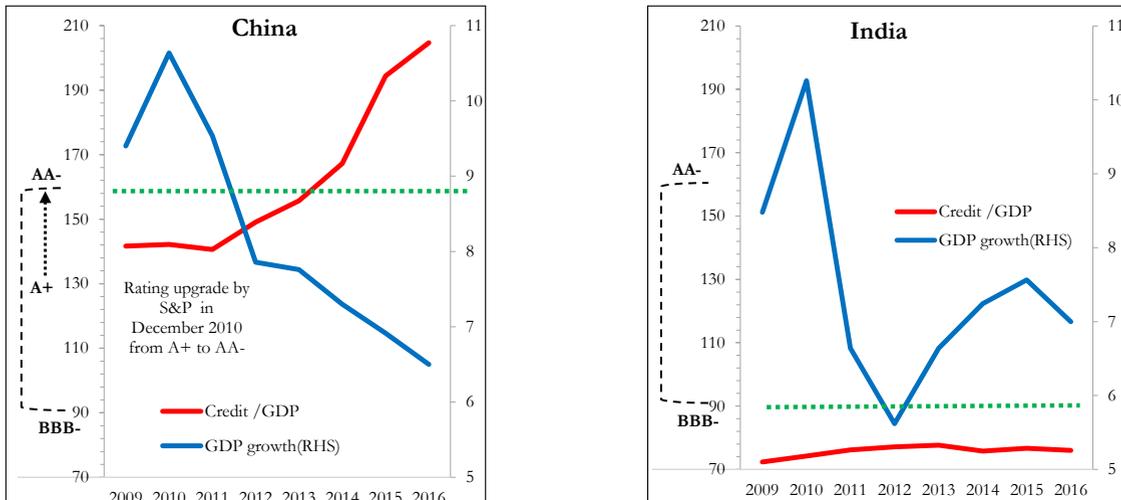
- **New Evidence on Weak Targeting of Social Programs**

  Welfare spending in India suffers from misallocation: as the pair of charts show, the districts with the most poor (in red on the left) are the ones that suffer from the greatest shortfall of funds (in red on the right) in social programs. The districts accounting for the poorest 40% receive 29% of the total funding.

Share of Poor by District	Shortfall in Allocation to Poor by District
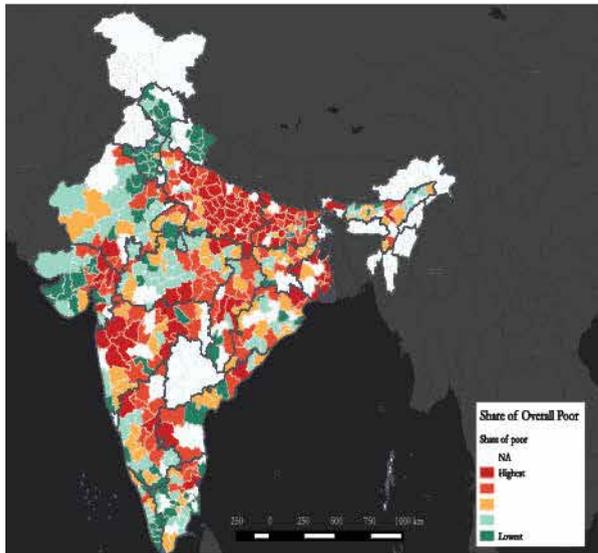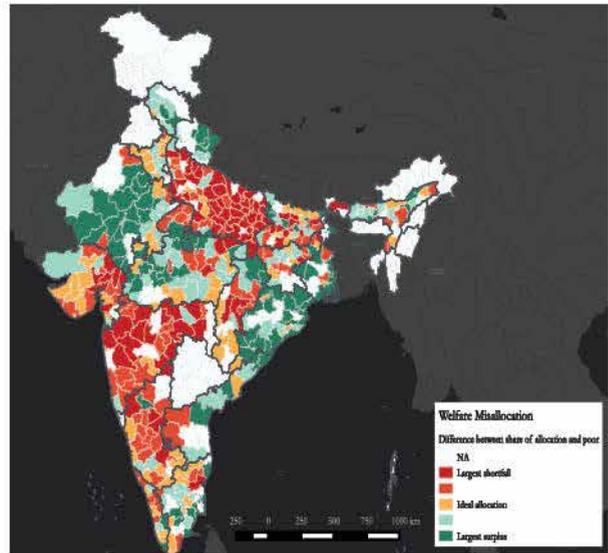
- **Political Democracy but Fiscal Democracy?**

  India has 7 taxpayers for every 100 voters ranking us 13th amongst 18 of our democratic G-20 peers.

Taxpayers per 100 Voters
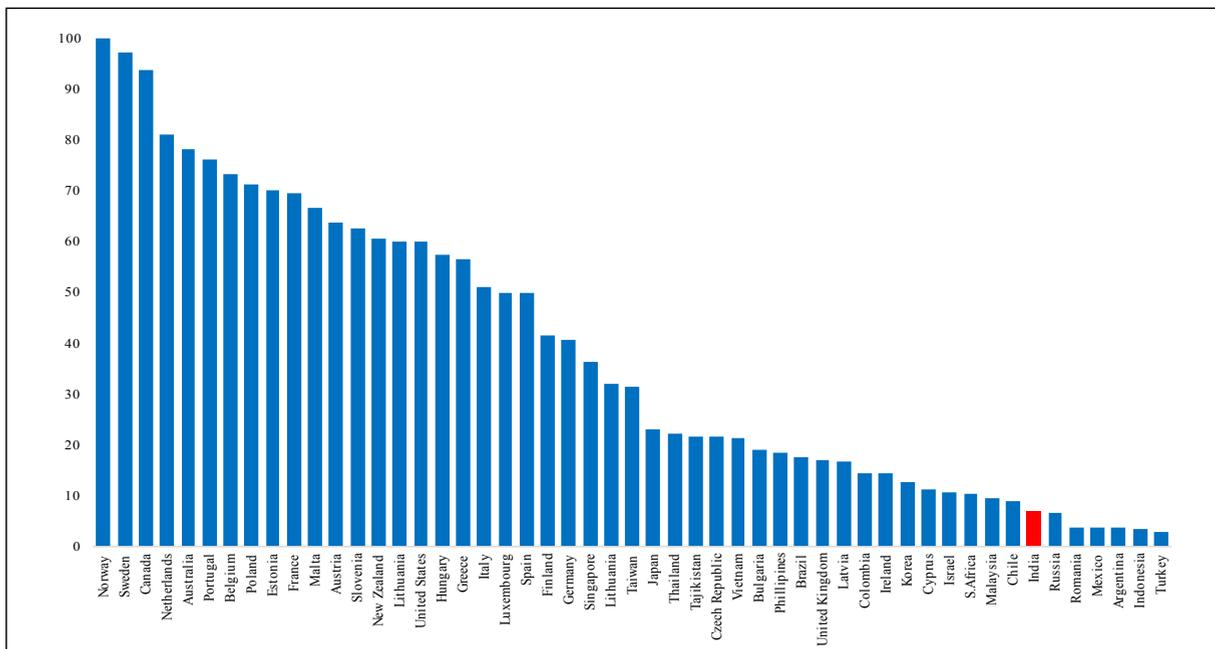
- **India's Distinctive Demographic Dividend**

  India's share of working age to non-working age population will peak later and at a lower level than that for other countries but last longer. The peak of the growth boost due to the demographic dividend is fast approaching, with peninsular states peaking soon and the hinterland states peaking much later.

Demographic Dividend in Indian States and Other Emerging Economies
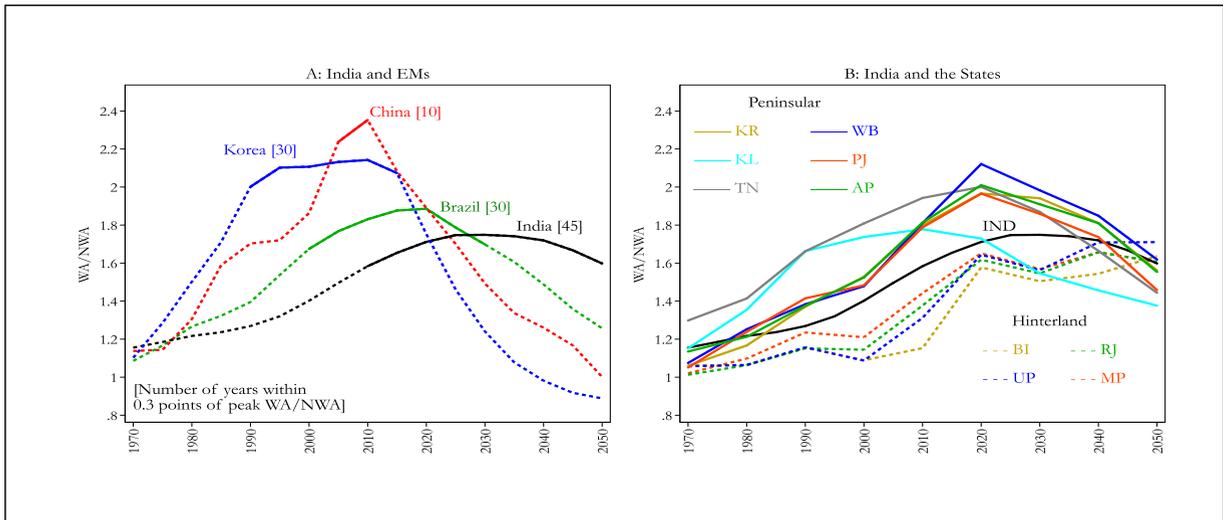
- **India Trades More Than China and a Lot Within Itself**

  As of 2011, India's openness - measured as the ratio of trade in goods and services to GDP has far overtaken China's, a country famed for using trade as an engine of growth. India's internal trade to GDP is also comparable to that of other large countries and very different from the caricature of a barrier-riddled economy.

Trade (as percent of GDP)
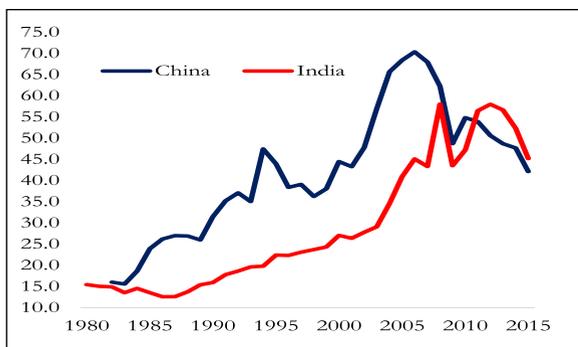
Internal Trade (as percent of GDP)
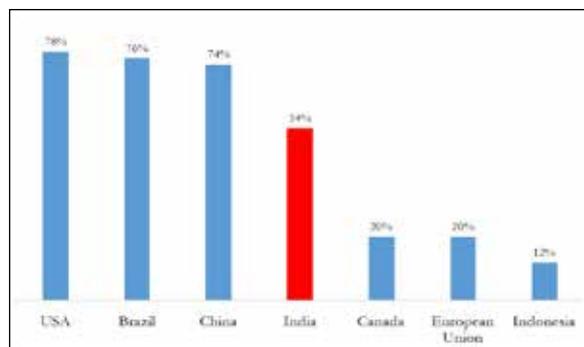
- **Divergence within India, Big Time**

  Spatial dispersion in income is still rising in India in the last decade (2004-14), unlike the rest of the world and even China. That is, despite more porous borders within India than between countries internationally, the forces of "convergence" have been elusive.

Unconditional Convergence in GDP per capita
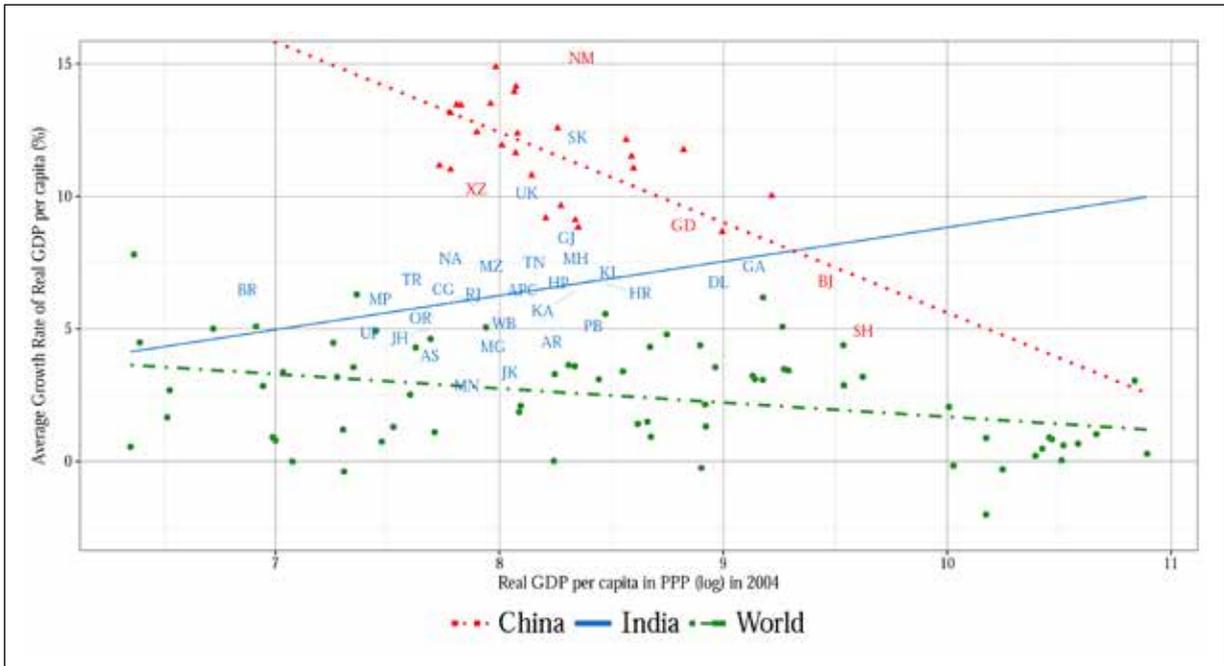
- **Property Tax Potential Unexploited**

  Evidence from satellite data indicates that Bengaluru and Jaipur collect only between 5% to 20% of their potential property taxes.

Spatial Urban Built-Up Extent : Bengaluru
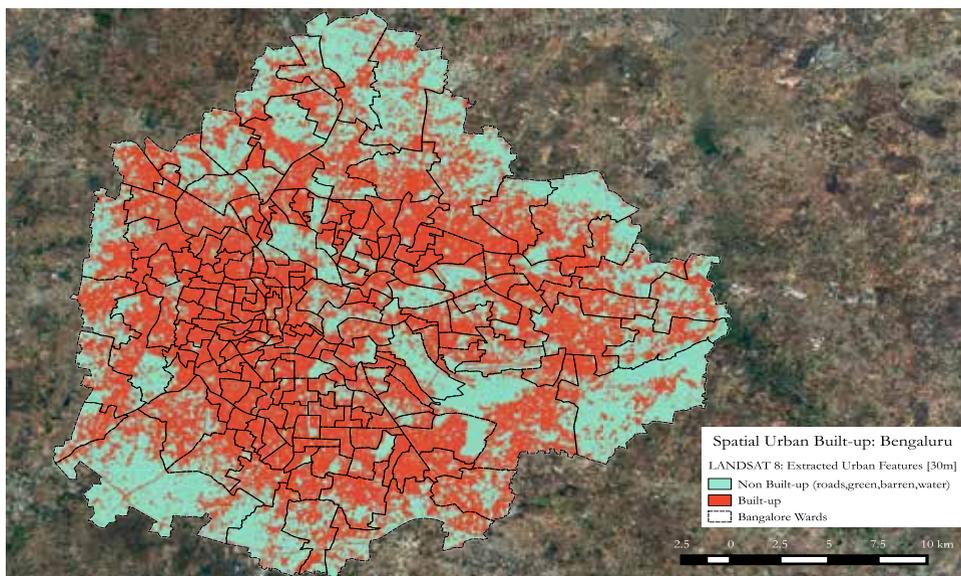
Economic Outlook and Policy Challenges

Against the backdrop of robust macro-economic stability, the year was marked by two major domestic policy developments, the passage of the Constitutional amendment, paving the way for implementing the transformational Goods and Services Tax (GST), and the action to demonetise the two highest denomination notes. The GST will create a common Indian market, improve tax compliance and governance, and boost investment and growth; it is also a bold new experiment in the governance of India's cooperative federalism. Demonetisation has had short-term costs but holds the potential for long-term benefits. Follow-up actions to minimize the costs and maximise the benefits include: fast, demand-driven, remonetisation; further tax reforms, including bringing land and real estate into the GST, reducing tax rates and stamp duties; and acting to allay anxieties about over-zealous tax administration. These actions would allow growth to return to trend in 2017-18, following a temporary decline in 2016-17. Looking further ahead, societal shifts in ideas and narratives will be needed to overcome three long-standing meta-challenges: inefficient redistribution, ambivalence about the private sector and property rights, and improving but still-challenged state capacity. In the aftermath of demonetisation, and at a time of gathering gloom about globalisation, articulating and embracing those ideational shifts will be critical to ensuring that India's sweet spot is enduring not evanescent.

I. INTRODUCTION

1.1 The Economic Survey of 2014-15 spoke about the sweet spot for the Indian economy that could launch India onto a trajectory of sustained growth of 8-10 percent. Last year's Survey assessed that "for now, but not indefinitely, that sweet spot is still beckoningly there." This year's stock-taking suggests that shifts in the underlying vision will be needed to overcome the major challenges ahead, thereby accelerating growth, expanding employment opportunities, and

achieving social justice (Chapter 2 in this Survey). In the aftermath of demonetisation, and because cyclical developments will make economic management harder, articulating and embracing those shifts will be critical to ensuring that that sweet spot is enduring not evanescent.

1.2 This year has been marked by several historic economic policy developments. On the domestic side, a constitutional amendment paved the way for the long-awaited and transformational goods and services tax

(GST) while demonetisation of the large currency notes signaled a regime shift to punitively raise the costs of illicit activities. On the international front, Brexit and the US elections may herald a tectonic shift, forebodingly laden with darker possibilities for the global, and even the Indian, economy.

1.3   Start first with demonetisation. A radical governance-cum-social engineering measure was enacted on November 8, 2016. The two largest denomination notes, Rs 500 and Rs 1000—together comprising 86 percent of all the cash in circulation—were "demonetised" with immediate effect, ceasing to be legal tender except for a few specified purposes.[1] These notes were to be deposited in the banks by December 30, while restrictions were placed on cash withdrawals. In other words, restrictions were placed on the convertibility of domestic money and bank deposits.

1.4   The aim of the action was fourfold: to curb corruption, counterfeiting, the use of high denomination notes for terrorist activities, and especially the accumulation of "black money", generated by income that has not been declared to the tax authorities. The action followed a series of earlier efforts to curb such illicit activities, including the creation of the Special Investigation Team (SIT) in the 2014 budget, the Black Money Act, 2015; the Benami Transactions Act of 2016; the information exchange agreement with Switzerland, changes in the tax treaties with Mauritius and Cyprus, and the Income Disclosure Scheme.

1.5   Demonetisation was aimed at signaling a regime change, emphasizing the government's determination to penalize illicit activities and the associated wealth. In effect, the tax on illicit activities as well as on legal activities that were not disclosed to the tax authorities was sought to be permanently and punitively increased.

1.6   The public debate on demonetisation has raised three questions. First, broader aspects of management, as reflected in the design and implementation of the initiative. Second, its economic impact in the short and long run. And, third, its implications for the broader vision underlying the future conduct of economic policy. This Survey is not the forum to discuss the first question.

1.7   Chapter 3 addresses in detail the second question. The broad conclusion is that demonetisation will create short-term costs and provide the basis for long run benefits.

1.8   Short-term costs have taken the form of inconvenience and hardship, especially those in the informal and cash-intensive sectors of the economy who have lost income and employment. These costs are transitory, and may be minimised in recorded GDP because the national income accounts estimate informal activity on the basis of formal sector indicators, which have not suffered to the same extent. But the costs have nonetheless been real and significant. The benefits of lower interest rates and dampened price pressure may have cushioned the short-term macro-economic impact.

1.9   At the same time, demonetisation has the potential to generate long-term benefits in terms of reduced corruption, greater digitalization of the economy, increased flows of financial savings, and greater formalization of the economy, all of which could eventually lead to higher GDP growth, better tax compliance and greater tax revenues.

1.10   The magnitudes of short-term costs remain uncertain, as do the timing and extent

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[1]   Strictly speaking, these notes were deprived of their legal tender status, except for specified activities (such as paying utility bills). Nevertheless, "demonetisation" has entered the public lexicon as the term for the November 8 announcement.

of long-term benefits. (Chapter 3 identifies certain markers to assess the latter.) These magnitudes will depend importantly on how policy responds to the current situation. Needed actions include: remonetizing the economy expeditiously by supplying as much cash as necessary, especially in lower denomination notes; and complementing demonetisation with more incentive-compatible actions such as bringing land and real estate into the GST, reducing taxes and stamp duties, and ensuring that the follow-up to demonetisation does not lead to over-zealous tax administration.

1.11 The third question on the broader vision will also be critical to shaping the medium term trajectory of the economy. Here the government has taken important steps over the past year. The highlight was, of course, the transformational GST bill, which will create a common Indian market, improve tax compliance, boost investment and growth – and improve governance; the GST is also a bold new experiment in the governance of cooperative federalism. In addition, the government:

- Overhauled the bankruptcy laws so that the "exit" problem that pervades the Indian economy--with deleterious consequences highlighted in last year's Survey--can be addressed effectively and expeditiously;

- Codified the institutional arrangements on monetary policy with the Reserve Bank of India (RBI), to consolidate the gains from macroeconomic stability by ensuring that inflation control will be less susceptible to the whims of individuals and the caprice of governments; and

- Solidified the legal basis for *Aadhaar*, to realise the long-term gains from the JAM trifecta (Jan Dhan-Aadhaar-Mobile), as quantified in last year's Survey.

1.12 Had the government announced such an agenda early in 2016, its ambition would have elicited skepticism, probably deserved. Yet a year on this agenda has been achieved, and in nearly all cases through legislative action that commanded near-political unanimity.

1.13 Beyond these headline reforms were other less-heralded but nonetheless important actions. The government enacted a package of measures to assist the clothing sector that by virtue of being export-oriented and labor-intensive could provide a boost to employment, especially female employment. The National Payments Corporation of India (NPCI) successfully finalized the Unified Payments Interface (UPI) platform. By facilitating inter-operability it will unleash the power of mobile phones in achieving digitalization of payments and financial inclusion, and making the "M" an integral part of the government's flagship "JAM"-*Jan Dhan, Aadhaar, Mobile*-- initiative. Further FDI reform measures were implemented, allowing India to become one of the world's largest recipients of foreign direct investment.

1.14 These measures cemented India's reputation as one of the few bright spots in an otherwise grim global economy. India is not only among the world's fastest growing major economies, underpinned by a stable macro-economy with declining inflation and improving fiscal and external balances. It was also one of the few economies enacting major structural reforms. Yet there is a gap between this reality of macro-economic stability and rapid growth, on the one hand, and the perception of the ratings agencies on the other. Why so? Box 1 elaborates on the possible reasons.

1.15 But much more needs to be done. Especially after 1991, India has progressively distanced itself from statism and made considerable strides in improving the management of the economy. Yet a broader stock-taking (discussed in Chapter 2) suggests

that India has to traverse a considerable distance to realize its ambitions on growth, employment and social justice. Broader societal shifts are required in ideas and narratives to address

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Box 1. Poor Standards? The Rating Agencies, China & India

In recent years, the role of ratings agencies has increasingly come into question. In the US financial crisis, questions were raised about their role in certifying as AAA bundles of mortgage-backed securities that had toxic underlying assets (described in Michael Lewis' *The Big Short*). Similarly, their value has been questioned in light of their failure to provide warnings in advance of financial crises—often ratings downgrades have occurred post facto, a case of closing the stable doors after the horses have bolted (IMF, 2010; Krugman, September, 2015[2]).

But it is also worth assessing their role in more normal situations. In the case of India, Standard & Poor's in November 2016 ruled out the scope for a ratings upgrade for some considerable period, mainly on the grounds of its low per capita GDP and relatively high fiscal deficit. The actual methodology to arrive at this rating was clearly more complex. Even so, it is worth asking: are these variables the right key for assessing India's risk of default?

Consider first per capita GDP. It is a very slow moving variable. Lower middle income countries experienced an average growth of 2.45 percent of GDP per capita (constant 2010 dollars) between 1970 and 2015. At this rate, the poorest of the lower middle income countries would take about 57 years to reach upper middle income status. So if this variable is really key to ratings, poorer countries might be provoked into saying, "Please don't bother this year, come back to assess us after half a century."

Consider next fiscal variables. The practice of ratings agencies is to combine a group of countries and then assess comparatively their fiscal outcomes. So, India is deemed an outlier because its general government fiscal deficit ratio of 6.6 percent (2014) and debt of 67.1 percent are out of line with its emerging market "peers" (See Table 1 in Chapter 5).

But India could be very different from the comparators used by the ratings agencies. After all, many emerging markets are struggling. But India has a strong growth trajectory, which coupled with its commitment to fiscal discipline exhibited over the last three years suggests that its deficit and debt ratios are likely to decline significantly over the coming years. Even if this scenario does not materialise, India might still be able to carry much more debt than other countries because it has an exceptionally high "willingness to pay", as demonstrated by its history of not defaulting on its obligations (Reinhart, Rogoff and Savastano, 2003).

Figure. Credit/GDP ratio and GDP growth for China and India and respective S&P rating
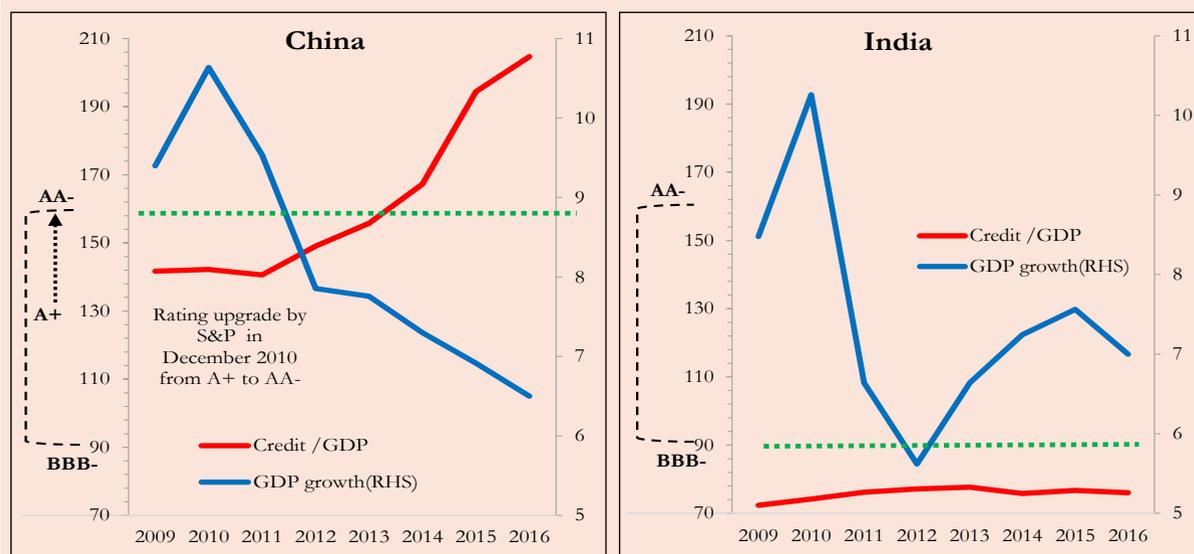
Source: **WDI and S&P; for 2016, India's credit data are from RBI and Credit Suisse; for 2016, China's credit number is obtained by adding flows of total social financing (TSF) from the Bank for International Settlements (BIS) to the 2015 stock obtained from the WDI.**

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[2]   http://krugman.blogs.nytimes.com/2015/09/17/fear-the-rating-agencies/

India also compares favourably to other countries on other metrics known to be closely related to the risk of default. Consider the contrast with China. In 2009, China launched an historic credit expansion, which has so far seen the credit-GDP ratio rise by an unprecedented about 63 percentage points of GDP, much larger than the stock of India's credit-GDP (Figure). At the same time, Chinese growth has slowed from over 10 percent to 6.5 percent.

How did Standard and Poor's react to this ominous scissors pattern, which has universally been acknowledged as posing serious risks to China and indeed the world? In December 2010, it increased China's rating from A+ to AA- and it has never adjusted it since, even as the credit boom has unfolded and growth has experienced a secular decline.

In contrast, India's ratings have remained stuck at the much lower level of BBB-, despite the country's dramatic improvement in growth and macro-economic stability since 2014.

These contrasting experiences raise a question: can they really be explained by an economically sound methodology?

three major challenges: reducing "inefficient redistribution," strengthening state capacity in delivering essential services and regulating markets, and dispelling the ambivalence about protecting property rights and embracing the private sector. In other words, addressing these challenges is not just about the political will to overcome vested interests.

1.16 These structural challenges have their proximate policy counterparts. Chapter 9 discusses India's extensive efforts at redistribution. The central government alone runs about 950 central sector and centrally sponsored schemes and sub-schemes which cost about 5 percent of GDP. Clearly, there are rationales for many of them. But there may be intrinsic limitations in terms of the effectiveness of targeting.

1.17 The government has made great progress in improving redistributive efficiency over the last few years, most notably by passing the Aadhaar law, a vital component toward realizing its vision of JAM. (The pilots for Direct Benefit Transfers in fertilizer represent a very important new direction in this regard.) At the same time, prices facing consumers in many sectors are yet to move closer toward market levels. Even on the GST, concerns about ensuring low tax rates for essentials, risks creating an unduly complicated structure with multiple and excessively high peak rates, thereby foregoing large services efficiency gains.

1.18 On state capacity, delivery of essential services such as health and education, which are predominantly the preserve of state governments, remains impaired. Regulatory institutions are still finding their way. The deepest puzzle here is the following: while competitive federalism has been a powerful agent of change in relation to attracting investment and talent, it has been less in evidence in relation to essential service delivery. There have, of course, been important exceptions, such as the improvement of the public distribution system (PDS) in Chhattisgarh, the incentivization of agriculture in Madhya Pradesh, reforms in the power sector in Gujarat which improved delivery and cost recovery, the efficiency of social programs in Tamil Nadu, and the recent use of technology to help make Haryana kerosene-free. But on health and education there are insufficient instances of good models that can travel widely within India and that are seen as attractive political opportunities. Competitive populism needs a counterpart in competitive service delivery.

1.19 Equally, signs of a political dynamic that would banish the ambivalence toward the private sector and property rights have not been strongly evident for decades. This ambivalence is manifested in: the difficulties in advancing strategic disinvestment; the

persistence of the twin balance sheet problem—over-indebtedness in the corporate and banking sectors—which requires difficult decisions about burden-sharing and perhaps even forgiving some burden on the private sector; the legacy issues of retroactive taxation, which remain mired in litigation even though the government has made clear its intentions for the future; agriculture, where the protection of intellectual property rights, for example in seeds, remains a challenge; reform in the civil aviation sector, which has been animated as much by an interventionist as liberalizing spirit; in the fertilizer sector, where it is proving easier to rehabilitate unviable plants in the public sector rather than facilitate the exit of egregiously inefficient ones; frequent recourse to stock limits and controls on trade in agriculture, which draws upon the antiquated Essential Commodities Act, and creates uncertainty for farmers.

1.20 In each of these examples, there may be valid reasons for the status quo but overall they indicate that the embrace of markets—even in the modest sense of avoiding intrusive intervention, protecting property rights, disposing of unviable public sector assets and exiting from areas of comparative non-advantage, and allowing economic agents to face market prices—remains a work-in-progress.

1.21 Even as the domestic agenda remains far from complete, the international order is changing, posing new challenges. The impact of Brexit and the US elections, though still uncertain, risk unleashing paradigmatic shifts in the direction of isolationism and nativism. The post war consensus in favour of globalisation of goods, services and labor in particular, and market-based economic organization more broadly, is under threat across the advanced economies.

1.22 For India that is a late "converger"—that is an economy whose standards of living are well below countries at the frontier—these events have immense consequences. Given that India's growth ambitions of 8-10 percent require export growth of about 15-20 percent, any serious retreat from openness on the part of India's trading partners would jeopardize those ambitions (see Box 2).

1.23 To these structural domestic and external developments must be added the proximate macro-economic challenges. Since the decline in oil prices from their peak in June 2014 there has been a lift to incomes which combined with government actions imparted dynamism by increasing private consumption and facilitating public investment, shoring up an economy buffeted by the headwinds of weak external demand and poor agricultural production. This year that important source of short-term dynamism may be taken away as international oil prices are now on the rise. Moreover, private investment remains weak because of the twin balance sheet problem that has been the economy's festering wound for several years now (Chapter 4). Re-establishing private investment and exports as the predominant and durable sources of growth is the proximate macro-economic challenge.

1.24 In sum, the steady progress on structural reforms made in the last few years needs to be rapidly built upon, and the unfinished agenda completed. Especially after demonetisation and given the ever-present late-term challenges, anxieties about the vision underlying economic policy and about the forgoing of opportunities created by the sweet spot need to be decisively dispelled.

II.   GLOBAL CONTEXT

1.25 For India, three external developments are of significant consequence. In the short-run, the change in the outlook for global interest rates as a result of the US elections and the implied change in expectations of

US fiscal and monetary policy will impact on India's capital flows and exchange rates. Markets are factoring in a regime change in advanced countries, especially US macroeconomic policy, with high expectations of fiscal stimulus and unwavering exit from unconventional monetary policies. The end of the 20-year bond rally and end to the corset of deflation and deflationary expectations are within sight.

1.26 Second, the medium-term political outlook for globalisation and in particular for the world's "political carrying capacity for globalisation" may have changed in the wake of recent developments. In the short run a strong dollar and declining competitiveness might exacerbate the lure of protectionist policies. These follow on ongoing trends—documented widely—about stagnant or declining trade at the global level (figure in Box 2). This changed outlook will affect India's export and growth prospects described in Box 2.

1.27 Third, developments in the US, especially the rise of the dollar, will have implications for China's currency and currency policy. If China is able to successfully re-balance its economy, the spillover effects on India and the rest of the world will be positive. On, the other hand, further declines in the yuan, even if dollar-induced, could interact with underlying vulnerabilities to create disruptions in China that could have negative spillovers for India (these are discussed in detail in Section VI.B). For China, there are at least two difficult balancing acts with respect to the currency. Domestically, a declining currency (and credit expansion) prop up the economy in the short run but delay rebalancing while also adding to the medium term challenges. Internationally, allowing the currency to weaken in response to capital flight risks creating trade frictions

Box 2. Political Carrying Capacity of the West for Openness and Impact on India

If as T.S. Eliot said that humankind cannot bear too much reality, recent events suggest that the world cannot bear too much globalisation either. What does this mean for India's exports?

The first figure plots the trade-GDP ratio for the world since 1870 and highlights four phases. There were two phases of globalisation (1870-1914, 1945-1985), one phase of hyperglobalisation (Subramanian and Kessler, 2014) between 1985-2008, and one phase of deglobalisation in the inter-war period. The question today is what is likely to happen going forward represented by the three arrows: further globalisation, deglobalisation, or stagnation? These will have potentially important consequences for Indian exports and growth.

Figure: Globalisation and the World (1870 to present)
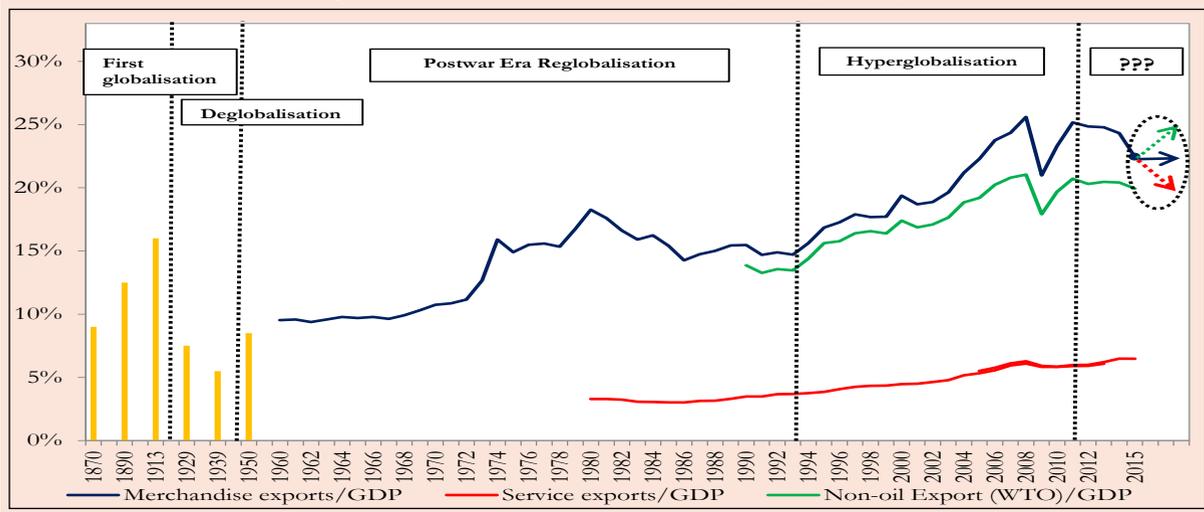
During the boom years between 2003-2011 India's real GDP growth averaged 8.2 percent, and exports grew at an annual rate of between 20 and 25 percent (in real dollar terms, for goods and services). So, assume conservatively that India aims to grow at 8 percent for the next decade and that that requires growth in exports of goods and services of 15 percent, respectively.

Next, assume that the world will continue to grow at 3 percent growing forward. Define the political carrying capacity of the world for globalisation as the world's export-to-GDP ratio. The latest figure for that is about 21 percent; assume that it remains stable. (Note that if world trade continues to grow more slowly than overall GDP, as it has done in recent years, the equilibrium carrying capacity—the world's export-GDP ratio—would actually fall.)

Political Carrying Capacity of the World for Openness (Current and Future)

	Today			Change in 10 years			
	World	India	China	World (Fixed)	India	China	RoW (Notional)
Exports of goods/world GDP	21.10%	0.40%	2.90%	0.00%	0.80%	1.40%	-2.10%
Exports of services/world GDP	6.10%	0.30%	0.40%	0.00%	0.50%	0.20%	-0.70%
Exports of goods and services/world GDP	27.30%	0.60%	3.30%	0.00%	1.30%	1.50%	-2.80%
Assumptions on GDP growth: World (3%), India (8%), China (5%)							
Assumptions on export growth: World (3%), India (15%), China (7%)							

Source: **Survey Calculation.**

In these circumstances, the problem is the following. India's GDP and export growth alone will imply an increase in the world's export-to-GDP ratio of about 1.3 percentage points. If China's export growth continues at the pace of the last 6 years (7 percent in real terms), that will lead to a further increase in the world's export-GDP ratio of another 1.4 percentage points. In other words, India's export growth will run up against the world's carrying capacity for globalisation. The squeeze will get worse if the world's trade-GDP ratio declines, and considerably worse if China's export juggernaut continues.

From India's perspective, the political carrying capacity for globalisation is relevant not just for goods but also services. The world's service exports-GDP ratio is about 6.1 percent. If India grows rapidly on the back of dynamic services exports, the world's service exports-GDP ratio will increase by 0.5 percentage points—which would be a considerable proportion of global exports. Put differently, India's services exports growth will test the world's globalisation carrying capacity in services. Responses could take not just the form of restrictions on labor mobility but also restrictions in advanced countries on outsourcing.

It is possible that the world's carrying capacity will actually be much greater for India's services than it was for China's goods. After all, China's export expansion over the past two decades was imbalanced in several ways: the country exported far more than it imported; it exported manufactured goods to advanced countries, displacing production there, but imported goods (raw materials) from developing countries; and when it did import from advanced economies, it often imported services rather than goods.[3] As a result, China's development created relatively few export-oriented jobs in advanced countries, insufficient to compensate for the jobs lost in manufacturing – and where it did create jobs, these were in advanced services (such as finance), which were not possible for displaced manufacturing workers to obtain.

In contrast, India's expansion may well prove much more balanced. India has tended to run a current account deficit, rather than a surplus; and while its service exports might also displace workers in advanced countries, their skill set will make relocation to other service activities easier; indeed, they may well simply move on to complementary tasks, such as more advanced computer programming in the IT sector itself. On the other hand, since skilled labour in advanced economies will be exposed to Indian competition, their ability to mobilize political opinion might also be greater.

In sum, the political backlash against globalisation in advanced countries, and China's difficulties in rebalancing its economy, could have major implications for India's economic prospects .They will need to be watched in the year – and decade – ahead.

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[3]   Though capital goods is a major exception.

but imposing capital controls discourages FDI and undermines China's ambitions to establish the yuan as a reserve currency. China with its underlying vulnerabilities remains the country to watch for its potential to unsettle the global economy.

III. REVIEW OF DEVELOPMENTS IN 2016-17

A.   GDP and Inflation

1.28 Since the Survey was presented eleven months ago, the Indian economy has continued to consolidate the gains achieved in restoring macroeconomic stability.

1.29 Real GDP growth in the first half of the year was 7.2 percent, on the weaker side of the 7.0-7.75 per cent projection in the Economic Survey 2015-16 and somewhat lower than the 7.6 percent rate recorded in the second half of 2015-16 (Figure 1a). The main problem was fixed investment, which declined sharply as stressed balance sheets in the corporate sector continued to take a toll on firms' spending plans. On the positive side, the economy was buoyed by government consumption, as the 7th Pay Commission salary recommendations were implemented,

and by the long-awaited start of an export recovery as demand in advanced countries began to accelerate. Nominal GDP growth recovered to respectable levels, reversing the sharp and worrisome dip that had occurred in the first half of 2015-16 (Figure 1b).[4]

1.30 The major highlights of the sectoral growth outcome of the first half of 2016-17 were: (i) moderation in industrial and non-government service sectors; (ii) the modest pick-up in agricultural growth on the back of improved monsoon; and (iii) strong growth in public administration and defence services—dampeners on and catalysts to growth almost balancing each other and producing a real Gross Value Addition (GVA) growth (7.2 per cent), quite similar to the one (7.1 per cent) in H2 2015-16 (Figure 1a).

1.31 Inflation this year has been characterized by two distinctive features (Figure 2). The Consumer Price Index (CPI)-New Series inflation, which averaged 4.9 per cent during April-December 2016, has displayed a downward trend since July when it became apparent that kharif agricultural production in general, and pulses in particular would be bountiful. The decline in pulses prices has

**Figure 1a. GVA and GDP Growth
(Constant Prices)**
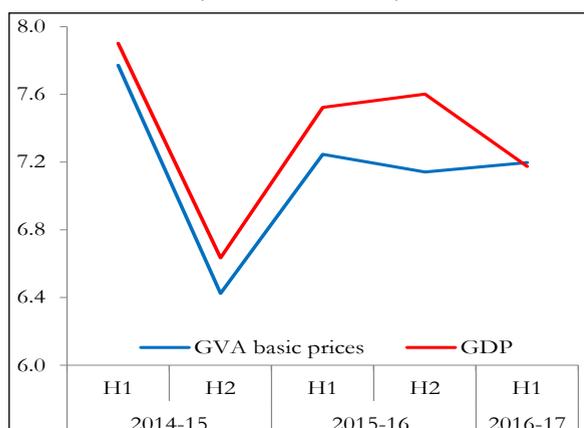
Source: **CSO**

**Figure 1b. GVA and GDP Growth
(Current Prices)**
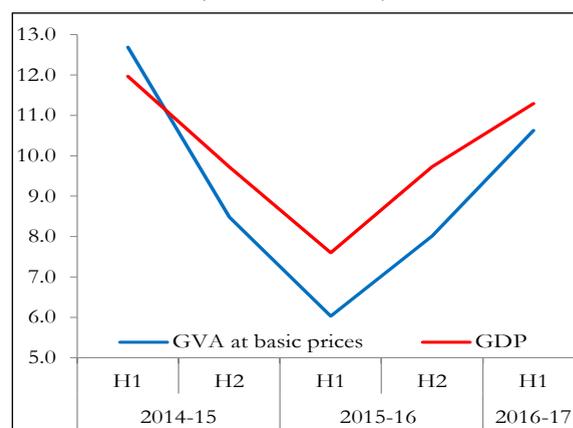
Source: **CSO**

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[4]   In normal times, nominal GDP growth would not be of particular policy interest. But at a time when the GDP deflator has been subject to unusual measurement uncertainty, nominal growth conveys additional information about real activity.

Figure 2. WPI and CPI Inflation
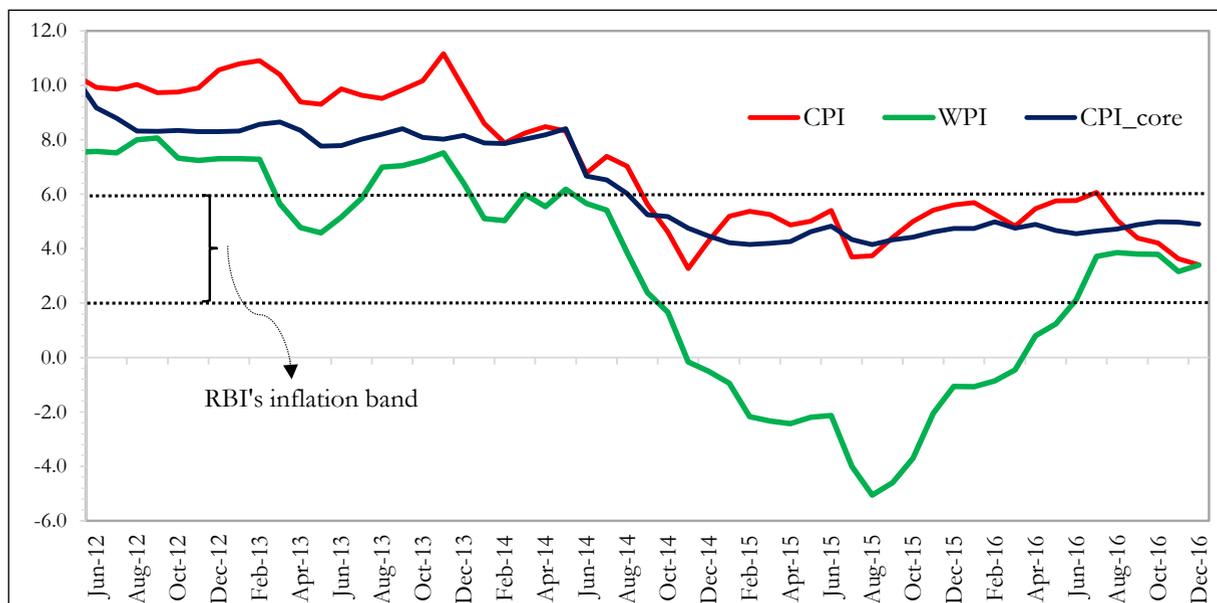
Source: **CSO**

contributed substantially to the decline in CPI inflation which reached 3.4 percent at end-December.

1.32 The second distinctive feature has been the reversal of WPI inflation, from a trough of (-)5.1 percent in August 2015 to 3.4 percent at end-December 2016 (Figure 2), on the back of rising international oil prices. The wedge between CPI and WPI inflation, which had serious implications for the measurement of GDP discussed in MYEA (Box 3, Chapter 1, MYEA 2015-16), has narrowed considerably. Core inflation has, however, been more stable, hovering around 4.5 percent to 5 percent for the year so far.

1.33 The outlook for the year as a whole is for CPI inflation to be below the RBI's target of 5 percent, a trend likely to be assisted by demonetisation.

B.   External Sector

1.34 Similarly, the external position appears robust having successfully weathered the sizeable redemption of Foreign Currency Non-Resident (FCNR) deposits in late 2016, and the volatility associated with the US

election and demonetisation. The current account deficit has declined to reach about 0.3 percent of GDP in the first half of FY2017. Foreign exchange reserves are at comfortable levels, having have risen from around US$350 billion at end-January 2016 to US$ 360 billion at end-December 2016 and are well above standard norms for reserve adequacy. In part, surging net FDI inflows, which grew from 1.7 percent of GDP in FY2016 to 3.2 percent of GDP in the second quarter of FY2017, helped the balance-of-payments (Figures 3a to 3d).

1.35 The trade deficit declined by 23.5 per cent in April-December 2016 over corresponding period of previous year. During the first half of the fiscal year, the main factor was the contraction in imports, which was far steeper than the fall in exports. But during October-December, both exports and imports started a long-awaited recovery, growing at an average rate of more than 5 per cent (Figure 4a). The improvement in exports appears to be linked to improvements in the world economy, led by better growth in the US and Germany. On the import side, the advantage on account of

Figure 3a. Current Account Balance (% of GDP)
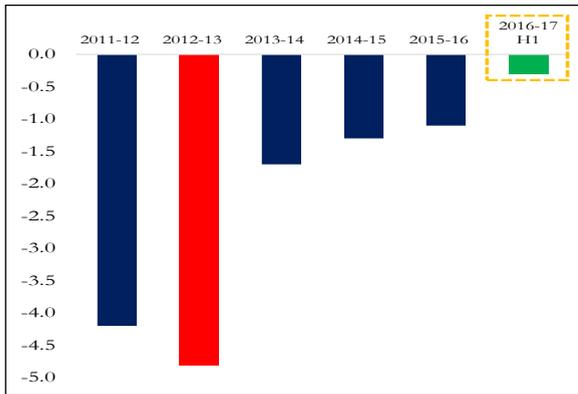
Figure 3b. Foreign Exchange Reserve (US$ billion)
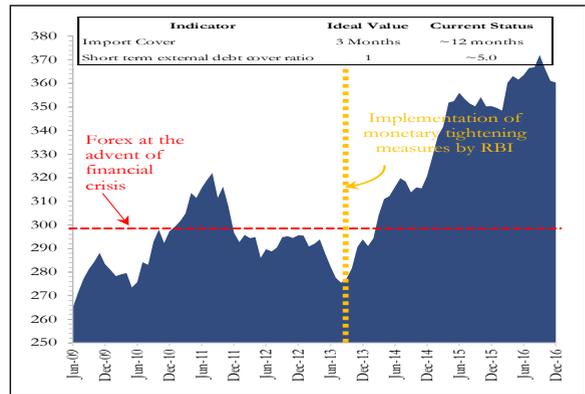
Figure 3c. Trends in Major Components of Capital Inflows (US$ billion)*
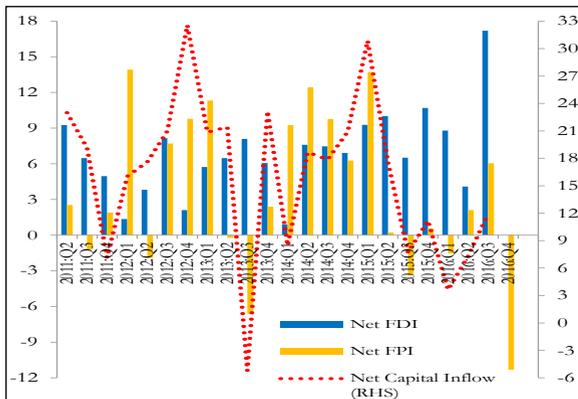
Figure 3d. Index of NEER, REER and US dollar exchange rate (2010=100)
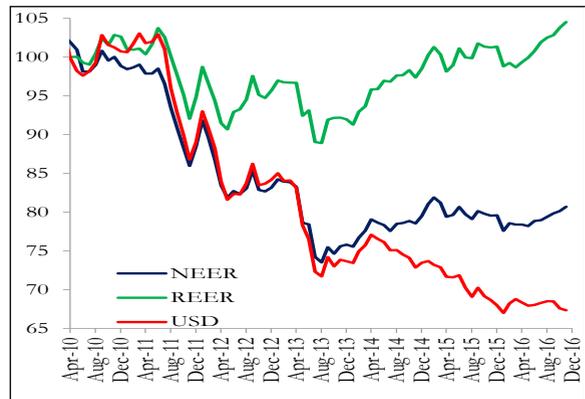
Source: **RBI; *Years in Chart 3c are calendar years**

benign international oil prices has receded and is likely to exercise upward pressure on the import bill in the short to medium term.

1.36 Meanwhile, the net services surplus declined in the first half, as software service exports slowed and financial service exports

declined (Figure 4b). Net private remittances declined by $4.5 bn in the first half of 2016-17 compared to the same period of 2015-16, weighed down by the lagged effects of the oil price decline, which affected inflows from the Gulf region (Figure 5).

Figure 4a. Growth of imports & export volume (non-oil, non-gold) index (%) (3 months MA)

Source: **DGCIS and Survey Calculations.**

Figure 4b. Growth of Export of Non-Factor Services (%)

Source: **RBI and Survey Calculations.**

Figure 5. Private Remittances (US$ billion)
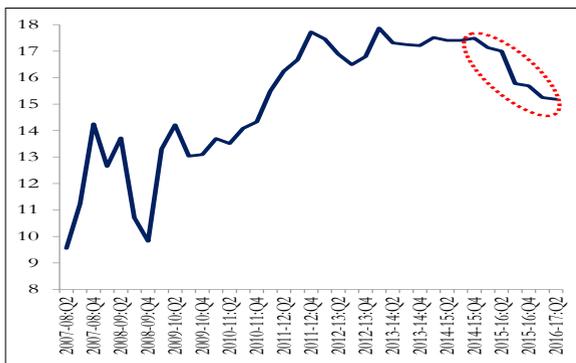
Source: **RBI.**

C.   Fiscal

1.37 Trends in the fiscal sector in the first half have been unexceptional and the central government is committed to achieving its fiscal deficit target of 3.5 percent of GDP this year (Figure 6a). Excise duties and services taxes have benefitted from the additional revenue measures introduced last year. The most notable feature has been the over-performance (even relative to budget estimates) of excise duties in turn based on buoyant petroleum consumption: real consumption of petroleum products (petrol) increased by 11.2 percent during April-December 2016 compared to same period in the previous year. Indirect taxes, especially petroleum excises, have held up even after

demonetisation in part due to the exemption of petroleum products from its scope. More broadly, tax collections have held up to a greater extent than expected possibly because of payment of dues in demonetised notes was permitted. Non-tax revenues have been challenged owing to shortfall in spectrum and disinvestment receipts but also to forecast optimism; the stress in public sector enterprises has also reduced dividend payments.

1.38 State government finances are under stress (Figure 6b). The consolidated deficit of the states has increased steadily in recent years, rising from 2.5 percent of GDP in 2014-15 to 3.6 percent of GDP in 2015-16, in part because of the UDAY scheme. The budgeted numbers suggest there will be an improvement this year. However, markets are anticipating some slippage, on account of the expected growth slowdown, reduced revenues from stamp duties, and implementation of their own Pay Commissions. For these reasons, the spread on state bonds over government securities jumped to 75 basis points in the January 2017 auction from 45 basis points in October 2016.

1.39 For the general government as a whole, there is an improvement in the fiscal deficit with and without UDAY scheme (Figure 6c).

Figure 6a. Fiscal Deficit of Center (% of GDP)
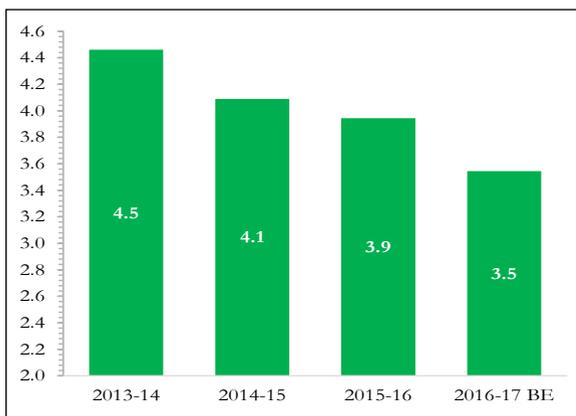
Source: **Central Government Budget documents.**

Figure 6b. Fiscal Deficit of States (% of GDP)
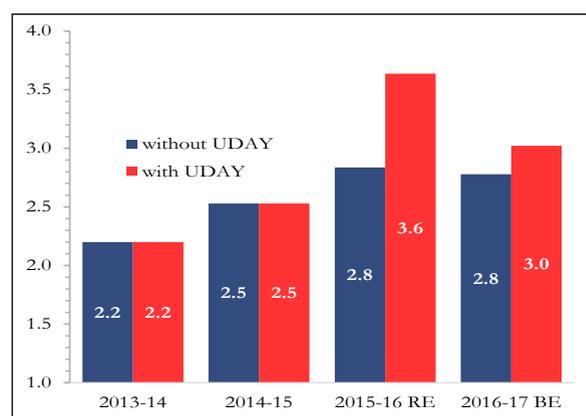
Source: **States' Government Budget documents.**

Figure 6c: Fiscal deficit of the General Government (% of GDP)
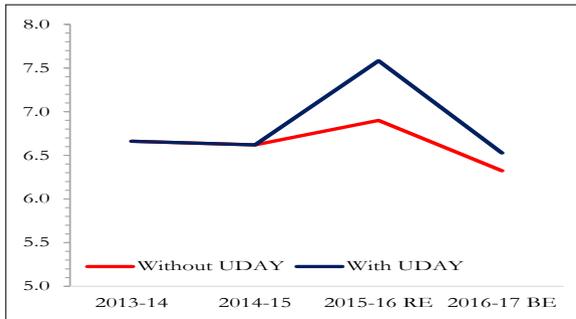
Source: **Budget documents.**

IV. Outlook for 2016-17

1.40 This year's outlook must be evaluated in the wake of the November 8 action to demonetize the high denomination notes. But it is first important to understand the analytics of the demonetisation shock in the short run (the long run benefits are addressed in Chapter 3).

1.41 Demonetisation affects the economy through three different channels. It is potentially:

• an aggregate *demand* shock because it reduces the supply of money and affects private wealth, especially of those holding unaccounted money;

• an aggregate *supply* shock to the extent that economic activity relies on cash as an input (for example, agricultural production might be affected since sowing requires the use of labour traditionally paid in cash); and

• an *uncertainty* shock because economic agents face imponderables related to the magnitude and duration of the cash shortage and the policy responses (perhaps causing consumers to defer or reduce discretionary consumption and firms to scale back investments).

A.   Impact on supply of cash and money and interest rates

1.42 Demonetisation is also very unusual in its monetary consequences. It has reduced sharply, the supply of one type of money—cash—while increasing almost to the same extent another type of money—demand deposits. This is because the demonetized cash was required to be deposited in the banking system. The striking divergence between the red and green lines in Figure 7 captures this effect. In the third quarter of FY2017 (when demonetisation was introduced), cash declined by 9.4 percent, demand deposits increased by 43 percent, and growth in the sum of the two by 11.3 percent (the corresponding figures in Q3 of the previous year were 12.5, 10.5, and 11.7 percent).

1.43 The price counterparts of this unusual aspect of demonetisation are the surge in the price of cash (inferred largely through queues and restrictions), on the one hand; and the decline in interest rates on the lending rate (based on the marginal cost of funds) by 90 basis points since November 9; on deposits (by about 25 basis points); and on g-secs on the other (by about 32 basis points) as indicated in Figure 8.

1.44 There is yet another dimension of demonetisation that must be kept in mind. By definition, all these quantity and price impacts will self-correct by amounts that will depend on the pace at which the economy is remonetized and policy restrictions eased. As this occurs, consumers will run down their bank deposits and increase their cash holdings. Of course, it is possible, even likely that the self-correction will not be complete because in the new equilibrium, aggregate cash holdings (as a share of banking deposits and GDP) are likely to be lower than before.

1.45 It is too early and difficult to quantify all the demand, supply and uncertainty effects but it is possible to quantify the impact on liquidity/cash. Figures 9a and 9b plot, respectively, the headline numbers of cash in circulation and our estimates of

Figure 7. Cash and demand deposit growth (%)

Note: CIC = Currency in Circulation   DD= Demand Deposits   Money=CIC+DD
* Projections for 2016-17 based on *Survey* Calculations
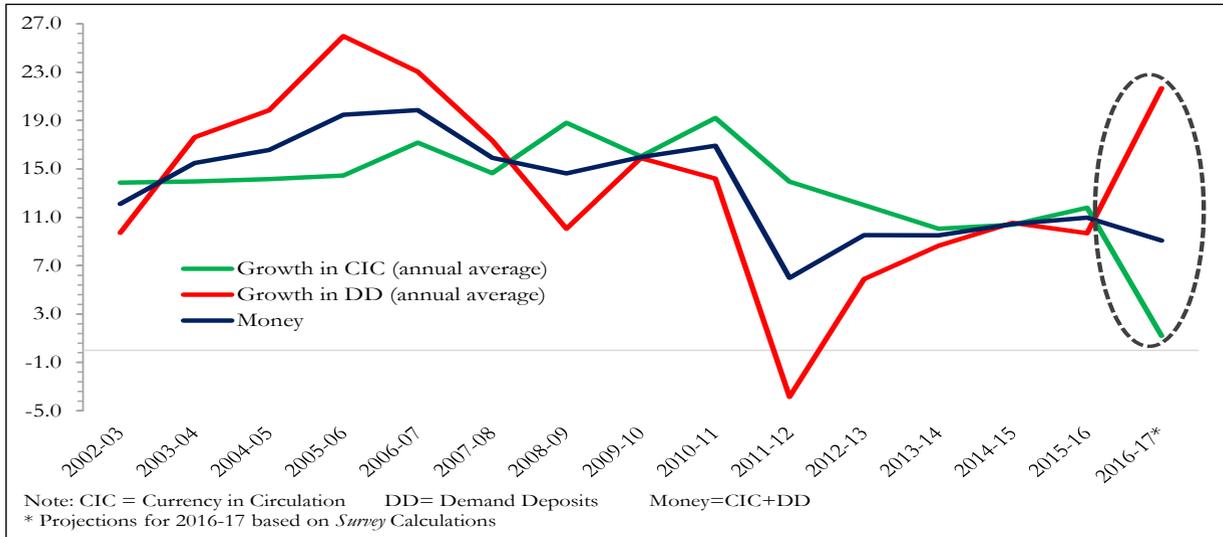
Source: **RBI and Survey Calculations.**

Figure 8. Movement of Repo Rate, Base Rate & Term Deposit Rate
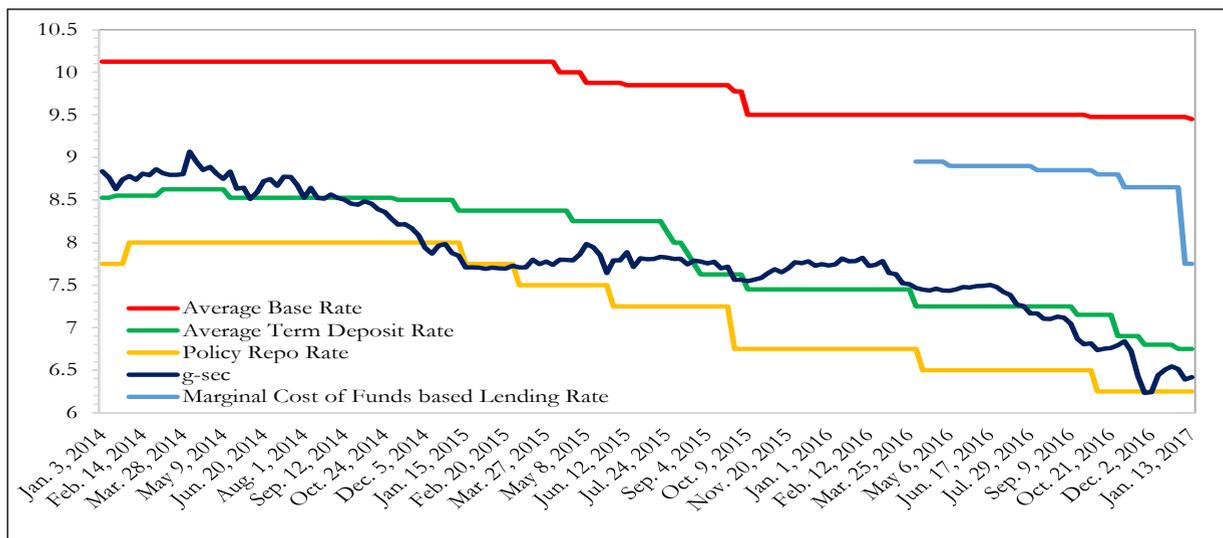
Source: **RBI.**

the effective cash in circulation measured in absolute terms and as a share of transactions demand.[5]

1.46 Three important findings flow from the Figures. First, the liquidity crunch (measured by the effective cash in circulation) was smaller than the headline numbers indicate. The headline numbers suggest that the currency decline after November 8 amounted to 62 percent by end-November, narrowing to 41 percent by end-December.

Our comparable numbers are 25 percent and 35 percent, respectively. In other words, the true extent of the cash reduction was much smaller than commonly perceived.

1.47 Second, the true peak of the currency – as opposed to the psychological – shock occurred in December, rather than November. In the first few weeks following the announcement, effective currency was sustained because most of the demonetized

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[5]   The headline numbers are based on taking out all the demonetised notes and adding the new notes. The *Survey's* estimates take account of other factors (detailed in Chapter 3).

Figure 9a. Effective Currency in Circulation (Market Perception)

Figure 9b. Effective Currency in Circulation as a proportion of Estimated Transactions Demand
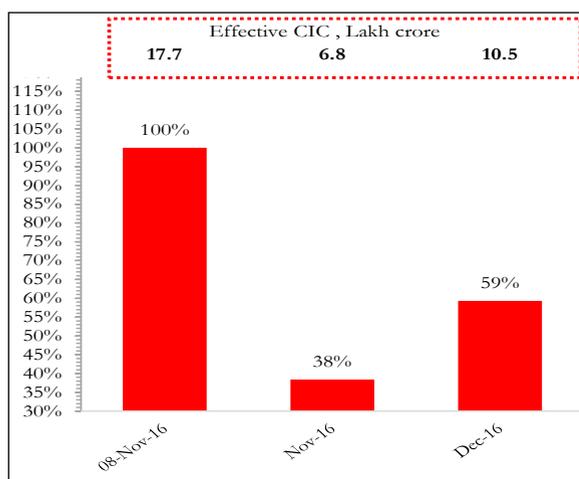
Source: **Survey calculations**

notes still served de facto and de jure as tender (for some purposes). But in December most of these notes were deposited in the banks, while the new Rs. 2000 notes that replaced them were not as liquid as the demonetized currency.

1.48 Finally, the numbers also show that the shortfall is now narrowing rapidly. At end-December 2016, effective currency was about 65 percent of estimated demand, but this is likely to rise to around 86 percent of demand by end-February.

1.49 With these basic facts in mind, we turn next to the macro-economic consequences of demonetisation thus far.

1.50 Figures 10 – 12, plot the interest rate, exchange rate, and stock market effects post demonetisation. Demonetisation coincided with the announcement of the US election results which also heralded a regime economic shift in the US. Hence, the impacts on India are compared with comparable emerging market countries to isolate, albeit imperfectly, the demonetisation effect.

1.51 The most dramatic effect relates to interest rates (Figure 10). In almost all major

countries, bond yields rose sharply after November 8, in the US by as much as 58 basis points as of January 19. In India, they had moved in the opposite direction by 32 basis points, a comparative swing of 90 basis points. Similarly, India's stock market had declined by 0.93 percent (Figure 11).

1.52 The decline in interest rates and the outlook triggered a large outflow of foreign portfolio investment, amounting to US$9.8 billion in November and December, with 60 percent of the decline accounted for by debt outflows (Figure 3c). Curiously, though, the impact on the exchange rate has been relatively modest (Figure 12), perhaps because of intervention by the RBI to stabilize the rupee.

B.   Impact on GDP

1.53 Anecdotal and other survey data abound on the impact of demonetisation. But we are interested in a macro-assessment and hence focus on five broad indicators:

• Agricultural (rabi) sowing;

• Indirect tax revenue, as a broad gauge of production and sales;

• Auto sales, as a measure of discretionary

Figure 10. Yields on Government Bonds (%)
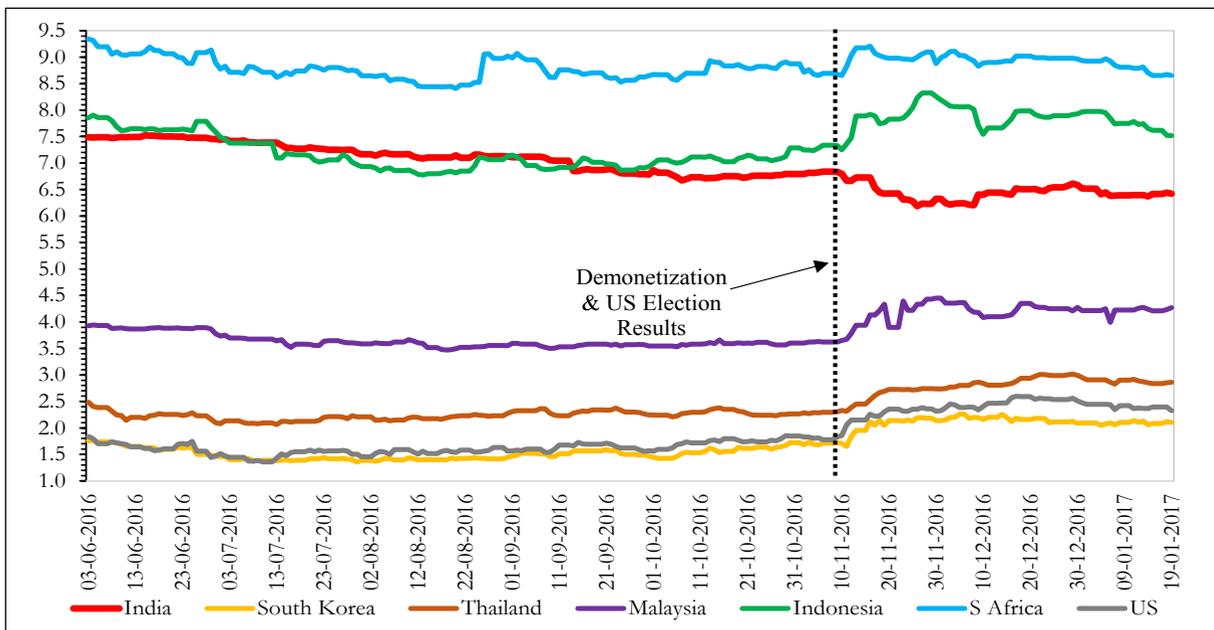
Source: **Bloomberg**

Figure 11. Equity Prices (November 7th = 100)
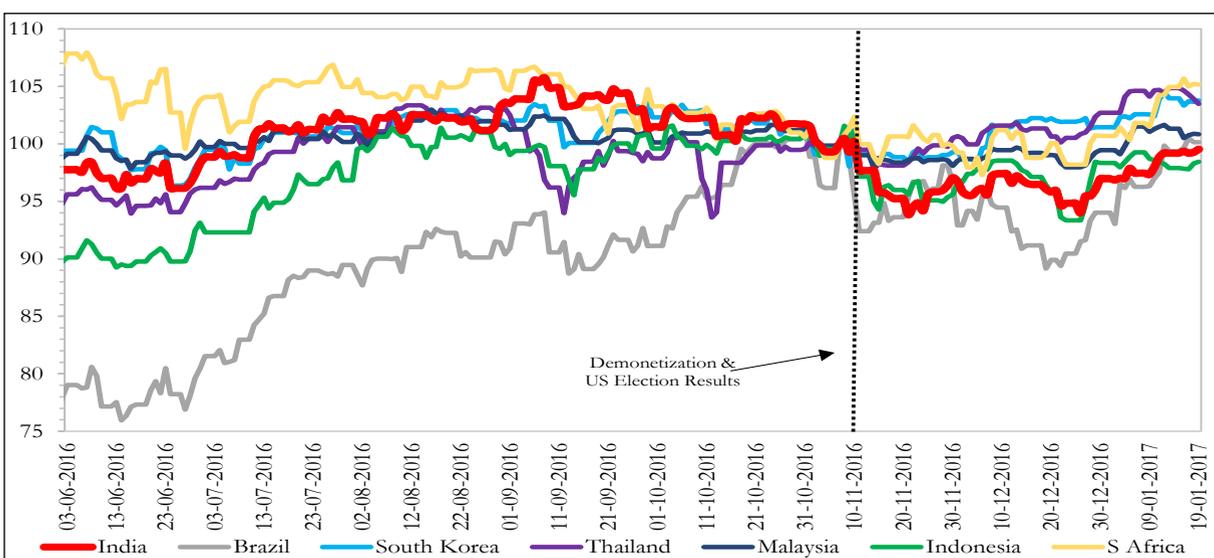
Source: **Bloomberg**

consumer spending and two-wheelers, as the best indicator of both rural and less affluent demand;

- Real credit growth; and

- Real estate prices

1.54   Contrary to early fears, as of January 15, 2017 aggregate sowing of the two major rabi crops—wheat and pulses (gram)--exceeded last year's planting by 7.1 percent and 10.7

percent, respectively (Figure 13). Favourable weather and moisture conditions presage an increase in production. To what extent these favourable factors will be attenuated will depend on whether farmers' access to inputs—fertilizer, credit, and labour—was affected by the cash shortage.

1.55 The other high frequency indicators present a somewhat mixed picture (Figures

Figure 12. Exchange Rates (Change vis a vis November 7th)
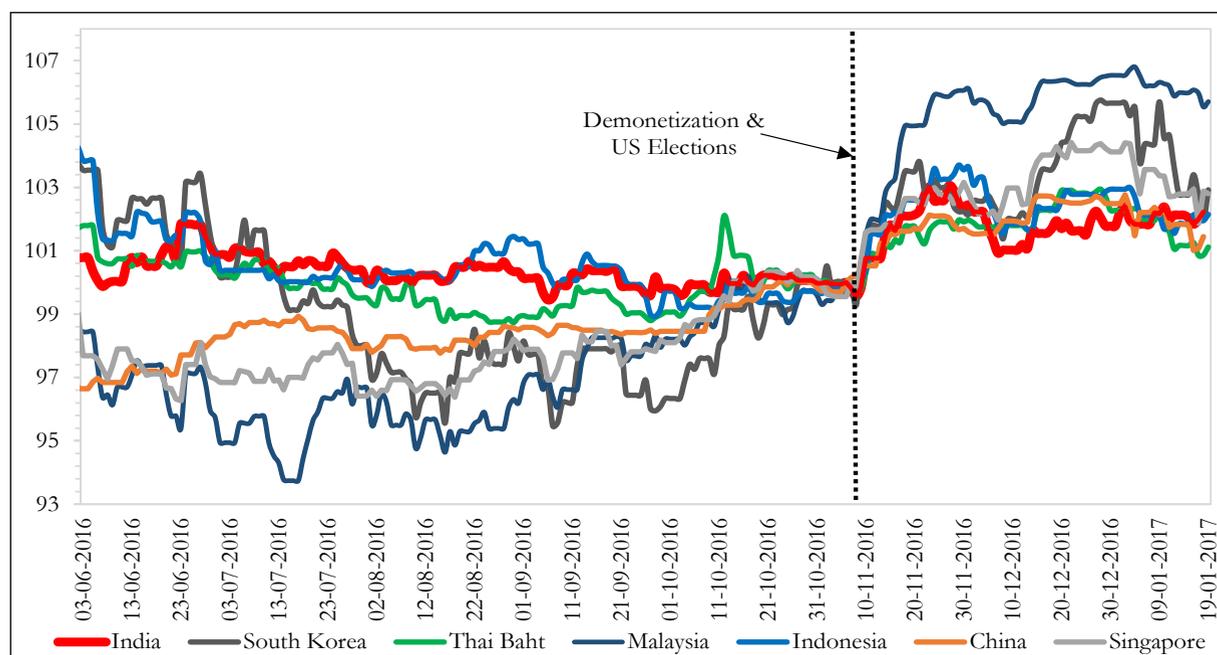
Source: **Bloomberg**

14-17). Passenger car sales and excise taxes bear little imprint of demonetisation; property markets in the major cities and sales of two-wheelers show a marked decline; credit was already looking weak before demonetisation, and that pre-existing trend was reinforced[6]. Indirect tax performance stripped of the effects of additional policy changes in 2016-17 look less robust than the headline number. Their growth has also been slowing but not markedly so after November 8. The balance of evidence leads to a conclusion that real GDP and economic activity has been affected adversely, but temporarily by demonetisation. The question is: how much?

1.56 To estimate a demonetisation effect, one needs to start with the counterfactual. Our best estimate of growth in the absence of demonetisation is 11¼ percent in nominal terms (slightly higher than last year's Survey forecast because of the faster rebound in WPI inflation, but lower than the CSO's advance

estimate of 11.9 percent) and 7 percent in real terms (in line with both projections).

1.57 To assess growth after demonetisation, a simply model relating money to GDP is employed. Then, making assumptions about the use of cash in the economy and the magnitude of the shift toward digital payments methods, we compute the impact on nominal and real GDP growth for FY2017. Given the uncertainty, we provide a range: a ¼ percentage point to 1 percentage point reduction in nominal GDP growth relative to the baseline of 11¼ percent; and a ¼ percentage point to ½ percentage point reduction in real GDP growth relative to the baseline of estimate of about 7 percent. Over the medium run, the implementation of the GST, follow-up to demonetisation, and enacting other structural reforms should take the economy towards its potential real GDP growth of 8 percent to 10 percent. For reasons -- good and self-serving -- the

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6   Weak credit growth was offset to a small extent by increase in other forms of private sector borrowing such as bonds, External Commercial Borrowings (ECBs), and commercial paper.

Figures 13. Rabi Sowing for Wheat and Gram (in million hectares)
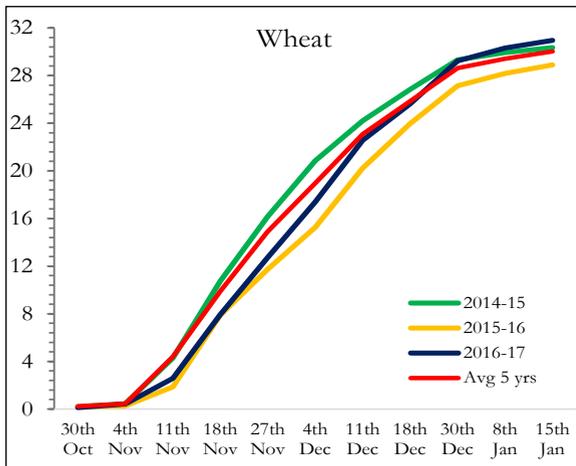
Source: **Ministry of Agriculture & Farmers Welfare**
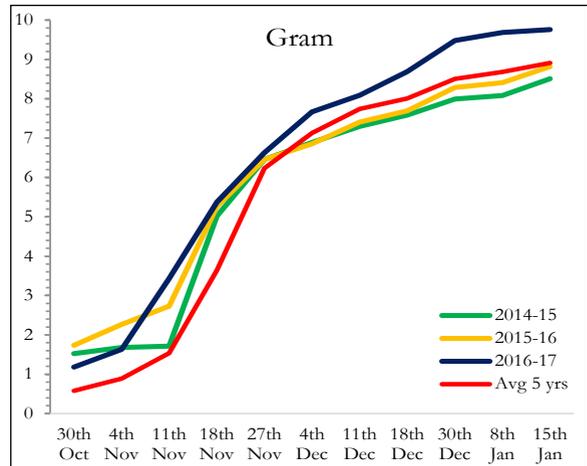
Source: **Ministry of Agriculture & Farmers Welfare**

Figure 14. Growth in Indirect Taxes (seasonally adjusted, per cent)
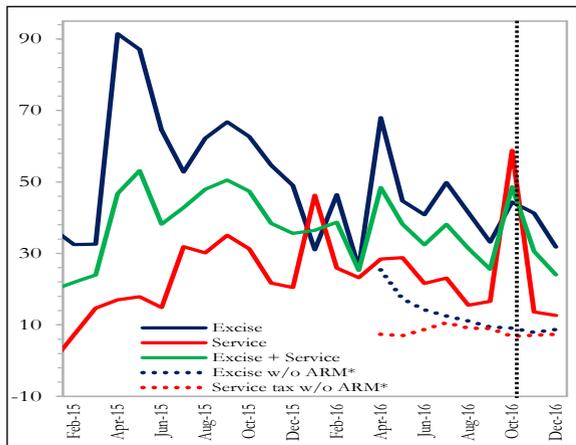
Source: **Department of Revenue and survey calculations**

* Cumulative growth

Figure 15. Growth in Automobile Sales (seasonally adjusted, per cent)
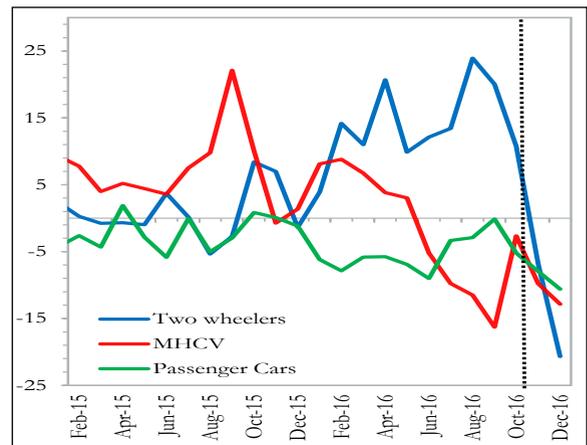
Source: **SIAM and survey calculations**

Figure 16. Real Credit Growth (seasonally adjusted, per cent)
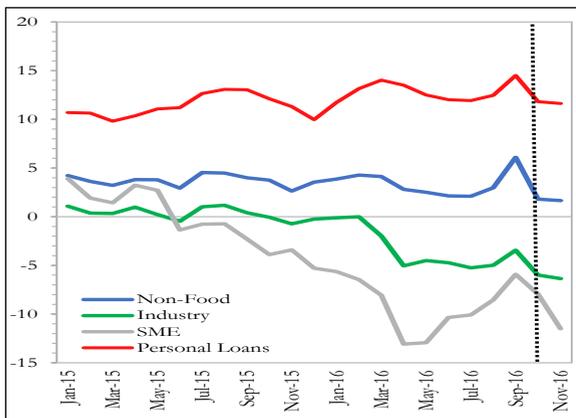
Source: **RBI and survey calculations**

Figure 17. Real Estate Prices (seasonally adjusted, per cent)[7]
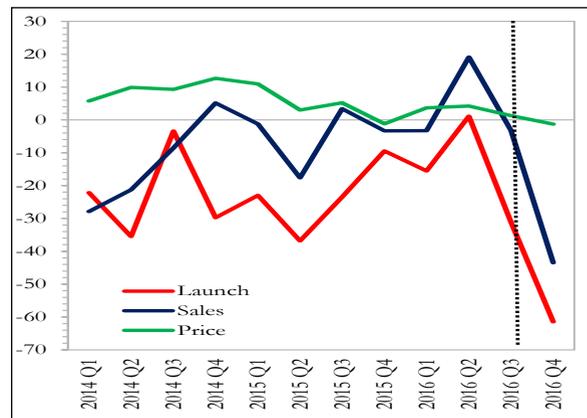
Source: **Knight Frank data and survey calculations**

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[7]   The quarterly data on real estate prices is on a calendar year basis.

projections for 2016-17 will be compared to those of others. The appropriate and not-so-appropriate ways of making these comparisons are discussed in Box 3.

1.58 Recorded GDP growth in the second half of FY2017 will understate the overall impact because the most affected parts of the economy—informal and cash-based— are either not captured in the national income accounts or to the extent they are, their measurement is based on formal sector indicators. For example, informal manufacturing is proxied by the Index of Industrial Production, which includes mostly large establishments. So, on the production or supply side, the effect on economic activity will be underestimated. The impact on the informal sector will, however, be captured insofar as lower incomes affect demand for formal sector output, for example, two-wheelers (Box 3).

1.59 These estimates are based almost entirely on the liquidity impact of demonetisation rather than on the wealth, aggregate supply and uncertainty effects. These effects are difficult to assess, even in qualitative terms. It is likely, for example, that uncertainty caused consumers to postpone purchases and firms to put off investments in the third quarter. But as the economy is remonetised and conditions normalise, the uncertainty should dissipate and spending might well rebound toward the end of the fiscal year. Similarly, there was likely a wealth shock in the initial months, as cash assets were turned into the banks (from where they were difficult to withdraw), but as restrictions are lifted this effect should disappear as well. Indeed, to the extent that some of this wealth has been transferred to those with higher propensity to spend, including the government, demand could eventually increase.

1.60 But this relatively benign outcome would materialise if, and only if, remonetisation is

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Box 3. Clarifying in Advance Possible Misinterpretations in GDP-Demonetisation Effects

The GDP growth estimates of the CSO and the Survey, and especially the demonetisation impact, could potentially give rise to a number of misinterpretations which must be anticipated and clarified.

For example, many commentators will be tempted to compare this year's real GDP growth estimate with last year's outturn of 7.6 percent. But this would be inappropriate, because many other factors have influenced this year's performance, quite apart from demonetisation. For example, international oil prices have stopped falling, providing less of an updraft to the economy. So growth would have inevitably differed, even without demonetisation.

Consequently, the appropriate benchmark would be an estimate of what real GDP growth would have been in the absence of demonetisation. A reasonable counterfactual to use would be the CSO's advance estimate of real GDP growth of 7.1 percent, which is close to the Survey's counterfactual, as well.

An even better counterfactual for comparison would be the level of nominal rather than real GDP growth. After all, demonetisation is mostly a nominal demand shock, so its effect in the first instance will be on nominal magnitudes. Moreover, as noted in the Mid-Year Economic Analysis (2015), the large wedge between CPI and WPI inflation has created difficulties in measuring the GDP deflator, which is used to converted nominal magnitudes into real GDP. While the wedge has converged to zero this year as per December 2016 data, nominal magnitudes remain a better basis for identifying the demonetisation effect until the wedge closes durably.

Therefore, the most appropriate gauge of demonetisation would be to compare actual nominal GDP growth -- or the Survey's estimate of it -- with the counterfactual nominal GDP growth without demonetisation. According to the CSO this counterfactual is 11.9 percent, while the Survey's estimate is around 11¼ percent.

Finally, commentators will be tempted to compare the *Survey's* real GDP growth estimates with those of other institutions such as the World Bank and International Monetary Fund. But their baseline growth for 2016-17 (pre-demonetisation) was much higher than CSO's Advance Estimates and the *Survey's*. Therefore the more appropriate comparision would be based on the *change* in the forecast, rather than its level.

effected expeditiously (Figure 9b shows that nearly 90 percent of transactions demand can be met before the end of the year), and decisive policy actions taken to clear away the uncertainty and dispel fears of over-zealous tax administration. Only then could the effects of demonetisation prove non-permanent in nature.

1.61 Finally, demonetisation will afford an interesting natural experiment on the substitutability between cash and other forms of money. Demonetisation has driven a sharp and dramatic wedge in the supply of these two: if cash and other forms are substitutable, the impact will be relatively muted; if, on the other hand, cash is not substitutable the impact will be greater.

V. OUTLOOK FOR 2017-18

A. Real GDP

1.62 Turning to the outlook for 2017-18, we need to examine each of the components of aggregate demand: exports, consumption, private investment and government.

1.63 As discussed earlier, India's exports appear to be recovering, based on an uptick in global economic activity. This is expected to continue in the aftermath of the US elections and expectations of a fiscal stimulus. The IMF's January update of its World Economic Outlook forecast is projecting an increase in global growth from 3.1 percent in 2016 to 3.4 percent in 2017, with a corresponding increase in growth for advanced economies from 1.6 percent to 1.9 percent. Given the high elasticity of Indian real export growth to global GDP, exports could contribute to higher growth next year, by as much as 1 percentage point.

1.64 The outlook for private consumption is less clear. International oil prices are expected to be about 10-15 percent higher in 2017 compared to 2016, which would create

a drag of about 0.5 percentage points. On the other hand, consumption is expected to receive a boost from two sources: catch-up after the demonetisation-induced reduction in the last two quarters of 2016-17; and cheaper borrowing costs, which are likely to be lower in 2017 than 2016 by as much as 75 to 100 basis points. As a result, spending on housing and consumer durables and semi-durables could rise smartly. It is too early to predict prospects for the monsoon in 2017 and hence agricultural production. But the higher is agricultural growth this year, the less likely that there would be an extra boost to GDP growth next year.

1.65 Since no clear progress is yet visible in tackling the twin balance sheet problem, private investment is unlikely to recover significantly from the levels of FY2017. Some of this weakness could be offset through higher public investment, but that would depend on the stance of fiscal policy next year, which has to balance the short-term requirements of an economy recovering from demonetisation against the medium-term necessity of adhering to fiscal discipline—and the need to be seen as doing so.

1.66 Putting these factors together, we expect real GDP growth to be in the 6¾ to 7½ percent range in FY2018. Even under this forecast, India would remain the fastest growing major economy in the world.

1.67 There are three main downside risks to the forecast. First, the extent to which the effects of demonetisation could linger into next year, especially if uncertainty remains on the policy response. Currency shortages also affect supplies of certain agricultural products, especially milk (where procurement has been low), sugar (where cane availability and drought in the southern states will restrict production), and potatoes and onions (where sowings have been low). Vigilance is essential to prevent other agricultural

products becoming in 2017-18 what pulses was in 2015-16.

1.68   Second, geopolitics could take oil prices up further than forecast. The ability of shale oil production to respond quickly should contain the risks of a sharp increase, but even if prices rose merely to $60-65/barrel the Indian economy would nonetheless be affected by way of reduced consumption; less room for public investment; and lower corporate margins, further denting private investment. The scope for monetary easing might also narrow, if higher oil prices stoked inflationary pressure.

1.69   Third, there are risks from the possible eruption of trade tensions amongst the major countries, triggered by geo-politics or currency movements. This could reduce global growth and trigger capital flight from emerging markets.

1.70   The one significant upside possibility is a strong rebound in global demand and hence in India's exports. There are some nascent signs of that in the last two quarters. A strong export recovery would have broader spillover effects to investment.

B.   Fiscal outlook

1.71   The fiscal outlook for the central government for next year will be marked by three factors. First, the increase in the tax to GDP ratio of about 0.5 percentage points in each of the last two years, owing to the oil windfall will disappear. In fact, excise-related taxes will decline by about 0.1 percentage point of GDP, a swing of about 0.6 percentage points relative to FY2017.

1.72   Second, there will be a fiscal windfall both from the high denomination notes that are not returned to the RBI and from higher tax collections as a result of increased disclosure under the Pradhan Mantra Garib Kalyan Yojana (PMGKY). Both of these are

likely to be one-off in nature, and in both cases the magnitudes are uncertain.

1.73   A third factor will be the implementation of the GST. It appears that the GST will probably be implemented later in the fiscal year. The transition to the GST is so complicated from an administrative and technology perspective that revenue collection will take some time to reach full potential. Combined with the government's commitment to compensating the states for any shortfall in their own GST collections (relative to a baseline of 14 percent increase), the outlook must be cautious with respect to revenue collections. The fiscal gains from implementing the GST and demonetisation, while almost certain to occur, will probably take time to be fully realized.

1.74   In addition, muted non-tax revenues and allowances granted under the 7th Pay Commission could add to pressures on the deficit.

C.   The macroeconomic policy stance for 2017-18

1.75   An economy recovering from demonetisation will need policy support. On the assumption that the equilibrium cash-GDP ratio will be lower than before November 8, the banking system will benefit from a higher level of deposits. Thus, market interest rates—deposits, lending, and yields on g-secs—should be lower in 2017-18 than 2016-17. This will provide a boost to the economy (provided, of course, liquidity is no longer a binding constraint). A corollary is that policy rates can be lower not necessarily to lead and nudge market rates but to validate them. Of course, any sharp uptick in oil prices and those of agricultural products, would limit the scope for monetary easing.

1.76   Fiscal policy is another potential source of policy support. This year the arguments may be slightly different from those of last

year in two respects. Unlike last year, there is more cyclical weakness on account of demonetisation. Moreover, the government has acquired more credibility because of posting steady and consistent improvements in the fiscal situation for three consecutive years, the central government fiscal deficit declining from 4.5 percent of GDP in 2013-14 to 4.1 percent, 3.9 percent, and 3.5 percent in the following three years. But fiscal policy needs to balance the cyclical imperatives with medium term issues relating to prudence and credibility.

1.77   One key question will be the use of the fiscal windfall (comprising the unreturned cash and additional receipts under the PMGKY) which is still uncertain. Since the windfall to the public sector is both one-off and a wealth gain not an income gain, it should be deployed to strengthening the government's balance sheet rather than being used for government consumption, especially in the form of programs that create permanent entitlements. In this light, the best use of the windfall would be to create a public sector asset reconstruction company (discussed in Chapter 4) so that the twin balance sheet problem can be addressed, facilitating credit and investment revival; or toward the compensation fund for the GST that would allow the rates to be lowered and simplified; or toward debt reduction. The windfall should not influence decisions about the conduct of fiscal policy going forward.

1.78   Perhaps the most important reforms to boost growth will be structural. In addition to those spelt out in Section 1--strategic disinvestment, tax reform, subsidy rationalization—it is imperative to address directly the twin balance sheet problem. As Chapter 4 makes clear, the problem is large, persistent and difficult, will not correct itself even if growth picks up and interest rates decline, and current attempts have

proved grossly inadequate. It may be time to consider something like a public sector asset reconstruction company.

1.79   Another area of reform relates to labour. Given the difficulty of reforming labor laws per se, the thrust could be to move towards affording greater choice to workers which would foster competition amongst service providers. Choices would relate to: whether they want to make their own contribution to the Employees' Provident Fund Organisation (EPFO); whether the employers' contribution should go to the EPFO or the National Pension Scheme; and whether to contribute to the Employee State Insurance (ESI) or an alternative medical insurance program. At the same time, there could be a gradual move to ensure that at least compliance with the central labour laws is made paperless, presenceless, and cashless.

1.80   On the expenditure side, the results in Chapter 9 make clear that existing government programs suffer from poor targeting. One radical idea to consider is the provision of a universal basic income discussed later. But another more modest proposal worth embracing is procedural: a standstill on new government programs, a commitment to assess every new program only if it can be shown to demonstrably address the limitations of an existing one that is similar to the proposed one; and a commitment to evaluate and phase down existing programs that are not serving their purpose.

VI.   Other Issues

A.   Redistribution: Universal Basic Income (UBI) as a radical new vision

1.81   Chapter 9 discusses India's extensive efforts at redistribution. The central government alone runs about 950 central sector and centrally sponsored sub-schemes which cost about 5 percent of GDP. Clearly,

there are rationales for many of them. But there may be intrinsic limitations in terms of the effectiveness of targeting. Figure 18 below provides evidence of misallocation: for six of the largest programmes, it contrasts the share of poor in India's districts (Figure 18a) with the shortfall in allocation of funds to them. (Figure 18b shows this shortfall defined as the difference in the share of fund allocation and the share of the poor.) What the two charts starkly convey is that often the very districts that house the most number of poor are the ones facing the greatest shortfall in the allocation of funds (these districts are consistently red across both charts). This misallocation has consequences: it results in exclusion of the deserving poor from access to government welfare benefits, leakages to non-poor and benefits to corrupt local actors. One of the key problems with many programs is that the take-up and effectiveness of targeting will be correlated with a state's institutional and implementation capacity. States such as Tamil Nadu and Andhra Pradesh, which do not necessarily have the largest number or proportion of poor avail themselves of the program to a greater extent than say Bihar which has many more poor people and a higher poverty rate. This is not an unusual phenomenon but almost intrinsic to anti-poverty and social programs. In such

cases, the risks of making "exclusion errors" -- that is leaving out the really deserving and needy -- are high.

1.82 For this and other reasons, the Survey (in Chapter 9) argues that serious consideration be given to the new idea of a universal basic income as a more effective way of achieving Mahatma Gandhi's objectives of "wiping every tear from every eye." A UBI has the merit that it will not necessarily be driven by take-up capability from below but given from above to all the deserving. In that sense, it is less likely to be prone to exclusion errors. And by directly transferring money to bank accounts, and circumventing multiple layers of bureaucracy, the scope for out-of-system leakages (a feature of PDS schemes) is low. Of course, there are considerable implementation challenges which will have to be debated and addressed. Chapter 9 lays out a number of possible ways forward, each with its own challenges. But the support for this idea from all ends of the ideological spectrum suggests that this idea should enter the realm of active policy discourse.

B. Exchange rate policy: Vigilance and new ways of monitoring

1.83 In the aftermath of the Global Financial Crisis, the eurozone crisis, and the China scare of 2015, international

Figure 18a. Share of Overall Poor

Source: **NSS 2011-12.**

Figure 18b. Shortfall in Allocation to Poor
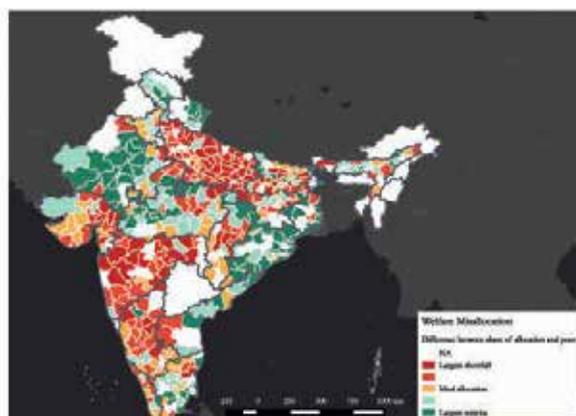
Source: **GOI and NSS 2011-12.**

trading opportunities are becoming scarcer. As discussed in Box 2, the world export-GDP ratio has declined since 2011, and going forward a sharp rise in the dollar is expected with a corresponding decline in the currencies of India's competitors, notably China and Vietnam. Already, since July 2015, the yuan has depreciated about 11.6 percent (December 2016 over July 2015) against the dollar and as a consequence the rupee has appreciated by 6 percent against the yuan (Figure 19); the compulsions of delaying its rebalancing strategy might lead to a weak currency policy going forward, especially if there are continuous pressures for capital outflows (see Economic Survey, 2016, Box 1).

1.84 Given India's need for exports to sustain a healthy growth rate, it is important to track India's competitiveness.

1.85 A second reason to review India's competitiveness is the rise of countries such as Vietnam, Bangladesh, and the Philippines that compete with India across a range of manufacturing and services.

1.86 Has India maintained exchange rate competitiveness and what should it do going forward?

1.87 A simple look at the indices of real effective exchange rates suggests that since the crisis of 2013, India's rupee has appreciated by 19.4 percent (October 2016 over Jan 2014) according to the IMF's measure, and 12.0 percent according to the RBI's measure. Both these indices could be potentially misleading. The RBI's measure for example assigns an unusually high weight to the United Arab Emirates as it is a major source of India's oil imports, and a transshipment point for India's exports. But little of this trade has to do with competitiveness. More generally, both the RBI and the IMF look at overall trade rather than just trade in manufactures, or even more appropriately for some policy purposes, labor-intensive manufacturing. As a result, heavy weight is given to the euro, even though it is really Asian countries, not Europe, that are India's main competitors.

1.88 Accordingly, we construct a new real exchange rate index that focusses on India's manufacturing competitors. Essentially, we give a higher weight to those countries that have become highly competitive in manufacturing since the Global Financial Crisis, measured by their change in global export market share. The details of the index construction are provided in Appendix 1 but here we highlight the findings. Figure 20 shows the IMF and

Figure 19. Yuan-Dollar and Rupee-Yuan Bilateral Exchange Rates

Source: **RBI.**

Figure 20. Real Effective Exchange Rate Comparsions (2014=100)
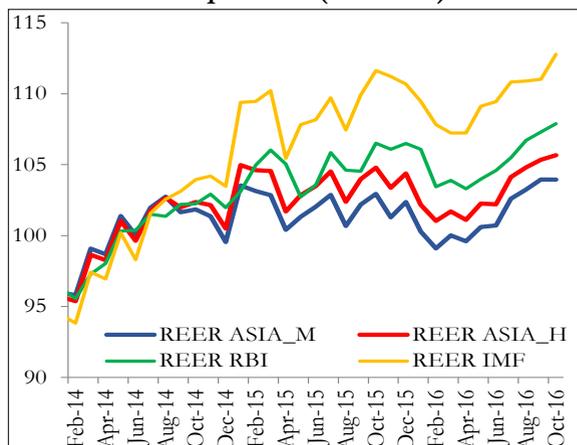
Source: **RBI.**

RBI (36-currency) indices against two others that we have constructed. In one (REER-ASIA-M) we given moderately high weight, and in a second (REER-ASIA-H) significantly greater weight, to India's competitors (China, Vietnam, the Philippines) that have gained market share since 2010.

1.89 The surprising finding is that the IMF and RBI indices overstate the rupee's appreciation since 2014, largely because they give such a large weight to the euro, which has been exceptionally weak. When the rupee is compared mainly to the comparatively stronger Asian currencies both REER-ASIA-M and REER-ASIA-H show the loss of competitiveness has been much less, 8.3 percent and 10.4 percent respectively (October 2016 over January 2014).

1.90 In other words, India has managed to maintain export competitiveness despite capital inflows and inflation that has been greater than in trading partners. Reflecting this, India's global market share in manufacturing exports has risen between 2010 and 2015.

1.91 Going forward, however, the headline IMF measure could provide a misleading picture but in the opposite direction. For example, if the yuan (and the currencies of other Asian countries) depreciates against the dollar, while other rates, especially the euro-dollar rate do not move significantly (possible given the euro is close to all-time lows), then the IMF index which under-weights the Asian currencies will suggest that the rupee is maintaining competitiveness whereas in fact it may be losing it. The policy implication is that if India is concerned about competitiveness and the rise of exporters in Asia, it should monitor an exchange rate index that gives more weight to the currencies of these countries.

C. Trade Policy

1.92 The environment for global trade policy has probably undergone a paradigm shift in the aftermath of Brexit and the US elections. These are likely to be exacerbated by macro-economic developments in the United States, and in particular the sharp rise in the dollar that is already under way: since November 8, 2016 the dollar has appreciated by 5.3 percent by end December before recovering to 3.1 percent in January 2017 in nominal terms against an index of partner countries. The history of US trade policy is clear that the most protectionist phase (mid to late 1980s) coincided with the sharp rise in the dollar in the wake of the tightening of monetary and relaxation of fiscal policy in that period.

1.93 At a time of a possible resurgence of protectionist pressures and India's need for open markets abroad to underpin rapid economic growth domestically, it is increasingly clear that India and other emerging market economies must play a more proactive role in ensuring open global markets. A vacuum in international trade leadership is being created which must be filled with voices and influences such as India's that favor open markets. This will, of course, require that India also be more willing to liberalize its own markets, a greater "openness to its own openness."

1.94 Two specific opportunities arise. First, given the discussion in Chapter 7 on the need to promote labor-intensive exports, India could more proactively seek to negotiate free trade agreements with the UK and Europe. The potential gains for export and employment growth are substantial. Based on work initiated in last year's Survey, we calculate additional $3 billion in the apparel and leather and footwear sectors and additional employment of 1.5 lakhs (Table 1).

Table 1. Potential additional exports and jobs of FTAs with EU and UK FTA

	Apparels		Leather Goods		Footwear	
	Incremental Exports ($Mn)	Gain in Employment (number)	Incremental Exports ($Mn)	Gain in Employment (number)	Incremental Exports ($Mn)	Gain in Employment (number)
EU	1483.6	76853	416.9	18542	216.9	9966
UK	603.3	31176	103.8	4615	95.3	4381
Total	**2086.9**	**108029**	**520.7**	**23156**	**312.2**	**14347**

Source: Survey Calculations.

1.95 At the same time, with the likely US retreat from regional initiatives such as the Trans-Pacific Partnership (TPP) in Asia and the Trans-Atlantic Trade and Investment Partnership (TTIP) with the EU, it is possible that the relevance of the World Trade Organization might increase. As a major stateholder and given the geo-political shifts under way, reviving the WTO and multilateralism more broadly could be pro-actively pursued by India.

D.   Climate Change and India

1.96 The Paris Agreement on climate change in December 2015 has been one of the shining recent examples of successful international cooperation. The focus will now shift to implementing the agreements. There is universal agreement (Stern, 2006, Weitzman, 2007 and Nordhaus) that a key component to tackling climate change will be to price carbon. How has India fared on this score? This is an important question given the major setback to the cause of climate change created by the large decline in petroleum prices since June 2014.

1.97 Table 2 and Figure 21 provide some answers. Since June 2014, when international oil prices started declining, India has increased its excise duties from Rs 15.5 per litre to Rs 22.7 per litre as of December 2016 for branded petrol and from Rs 5.8 per litre to Rs. 19.7

Figure 21. Implicit Carbon Tax (US$/tCO2)
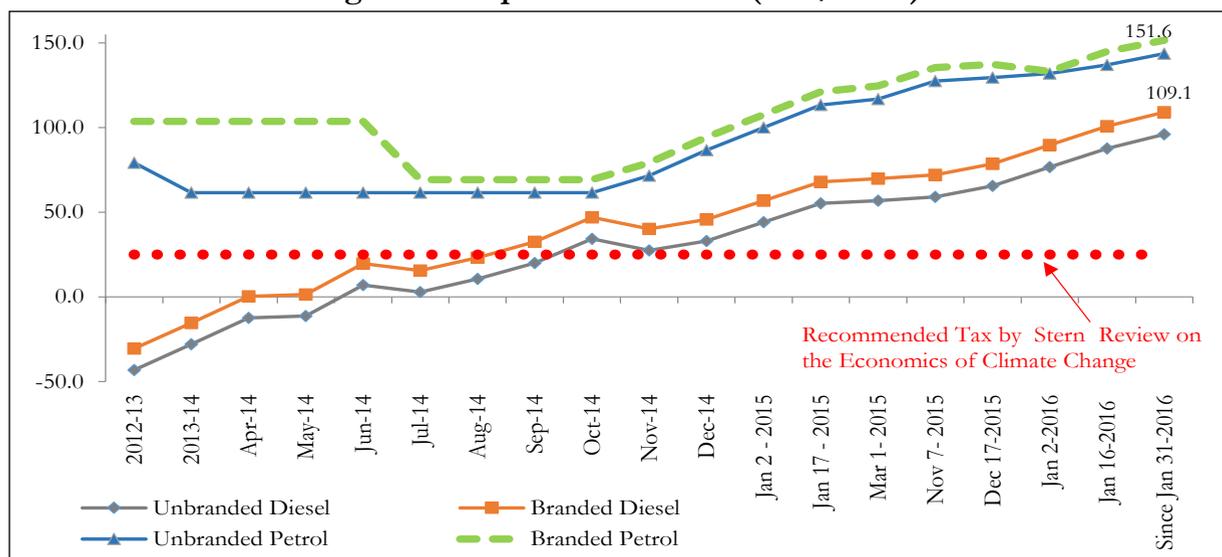
Source: Own calculations

Table 2. Domestic petroleum tax in major countries (dollars per litre)

S.No	Country	Diesel				Petrol			
		Jun-14	Jan-16	Nov-16	*% change (Nov 2016 over June 2014)*	Jun-14	Jan-16	Nov-16	*% change (Nov 2016 over June 2014)*
1	India	0.00	0.38	0.38	large no	0.21	0.54	0.53	152.3
2	USA	0.13	0.14	0.14	5.4	0.11	0.12	0.12	6.3
3	China*	0.30	0.28	0.28	-6.7	0.32	0.34	0.34	6.3
4	Japan	0.39	0.34	0.35	-9.7	0.63	0.55	0.57	-8.9
5	Canada	0.29	0.21	0.23	-21.2	0.37	0.27	0.29	-21.2
6	France	0.60	0.74	0.75	25.1	1.18	0.93	0.92	-22.0
7	Germany	0.64	0.68	0.69	8.0	1.24	0.93	0.92	-25.5
8	Italy	0.84	0.91	0.91	8.0	1.42	1.07	1.05	-26.2
9	Spain	0.50	0.58	0.59	17.0	0.97	0.71	0.71	-26.9
10	UK	0.98	1.08	0.97	-1.1	1.35	1.08	0.96	-28.8

Source: **For G7 countries International Energy Agency (http://www.iea.org/statistics/topics/pricesandtaxes/) otherwise, Ministry of Finance estimates**

per litre for branded diesel. Table 2 quantifies the climate change effort undertaken by the major G-20 countries and India. The results are striking.

1.98 The increase in petrol tax has been over 150 percent in India. In contrast, the governments of most advanced countries have simply passed on the benefits to consumers, setting back the cause of curbing climate change. As a result, India now outperforms all the countries except those in Europe in terms of tax on petroleum and diesel.

1.99 Figure 22 shows the implied carbon tax resulting from India's actions. Having decisively moved from a regime of carbon subsidies, it is now de facto imposing a carbon tax on petroleum products at about US$150 per ton, which is about 6 times greater than the level recommended by the Stern Review on Climate Change.

1.100   Finally, it is worth seeing India's fossil fuel use from longer term perspective. How is India faring relative to other countries at comparable stages of economic development in terms of the share of fossil fuel use in overall energy consumption? Figure 25 plots this share against a country's per capita GDP in purchasing power terms. So far, and for the conceivable future, India's reliance on fossil fuels remains well below China (the most relevant comparator) but also below the US, UK and Europe at comparable stages of development (this echoes the commitment made by India at Heiliengdamm that it would never exceed the per capita emission of advanced countries). Going forward, of course, India needs to bend the curve to ensure that its reliance on fossil fuels declines and keeping it below the level of other countries so that its good global citizenship on climate change can continue.

E.   ENSURING WOMEN'S PRIVACY

1.101   In each of the last two years, the Economic Survey has focused on a dimension of concern to women. In FY2015, it highlighted the violence against women related to coercive family planning methods. In FY2016, the Survey featured a chapter on "Mother and Child," emphasizing the importance of government interventions to

Figure 22. Fossil Fuel as a share of Energy Consumption/Demand and GDP per capita (1971 - 2040)
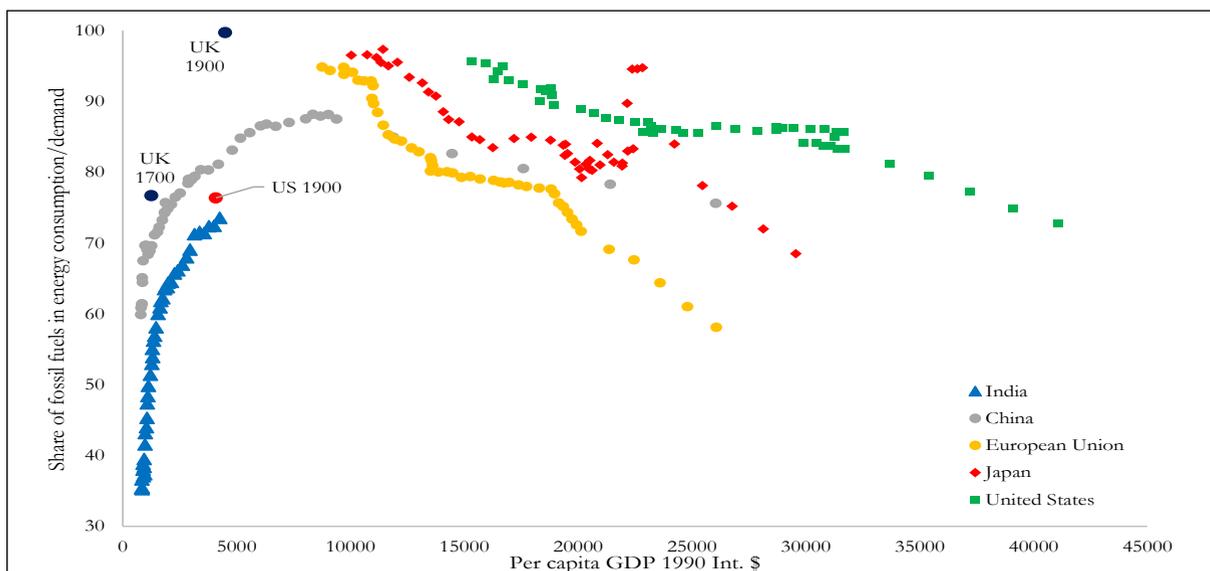
Data *Source:* Projections of Shares of fossil fuel is from share of fossil fuels in TPED for 2020, 2025, 2030, 2035and 2040 computed from World Energy Outlook 2016 data and projections (New Policies Scenario) for Coal, Oil and Gas

GDP per capita taken from The Maddison-Project, http://www.ggdc.net/maddison/maddison-project/home. htm, 2013 version. Per capita GDP for EU calculated from the above source does not include Malta, Cyprus and Luxembourg

Share of fossil fuels in energy consumption, 1971 onwards till most recent available from World Bank Data

Share of fossil fuels for US for the year 1900 from US Energy Information Administration/ Annual Energy Review 2011

Share of fossil fuels for UK from Warde (2007)[8]. Shares pertain to those of England and Wales

ensure long term well-being of women and children.

1.102 While the relationship between sanitation practices and health outcomes has been well documented in the literature (Spears and Cummings (2013)), this section illustrates the disproportionate burden that falls on women and girls due to deficiencies in sanitation facilities.

1.103 This burden on women can take several forms: threat to life and safety while going out for open defecation, reduction in food and water intake practices to minimize the need to exit the home to use toilets, polluted water leading to women and children dying from childbirth-related infections, and

a host of other impacts.

1.104 Women's personal hygiene is therefore important not just for better health outcomes but also for the intrinsic value in conferring freedom that comes from having control over their bodies, a kind of basic right to physical privacy. Put differently, impeded access may well be creating "gender-based sanitation insecurity."

1.105 Lack of access to sanitation is widespread and well-documented. In 2011, the Census reported that more than half of the country's population defecated in the open. More recent data shows that about 60 percent of rural households (Ministry of Drinking Water and Sanitation- 2017[9];

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[8]   Paul Warde (2007), *Energy Consumption in England and Wales:* 1500-2000 published by Consiglio Nazionale delle Ricerche (CNR), Istituto di Studi sulle Società del Mediterraneo (ISSM)

[9]   Source: Swachh Bharat Mission website: http://www.sbm.gov.in (accessed on January 21, 2016)

up from 45% NSS 2015) and 89 per cent of urban households (NSSO 2016)[10] have access to toilets - a considerably greater coverage than reported by the Census 2011[11].

1.106 Given this general lack of access, what additional challenges do women face? A rapid study conducted in 2016 by WASH Institute and Sambodhi[12] for this Economic Survey provides some insight. The details of the survey design are in Appendix 2. Note that the facts listed here do not imply a causal relationship – this will be separately addressed in research studies currently underway[13].

The Disproportionate Burden on Women

- *Households without toilets*: For the majority of households without toilets, the Rapid Survey suggests some worrisome trends (Figure 23): 76 percent of women had to travel a considerable distance[14] to use

these facilities. 33 percent of the women have reported facing privacy concerns and assault while going out in the open. In the face of these considerable risks, the number of women who have reduced consumption of food and water are 33 percent and 28 percent respectively of the sample. Apart from illnesses, disruptions and deficiencies in the short-term, reduced food and water intake also causes severe long-term debilitating impacts on health, and impedes in cognitive development of girls and infants. Many studies (Singh et. al 2008; Curtis and Minjas 1985) have similarly emphasized that women and men going out into the open have to cope also with exposure to natural elements, snake-bites, etc.

- *Household with toilets*: In households with

Figure 23. Potential Consequences of Not Having Toilets for Women
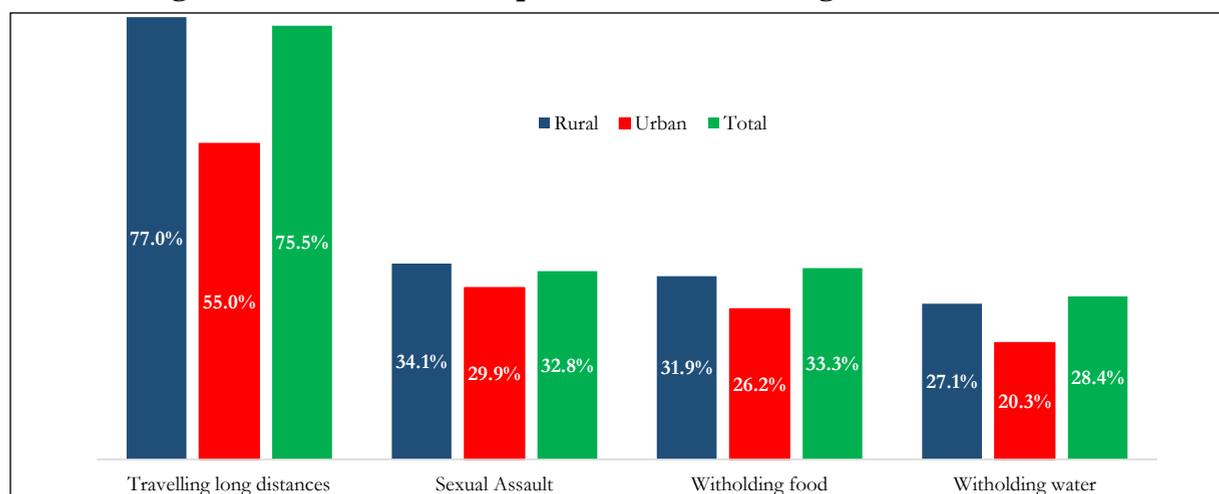
Source: **Rapid Survey (2016).**

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[10] Swachhata Status Report, National Sample Survey Organisation, 2016

[11] The differences between Census-2011 and more recent data sources are in large part due to the rapid acceleration of toilet provision under the Swachh Bharat Mission

[12] The Rapid Survey on Gender Norms and Sanitation and Hygiene, and Implications by life-stage (adolescent girls, pregnant women, and mothers of children under 5), covered 10 states with different levels of sanitation coverage across 5 geographical zones.

[13] All proportions cited in this section are conditional means after controlling for other confounding factors including caste, religion, Above Poverty Level or Below Poverty Level status, rural/urban, gender, and Individual Household Latrine (IHHL) availability. All numbers cited are statistically significant at 95% confidence interval.

[14] The rapid survey captured long distances as the respondent's self-reported variable.

toilets, women report far greater use of these in-home facilities than men, suggesting that there may be a greater demand amongst women. Coffey et al (2016) found a revealed preference for households to defecate in the open because of a variety of factors (caste and soak pit latrines, especially). But it appears from the Rapid Survey that for households that do have a toilet, patterns of toilet usage are better for women than men. This fact is also independently confirmed in the NSSO Survey (2016). Figure 24 shows that, of the women in households with toilets, 62 percent reported use of the toilet "always" (only 52 percent men reported exclusive usage in such households). In rural households, the proportion of regular use by women was 56 percent (men, 43 percent); and in urban households, 75 percent of women reported exclusive usage (men, 72 percent). What this pattern of usage suggests is that women and girl-children could take a key leadership role to play in Swachh Bharat's objective of creating defecation free communities, by nudging men and boys of the household to change their own defecation behaviors.

1.107   The first step to tackling this issue is to acknowledge the problem. This means generating more information on a topic that is

Figure 24. Usage of Toilets by Women
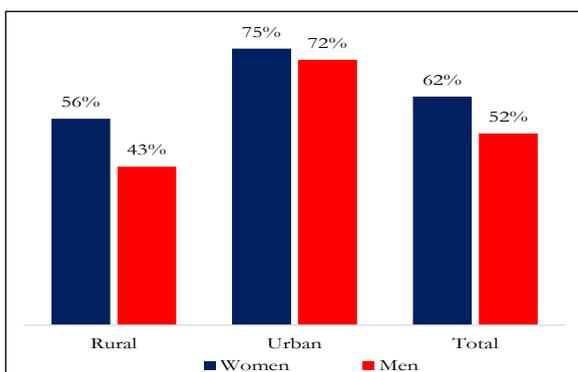
Source: **Rapid Survey (2016).**

socially considered taboo or ignored. Second, recognizing the positive behavioral patterns that women demonstrate upon obtaining access to sanitation services is critical. Equally, when these services are denied, they face considerable insecurity and nutritional risks. For this reason, ensuring safe and adequate sanitation, water security and hygiene—the objectives of Swachh Bharat—as part of a broader fundamental right to privacy is becoming a serious policy issue.

F.   INDIA'S SOON-TO-RECEDE DEMOGRAPHIC DIVIDEND

1.108   2016 was a turning point in global demographic trends. It was the first time since 1950 that the combined working age (WA) population (15-59) of the advanced countries declined (Ip(2015)). Over the next three decades, the United Nations (UN) projects that China and Russia will each see their WA populations fall by over 20 percent. India, however, seems to be in a demographic sweet spot with its working-age population projected to grow by a third over the same period; always remembering that demography provides potential and is not destiny.

1.109   Economic research in the last two decades has suggested that the growth surges in East Asia may have been driven by demographic changes (Bloom et al. (2003)). In particular, countries with large working age populations relative to the overall population appear to benefit from greater economic dynamism. Younger populations are more entrepreneurial (adding to productivity growth); tend to save more, which may also lead to favourable competitiveness effects (Prasad, Rajan and Subramanian (2007), Wei and Zhang (2011)); and have a larger fiscal base because of economic growth and because there are fewer dependents (children and elderly) for the economy and government to support (Bloom et al. (2010)).

1.110 Theory suggests that the specific variable driving the demographic dividend is the ratio of the working age to non-working age (NWA) population-- an intuitive number, because a magnitude of 1 essentially means that there are as many potential workers as dependents. Both the level and the growth of the WA/NWA ratio have a positive impact on economic activity (Bloom and Canning (2004)).

Distinctive Indian Demography

1.111 Figure 25 compares the evolution of the WA/NWA ratio between 1970 and 2050 (based on the medium variant population projections by the UN) for India, Brazil, Korea, and China. It illustrates three distinct features about the Indian demographic profile that have key implications for the growth outlook of India and the Indian states.

1.112 First, India's demographic cycle is about 10-30 years behind that of the other countries, indicating that the next few decades present an opportunity for India to catch up to their per capita income levels.

1.113 In addition, India's WA to NWA ratio is likely to peak at 1.7, a much lower level than Brazil and China, both of which sustained a ratio greater than 1.7 for at least 25 years. Finally, India will remain close to its peak for a much longer period than other countries.

1.114 This distinctive pattern has a cause and consequence. The cause is shown in Figure 26A, which plots the total fertility rate (TFR) for comparable countries and groups of countries. The figure illustrates that all these countries started the post-World War II era with roughly the same very high TFR rates. In China and Korea, TFR then declined rapidly to below-replacement levels (less than

2 children per female), causing the share of working age population to rise until the early 2000s, then to fall as ageing began to set in. In India, however, the decline in TFR has been much more gradual.

1.115 The growth consequence is the following. Unlike the East Asian successes, India should not expect to see growth surges or growth decelerations of the magnitudes experienced by the East Asian countries, at least not on account of the demographic dividend. This does not rule out accelerations for other reasons, related to reforms and strength of domestic institutions. At the same time, India might be able to sustain high levels of growth (on account of the demographic dividend) for a longer time.

1.116 A final distinctive feature in India is the large heterogeneity among the states in their demographic profile and evolution. Figure 25B shows the evolution in the working age population for ten Indian states, which should be viewed against the comparable evolution for the other emerging market countries (shown in Figure 25A).[15]

1.117 There is a clear divide between peninsular India (West Bengal, Kerala, Karnataka, Tamil Nadu and Andhra Pradesh) and the hinterland states (Madhya Pradesh, Rajasthan, Uttar Pradesh, and Bihar). The peninsular states exhibit a pattern that is closer to China and Korea, with sharp rises and declines in the working age population. The difference, of course, is that the working age ratio of most of the peninsular states will peak at levels lower than seen in East Asia (West Bengal comes closest to Korea's peak because of its very low TFR). In contrast, the hinterland states will remain relatively young and dynamic, characterized by a rising working age population for some time,

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[15] New demographic projections for the states from 2011-2051, based on the latest fertility and mortality indicators, have been done by Professor S Irudaya Rajan and Dr S Sunitha at the Center for Development Studies, Kerala.

Figure 25. Ratio of Working Age to Non-Working Age Population
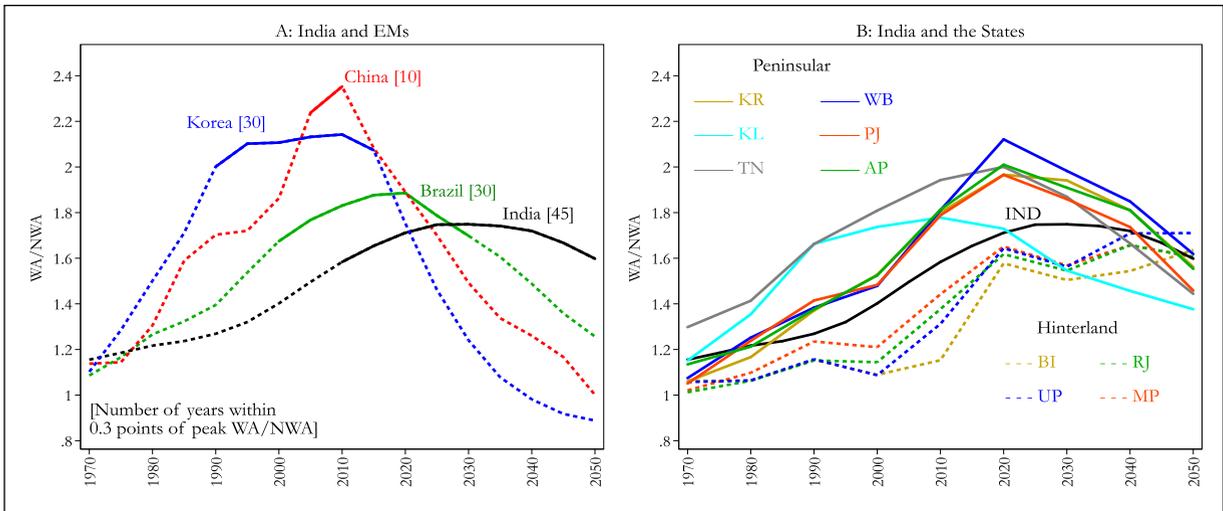
Figure 26. India's Gradual TFR Decline: A Double-Edged Sword
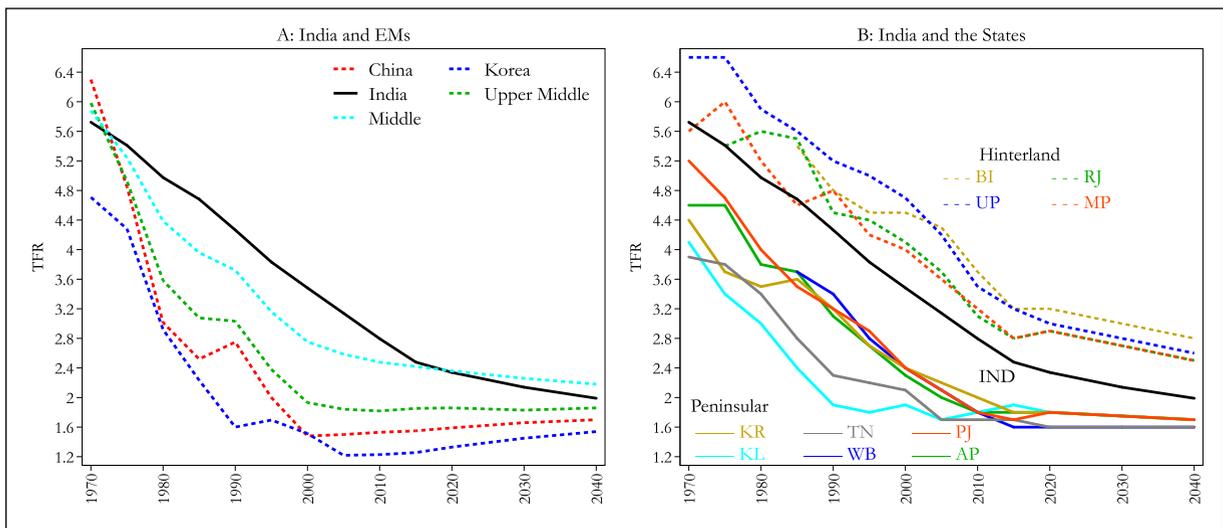
Source: **Panel A: UN World Population Prospects (2015). Panel B: Census of India and projections by Prof. Irudaya Rajan, CDS, Kerala (for Fig. 28 & 29).**

plateauing out towards the middle of the century.

1.118   This divide in the WA/NWA ratio of the peninsular and the hinterland states can be traced to the difference in their levels of TFR (see Fig. 26B, which is the fertility counterpart of Fig. 25B). Demographically speaking, therefore, there are two Indias, with different policy concerns: a soon-to-begin-ageing India where the elderly and their needs will require greater attention; and a young India where providing education,

skills, and employment opportunities must be the focus. Of course, heterogeneity within India offers the advantage of addressing some of these concerns via greater labour mobility, which would in effect reduce this demographic imbalance.

Growth Consequences

1.119   This demographic pattern will have two important growth consequences. First, it seems that the peak of the demographic dividend is approaching fast for India. Figure

28A shows that this peak will be reached in the early 2020s for India as a whole; Figure 28B shows that peninsular India will peak around 2020 while hinterland India will peak later (around 2040).

1.120   Table 3, based on the methodology in Mody and Aiyar (2011), calculates the estimated demographic dividend for India (the *additional* growth due to demographic factors alone) for the previous decade and for the next four. The magnitudes peak in 2011-20 at 2.6 percentage points and start declining thereafter. The incremental growth boost in the 2020s, for example, is estimated to be about 1.8 percentage points. In other words, India will approach, within four years, the peak of its demographic dividend. (Note: this does not mean that the demographic dividend will turn negative; rather, the positive impact will slow down.)

Table 3. Projected Demographic Dividend for India

Decade	Additional average annual PCI growth due to the demographic dividend (DD)	WA/NWA (WA/Total Population) at the start of decade
2001-10	1.44	1.33 (57.1)
2011-20	2.62	1.53 (60.5)
2021-30	1.81	1.81 (64.4)
2031-40	1.92	1.72 (63.2)
2041-50	1.37	1.72 (63.3)

Source: **Survey Calculations.**

1.121   The second growth consequence relates to the distributional impacts across India. One way of assessing this is to compare the demographic dividend for the different states in terms of extra growth against their current level of per capita GDP.

Figure 27. Per Capita Income in 2011 and the Demographic Dividend (2011-31)[16]
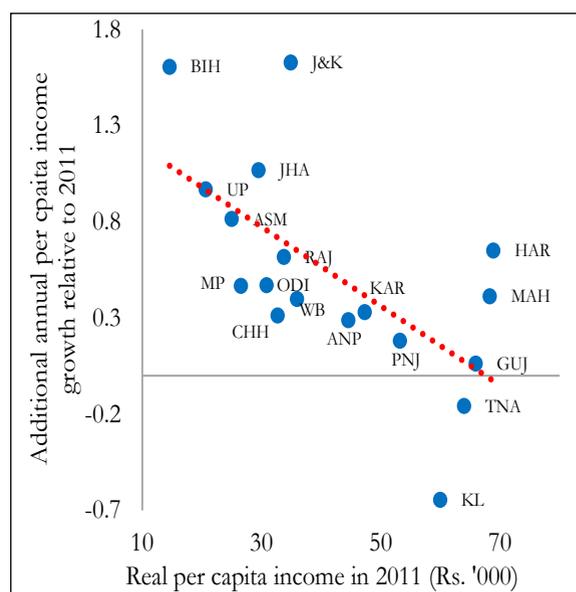
Source: **Survey Calculations.**

Figure 27 plots these two variables. The good news is that there is a negative relationship, which means that on average the poorer states today have more of a growth dividend ahead of them. This means the demographic dividend could help income levels across states converge.

1.122   The encouraging overall pattern masks some interesting outliers. Bihar, Jammu and Kashmir, Haryana, and Maharashtra are positive outliers in that they can expect a greater demographic dividend over the coming years than would be suggested by their current level of income. This extra dividend will help Bihar converge, while already rich Haryana and Maharashtra will pull further away from the average level of income per capita in India. On the other hand, Kerala, Madhya Pradesh, Chhatisgarh, and West Bengal are negative outliers: their future dividend is relatively low for their level of income. This will make the poorer states

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[16]   It is assumed that every state earns the same growth dividend from an increase in the WA/NWA ratio as the all-India average. This is a critical assumption, and one that may not be true, since the actual dividend will depend on the governance, the policy framework in place at the state level, and also on internal migration between states.

fall back, unless offset by robust reforms and growth, while the relatively rich Kerala will probably converge to the average as its growth momentum declines rapidly.

1.123 The growth boost from the demographic dividend is likely to peak within the next five years, as India's share of working age population plateaus. However, India may not see the sharp growth decelerations experienced by the East Asian countries because its working age ratio will fall much more gradually than those in other countries. In addition, the sharp demographic differences between peninsular India and hinterland India will generate wide differences in the timing of the peak, as well as opportunities to attenuate demographic imbalances via greater labour mobility (see Chapter 12). Even so, the urgency of reforms to maximise this soon-to-recede dividend cannot be overstated.

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APPENDIX 1. CURRENCY WEIGHTS FOR ALTERNATIVE EXCHANGE RATE INDEXES

		IMF	RBI	Asia-H	Asia-M
		25 countries	**36 currencies**	**30 countries**	**30 countries**
1	United States	**17.82**	**8.80**	**7.86**	**11.44**
2	China	**12.47**	**10.84**	**43.51**	**31.12**
3	Germany	9.08		3.36	5.04
4	Japan	6.13	2.72	2.10	3.15
5	United Kingdom	5.58	2.36	2.60	3.52
6	France	4.63		1.61	1.96
7	Belgium	4.53		2.64	3.95
8	Italy	4.33		1.39	2.09
9	Korea,	4.26	2.65	2.26	3.39
10	Singapore	3.53	3.37	2.30	3.45
11	United Arab Emirates	2.84	11.44		
12	Australia	2.47	2.36		
13	Netherlands	2.39		0.94	1.41
14	Canada	2.20	0.69		
15	Spain	2.12			
16	Taiwan	1.96	1.18	0.83	1.24
17	Malaysia	1.90	2.07	1.12	1.68
18	Russian Federation	1.85	0.97	1.12	1.46
19	Thailand	1.70	1.28	1.18	1.77
20	Indonesia	1.51	3.02	0.71	1.06
21	Switzerland	1.42	4.80	0.70	0.94
22	Brazil	1.41	1.51		
23	Sweden	1.34	0.40		
24	Israel	1.28	0.95	0.77	1.16
25	Turkey	1.26	0.69	0.96	1.01
26	Saudi Arabia		5.51	1.93	1.94
27	Hong Kong		3.41	4.01	5.63
28	Kuwait		2.52		
29	Nigeria		2.49		
30	Iran		2.38	0.55	0.82
31	South Africa		2.08	0.57	0.86
32	Qatar		1.89		
33	Vietnam		0.81	5.80	3.36
34	Egypt		0.75		
35	Sri Lanka		0.74	0.56	0.85
36	Bangladesh		0.73	1.21	1.09
37	Mexico		0.58	4.45	2.57
38	Kenya		0.45		
39	Pakistan		0.36		

40	Argentina		0.25		
41	Philippines		0.24	1.36	0.88
42	Poland			0.90	0.64
43	Czech Republic			0.71	0.51
	Euro Area	**27.08**	**12.69**	**11.56**	**15.62**
	Total weight	100.01	99.98	100.00	100.00
	Top 20 currencies	93.30	88.91	92.76	91.33

ASIA-H (ASIA-M) refers to the notional basket where Asian countries are given considerably (moderately) more weight than the other 2 indices. The top 3 currencies under each of the weighting schemes are shown in bold.

How are these weights determined? For each trading partner, we take two weights: the first is based on its actual share in India's manufacturing imports (say W1); the second is computed by focusing on those countries that have increased their global manufacturing export sharebetween 2010 and 2015 based on UNCTAD data. For each such country, we calculate the ratio of its increase to the sum of the increase of all countries (W2). So, for example, if ten countries increased their collective share by say 10 percentage points, including a 4 percentage point increase by China, China's share will be 0.4, and similarly for other countries. In ASIA-H, we assign equal weights to W1 and W2. In ASIA-M, we assign weights of 0.75 and 0.25, respectively for W1 and W2.

APPENDIX 2: DETAILS OF SURVEY ON SANITATION

Sample Size: The sample used for the rapid study consisted of respondent categories spread across lifecycle:

- adolescent girls (10-19 years of age);

- pregnant women;

- women with children of age 0-60 (completed) months.

Men from a sub-sample of households were also covered under the study for a comparative insight.

For this purpose, the country was divided into 5 geographic zones- Highest IHHL coverage, High IHHL coverage, Medium IHHL coverage, Low IHHL coverage and Lowest IHHL coverage and 2 states were selected from each zone (1 low performing and 1 high performing state with respect to IHHL construction). Two districts each from the states, 12 PSUs from each district and 18 households from each PSUs resulted in a sample frame of 4320 households, with 5705 individuals (4255 women and 1450 men).

State and districts were selected based on IHHL coverage. One High performing and one low performing state was selected from each zone Similarly one high performing and one low performing district was selected from each state. Also, sample of 18 respondents was randomly selected from the sampling frame, equally divided among the three respondent categories. A limitation of this study is that it is not a nationally representative sample.

The Economic Vision for Precocious, Cleavaged India

"[T]he ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else."

*– **John Maynard Keynes***

Since about 1980, India's growth performance has been robust, especially for a democracy. This has been backed up by policy reforms that have made India more open to flows of goods and capital and have reduced the size of the public sector, both in micro-efficiency and macro-fiscal terms. Yet, there are serious challenges that might impede further rapid progress which emanate in part from the fact that India started out as a poor democracy with deep social fissures (a "precocious, cleavaged" democracy). These long - standing challenges can be classified as an ambivalence about property rights and the private sector, deficiencies in state capacity, especially in delivering essential services, and inefficient redistribution. Meeting these challenges is not just a matter of overcoming vested interests; it may also require broader societal shifts in ideas and narratives.

I. INTRODUCTION

2.1 Painting with a broad-brush, the economic vision animating Indian policy can be divided into two phases. First came nearly half a century of socialism, where the guiding principles were economic nationalism and protectionism. During those years, the public sector occupied the commanding heights and the government intruded into even the most micro-decisions of private firms: their investing, producing, and trading. This framework was rejected after 1991 (Bhagwati and Panagariya, 2013). But even now it remains unclear as to what has replaced it. One might ask: what exactly has been repudiated, to what extent, and how? In short, what is the vision? This is a question not for any one government or party but for the broader Indian ecosphere of ideas.

2.2 At one level, the answer to this question might seem obvious. India has replaced its erstwhile socialist vision with something resembling the "Washington Consensus": open trade, open capital, and reliance on the private sector - essentially the same development model that has been tried and proven successful in most countries of Eastern Asia[1]. Reforms along these lines have been adopted by every

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[1] Excluding, of course China, which is a special case.

Indian government over the past quarter century. For example, in the last two years, the current government has institutionalized a commitment to low inflation in the new monetary policy framework agreement (Parussini 2016). There has also been a great effort to reduce the costs of doing business and create an environment friendly to investment, both domestic and foreign. And in the last six months (as detailed in Chapter 1), the government has secured passage of major measures such as the Aadhaar Bill, the Bankruptcy Code, and the GST constitutional amendment.

2.3   The result of all these reforms over the past 25 years has been a remarkable transformation of India from a largely closed and listless economy to the open and thriving economy that we see today. The country's progress is not only qualitative. It is also measurable. Consider, for example, four standard measures: openness to trade; openness to foreign capital; the extent to which public sector enterprises dominate commercial activities; and the share of government expenditure in overall spending.

2.4   Start with the standard measure of openness, the trade-to-GDP ratio (exports plus imports expressed as a share of gross domestic product). A fundamental truth of geography is that large countries tend to trade less than small countries. Being large makes the benefits of trading with the outside world very low relative to trading within the country. The opposite is true for small countries: lacking an internal market, their benefits of trading with the world are relatively large and hence they tend to have higher trade-to-GDP ratios.

2.5   Figure 1(a) plots, for several countries, their overall trade-to-GDP ratio (on the vertical axis) against their size (measured in terms of the log of population on the horizontal axis). The line shows the average relationship between trade outcomes and country size. That line is downward-sloping, confirming the geography-based intuition that large countries trade less. For example, the large countries such as China, India, Brazil, the United States, and Japan are all in the lower right-hand corner with low trade (below 50-55 per cent) ratios. But India is "above the line", meaning that it trades far more than would be expected for a country of its size – a stark turnaround from the pre-1991 situation when India was an under-trader.

Figure 1. Trade (of Goods and Services) to GDP Ratio

Figure 1(a). Trade (of Goods and Services) to GDP ratio.
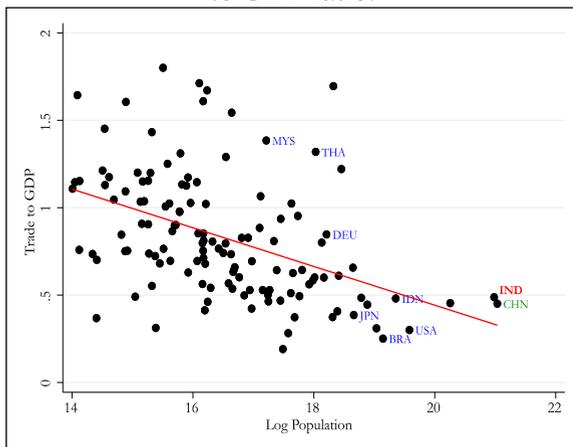
Source: WTO

Figure 1(b). Trade (of Goods and Services) to GDP Ratio.
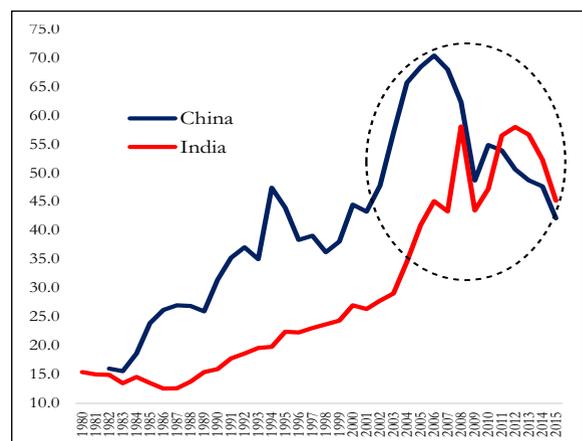
Source: WTO

2.6 One can see India's transformation even more starkly by comparing the evolution of its trade-GDP ratio with that of China over the past three decades (see figure 1(b)). India's ratio has been rising sharply, particularly over the decade to 2012, when it doubled to 53 per cent; the recovery from the global financial crisis in 2008 was also swift. As a result, India's ratio now surpasses China which is remarkable[2].

2.7 The next two figures plot India's foreign capital flows as a share of GDP. Figure 2 (a) reveals that despite significant capital controls, India's net inflows are, in fact, quite normal compared with other emerging economies. Figure 2(b) shows that India's FDI has risen sharply over time. In fact, in the most recent year, FDI is running at an annual rate of $75 billion, which is not far short of the amounts that China was receiving at the height of its growth boom in the mid-2000s.

2.8 Consider next the size of public sector enterprises. In popular perception, when

compared to other countries, India's public sector undertakings (PSU) are exceptionally large. That may have been true in the past. However, Figure 3 shows India is now squarely in the middle of the emerging market pack. This is partly because India has allowed the private sector entry into, amongst others, civil aviation, telecommunications, and financial services. These have all served to reduce the share of the public sector even if there has not been much exit of the PSU enterprises themselves.

2.9 Finally, consider the size of government. India is often accused of having a bloated government sector. But when the size of government expenditure for a group of countries is plotted against their per capita GDP, India sits on the regression line, indicating that it spends as much as can be expected given its level of development (Figure 4).

2.10 In sum, the standard measures suggest that India is now a "normal" emerging market, pursuing the standard Asian

Figure 2. Openness to Capital

Figure 2 (a)

Capital Flows as percent of GDP
(Average of 2011-2015)

Source: Survey Calculations

Figure 2 (b)

FDI inflow
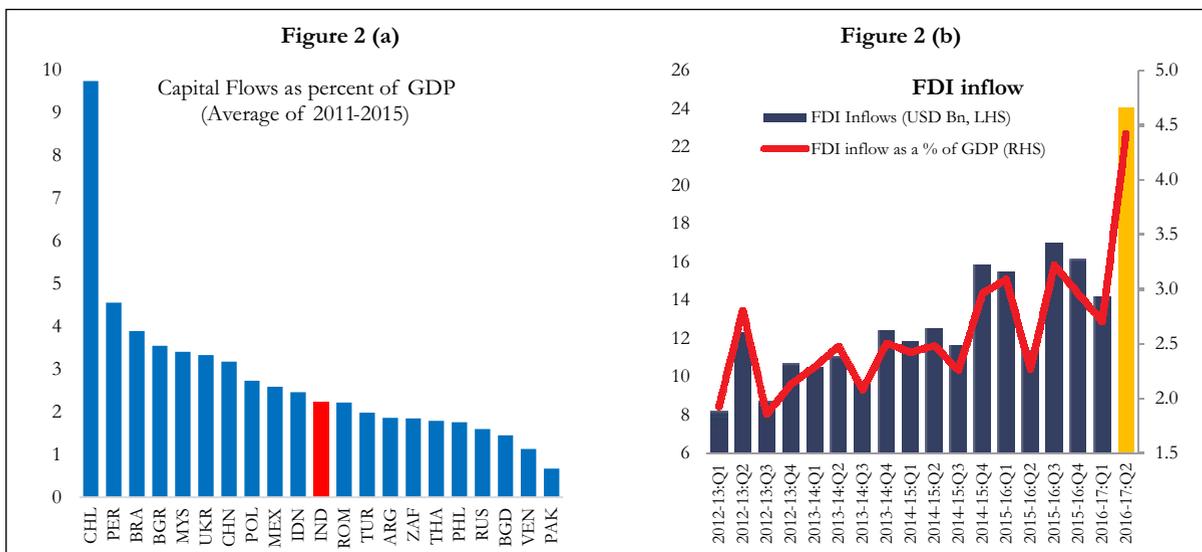
FDI Inflows (USD Bn, LHS)
FDI inflow as a % of GDP (RHS)

Source: RBI

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[2]   There is, of course, a difference between gross trade and trade that reflects value addition. China's value addition in exports has been rising recently. But, value addition in Indian trade is also high: services tend to be labour intensive and Indian manufacturing trade also has high value added because of being less connected to global value chains.

Figure 3. Size of Government (Micro) - PSU spending as a share of GNI
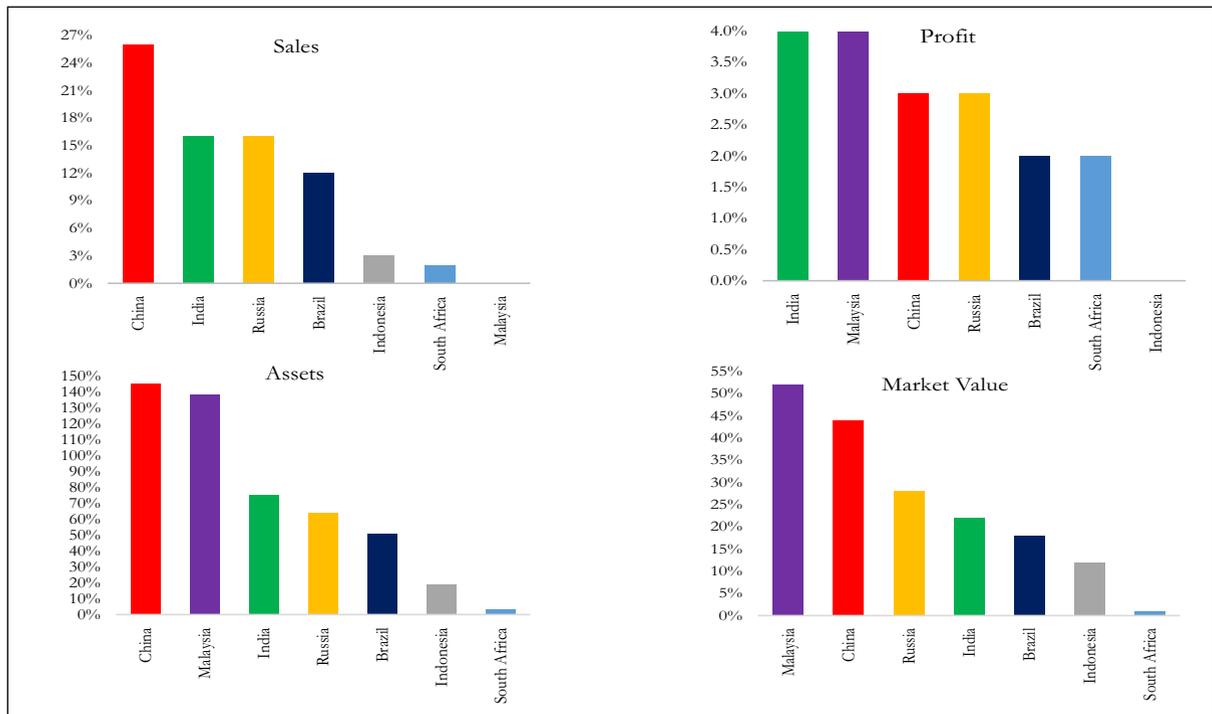
Source: Economic Survey 2015-16

Figure 4. Size of Government (Macro) - Government Expenditure vs GDP per capita
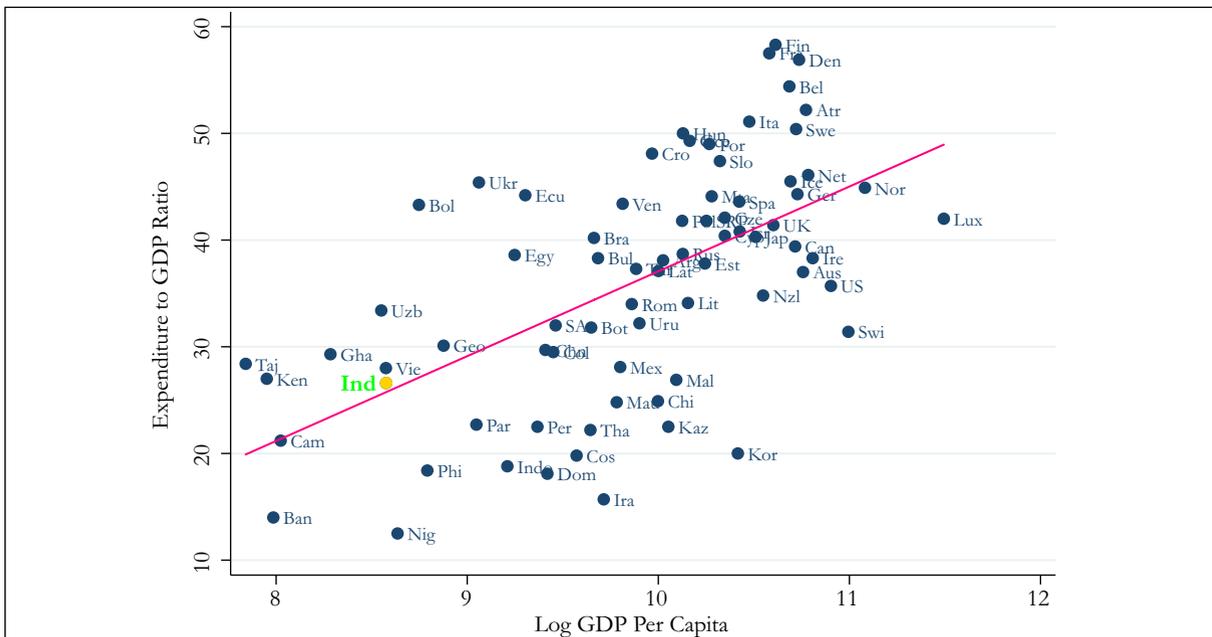
development path. It is open to foreign trade and foreign capital, where the government is not overbearing, either in a micro, entrepreneurship sense or in a macro, fiscal sense.

2.11 And India is normal in one final, critical way. As in other emerging markets, the pursuit of the standard development path has paid off in terms of growth. Taking a long view, and recognizing that India's

reforms actually started around 1980 (Rodrik and Subramanian, 2004), the first order fact is that India has grown at about 4.5 percent per capita for thirty seven years, an impressive achievement.

2.12 This achievement is particularly remarkable because it has been achieved under a fully democratic political system.[3] The Indian model of being a perennial democracy after acquiring independence is rare in post-war economic history – and successes are rarely democracies. Figure 5 plots on the y-axis average annual per capita GDP growth during country's boom periods (from Rodrik, 2014), with India's defined since 1979. The x-axis represents the percent of years during the boom period that the country was democratic. The only other countries that have grown as rapidly and been democratic for a comparable proportion of the boom are Italy, Japan, Israel, and Ireland. Other countries that have grown faster for as long have tended to be oil exporters, East Asian countries, and some that recovered after World War II.

II. THE ROAD TO BE TRAVERSED

2.13 In view of all this evidence, it seems curmudgeonly then to question India's reformist and market oriented credentials. Yet, there remains a niggling sense that India is not quite what it appears to be - that, despite all the data, it is not yet following the standard development model.

2.14 In what ways is India different? Three lingering features capture the doubt that it has not yet traversed the distance toward some vague and unspecifiable end-point that could be described as desirable or optimal. First, there has been a hesitancy to embrace the private sector and to unambiguously protect property rights, combined with continued reliance on the state to undertake activities that are more appropriately left to the private sector (Kochhar et al. 2006). Second, state capacity has remained weak (Pritchett 2009), as can be seen from poor delivery of essential services (Rice and Patrick 2008). And third, redistribution has been simultaneously extensive and inefficient (Kohli 2012).

Figure 5. Performance of a Precocious Democracy

Data from Rodrik 2013 and Polity IV. India growth data from WDI for 1979-2015.

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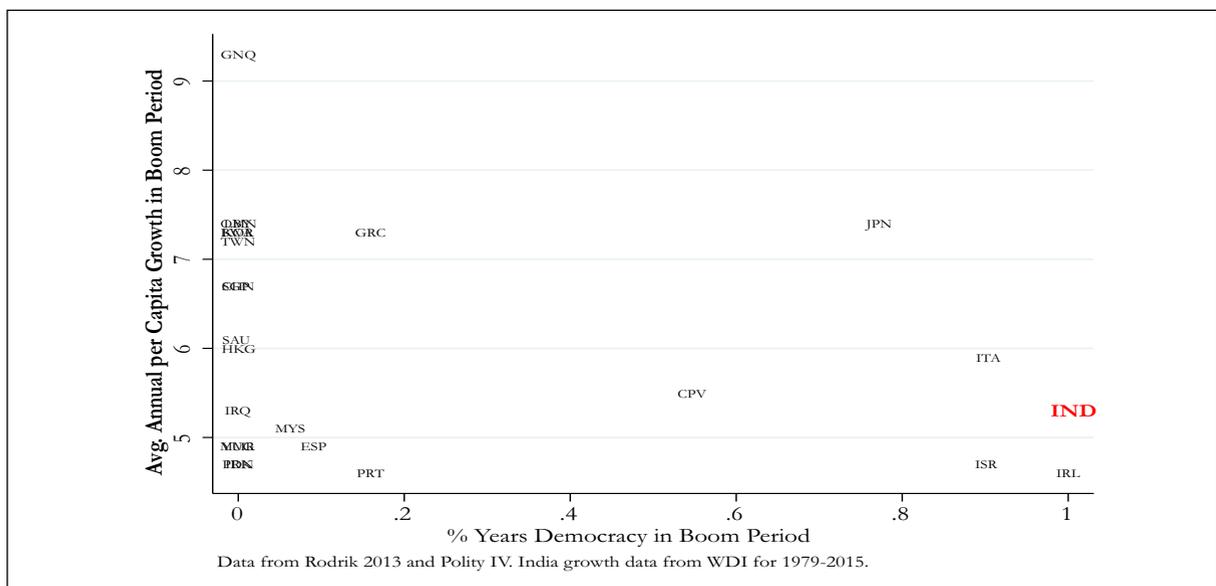
[3]   A country is defined as democratic if it scores higher than 7 on the Polity IV index. Rodrik (2013) defines a boom period as that period lasting at least 30 years for which a country grew sustainedly at an annual rate of 4.5% per capita.

A. Ambivalence about private sector and property rights

2.15 All states, all societies, have some ambivalence toward the private sector. After all, the basic objective of private enterprises – maximizing profits – does not always coincide with broader social concerns, such as the public's sense of fairness. But the ambivalence in India seems greater than elsewhere. Figure 6 ranks countries on the attitude of the people toward the private sector in a select group of countries.[4] It appears that that India has distinctly anti-market beliefs relative to others, even compared to peers with similarly low initial GDP per capita levels.

2.16 The symptoms of this ambivalence toward the private sector manifest in multiple ways. The most well-known example is the difficulty of privatizing public enterprises, even for firms where economists have made strong arguments that they belong in the private sector. Consider the civil aviation sector. Defying history, there is still the commitment to make the perennially unprofitable public sector airline "world

Figure 6. Global attitudes to the private sector
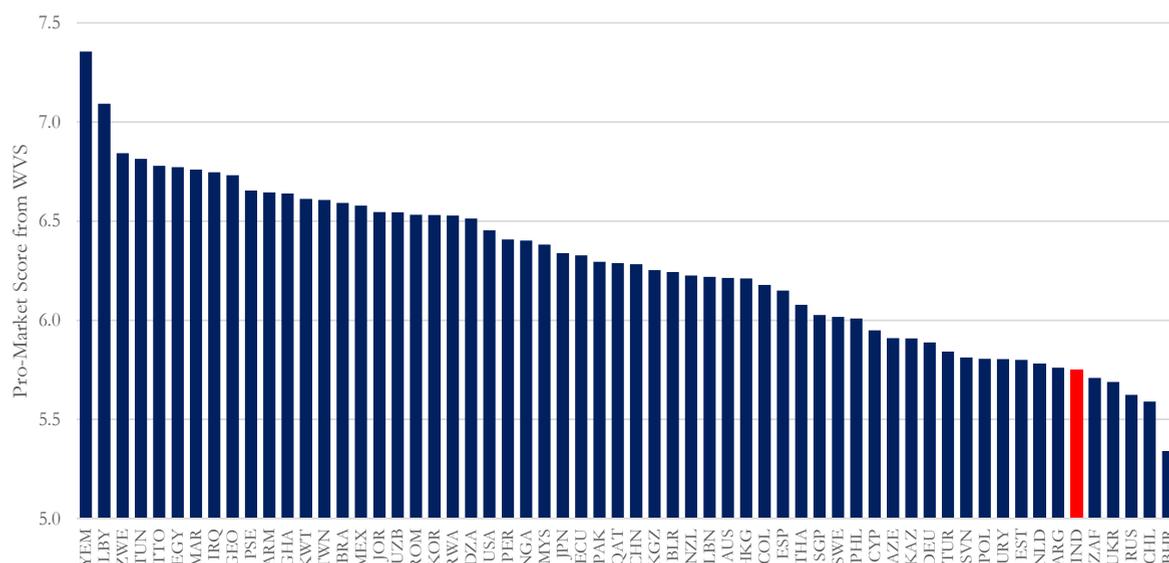
Source: **World Values Survey**

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[4] Figure 6 is based on the World Value Survey that spanned 2010-2012. The survey asked people around the world to give a number between 1 and 10 depending on how much they agree with the statements on the following scales:

- "Incomes should be made more equal" (1) vs. (10) "We need larger income differences as incentives for individual effort;"
- "Private ownership of business and industry should be increased" (1) vs. (10) "Government ownership of business and industry should be increased;"
- "Government should take more responsibility to ensure that everyone is provided for" (1) vs. (10) "People should take more responsibility to provide for themselves;"
- "Competition is good. It stimulates people to work hard and develop new ideas" (1) vs (10) "Competition is harmful. It brings out the worst in people;"
- "In the long run, hard work usually brings a better life" (1) vs. (10) "Hard work doesn't generally bring success— it's more a matter of luck and connections;" and
- "People can only get rich at the expense of others" (1) vs. (10) "Wealth can grow so there's enough for everyone." The scores are averaged across questions and across people to get an average country ranking. Higher score indicates more pro-market beliefs in that country. There are 60 countries in the sample.

class." Recently, airport privatization has taken the form of awarding management contracts rather than change in ownership. Moreover, policy reform in the sector has been animated as much by an interventionist as liberalizing spirit, reflected for example in restrictions on pricing.

2.17 A similar spirit pervades the policy approach to the banking sector. Discussion of disinvesting the government's majority stake in the public sector banks is often difficult in part because of the view that they are legitimate instruments for the state to allocate and redirect resources.

2.18 Meanwhile, in the fertilizer sector, rife with distortions, public policy finds it easier to rehabilitate public sector plants than to facilitate the exit of egregiously inefficient ones.

2.19 Beyond a reluctance to privatize, the ambivalence towards the private sector is manifest in many other ways. The agriculture sector is entwined in regulation, a living legacy of the era of socialism. While progress has been made in the last two years, producers in many states are still required by the Agricultural Produce Marketing Act to sell only to specified middlemen in authorized markets *(mandis)*. And when this system nonetheless generates price increases deemed to be excessive, the Essential Commodities Act is invoked to impose stock limits and controls on trade that are typically procyclical, thereby exacerbating the problem.[5]

2.20 A similar legacy from the past circumscribes property rights. Initially the right to property was inscribed as a "fundamental right" in the Constitution. But during the socialist era the 44th Amendment removed Articles 19 (1) (f) and Article 31

and replaced them with Article 300-A, thereby downgrading property to that of a "legal right". The ramifications of this decision continue to be felt to this day, in such issues as retrospective taxation. The government has made clear its commitment not to act retroactively on tax and other issues. But the legacy issues of retroactive taxation remain mired in litigation, with uncertain prospects for early resolution. Evidently, it seems politically difficult to uphold a widely shared—and judicially endorsed—principle against expropriation and retroactivity because of the fear of being seen as favouring the private sector, especially the foreign private sector. This is true in a number of recent cases, including Vodafone and Monsanto.

2.21 The wariness does not just extend to the foreign private sector. The twin balance sheet problem—in the corporate and banking sectors (as detailed in Chapter 4) --remains a millstone around the economy's neck, casting a pall over private investment and hence aggregate growth. One important reason this problem has not been resolved in the many years since it emerged in 2010 is the political difficulty in being seen as favoring the private sector, a problem which will necessarily arise in cases where some private sector debts have to be forgiven.

2.22 In each of the examples above, there may be valid reason for status quo but the overall pattern that emerges is unmistakable.

B. State capacity

2.23 A second distinctive feature of the Indian economic model is the weakness of state capacity, especially in delivering essential services such as health and education (Mangla 2015; Deaton 2013). Of course, nearly all emerging markets started off with

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5   See the Subramanian Committee Report (2016) on incentivising pulses production.

weak state capacity at independence. But as their economies developed and prospered, state capacity improved, often at an even faster rate than the overall economy. In India, by contrast, this process has not occurred. Fukuyama (2013) argues that the Indian state has low capacity, with high levels of corruption, clientelism, rules and red tape.

2.24 The deepest puzzle here is the following: while competitive federalism has been a powerful agent of change in relation to attracting investment and talent (the Tata Nano car being the best example) it has been less evident in relation to essential service delivery. There have, of course, been important exceptions such as the improvement of the PDS in Chhattisgarh and Bihar, the incentivizing of agriculture in Madhya Pradesh, the kerosene-free drive in Haryana, power sector reforms in Gujarat which improved delivery and cost-recovery and the efficiency of social programs in Tamil Nadu. However, on health and education in particular, there are insufficient instances of good models that can travel widely within India and are seen as attractive political opportunities. To the contrary, at the level of the states, competitive populism (with few goods and services deemed unworthy of being handed out free) is more in evidence than competitive service delivery.

2.25 Aside from inhibiting service delivery, the weakness of state capacity has created another problem. Policy-making in certain areas has been heavily constrained, as a way of ensuring that decisions do not favour particular interests. The result is twofold.

2.26 First, there is now adherence to strict rules—for example auctions of all public assets—that may not necessarily be optimal public policy. In telecommunications, the judicially imposed requirement for transparency and auctioning, while responding importantly and appropriately to the previous experience of corruption, has created a public policy dilemma. In some cases, it may be socially optimal to sell spectrum at lower-than-auction prices because of the sizable externalities stemming from increased spread of telecommunications services. But the understandable distrust of discretion means that methods other than auctions could be perceived as favouring particular parties.

2.27 Second, there is abundant caution in bureaucratic decision-making, which favours the status quo. In the case of the twin balance sheet problem mentioned above, it is well-known that senior managers in public sector banks are reluctant to take decisions to write down loans for fear of being seen as favouring corporate interests and hence becoming the target of the referee institutions, the so-called "4 Cs": courts, CVC (Central Vigilance Commission), CBI (Central Bureau of Investigation) and CAG (Comptroller and Auditor General). This encourages ever-greening of loans, thereby postponing a resolution of the problem.

C. Inefficient redistribution

2.28 Related to this is the third distinctive aspect of the Indian development model. All countries redistribute and must do so. The question is how effective this is and must be.

2.29 Redistribution by the government is far from efficient in targeting the poor. Chapter 9 evaluates the effectiveness of existing programs to help the poor, through subsidies and through government programs such as MGNREGS (Mahatma Gandhi Rural Employment Guarantee Scheme), SSA (Sarva Shiksha Abhiyaan), ICDS (Integrated Child Development Scheme), etc. It finds that welfare spending suffers from considerable misallocation: as the pair of charts in Figure 7 show, the districts with the most poor (shaded in red in Figure 7 (a))

Figure 7. Misallocation: Poorer districts get lower share of spending/allocation on schemes
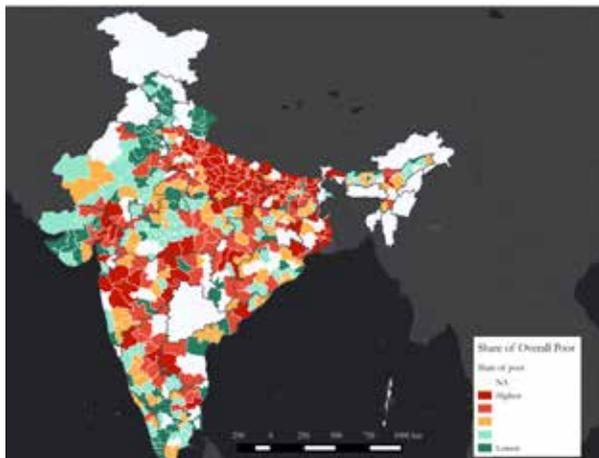
7a. Share of Overall Poor	7b. Shortfall in Allocation to Poor
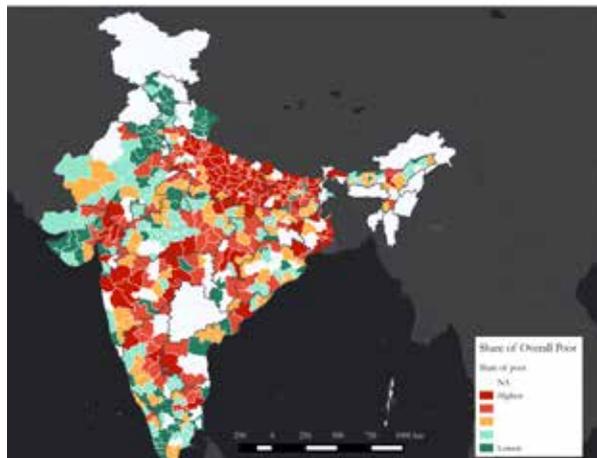
Source: **NSS 2011-12, GOI,** *Survey* **Calculations**

suffer from the greatest shortfall of funds (also shaded in red in Figure 7 (a)). This leads to: exclusion errors (the deserving poor not receiving benefits), inclusion errors (the non-poor receiving a large share of benefits) and leakages (with benefits being siphoned off due to corruption and inefficiency).

2.30 Over the past two years, the government has made considerable progress toward reducing subsidies, especially related to petroleum products. As Chapter 1 shows, not only have subsidies been eliminated in two out of four products, there is effectively a carbon tax, which is amongst the highest in the world.

2.31 However, even on subsidy reform, while technology has been the main instrument for addressing the leakage problem (and the pilots for direct benefit transfer in fertilizer represent a very important new direction in this regard), prices facing consumers in many sectors remain largely unchanged.

2.32 While strictly not an instrument of redistribution, even the design of the Goods and Services Tax (GST) reveals the underlying tensions. On the GST, the political pressures from the states to keep rates low and simple—resulting in an efficient and effective GST—were minimal. Apart from the general desire to ensure that the future structure of rates would mimic the complicated status quo, much of the focus was on ensuring that rates on essentials were kept low and on luxuries kept sufficiently high with insufficient concern for the implied consequences for efficiency and simplification. The lack of such pressures especially from the states was surprising since they were guaranteed compensation by the Centre. Evidently, even a dream combination of being able to trumpet low taxes without suffering revenue losses was not considered politically attractive.

III. Possible Explanations

2.33 What explains these three distinctive features of the Indian development model? Central to understanding India's economic vision is the fact that it has followed a unique pathway to economic success, what might be called "Precocious, Cleavaged India".

2.34 Historically, economic success has followed one of two pathways. Today's advanced economies achieved their current

status over two centuries in which economic and political development progressed slowly but steadily. They did not begin with universal franchise. Voting rights, narrow and restricted to begin with, expanded slowly over time, a process that helped fiscal and economic development by limiting the initial demands on the state during the period when its capacity was weak (Acemoglu and Robinson, 2013; North and Weingast 1989; Saint-Paul and Verdier 1993).[6]

2.35 The second set of accelerated economic successes mostly in East Asia began authoritarian, explicitly (Korea, China) or de facto (Singapore, Thailand, Taiwan), and gave way to political transformation only after a degree of economic success was achieved. Explicit authoritarianism came in three flavours: military (Korea), party (China), or individual dictatorship (Indonesia).

2.36 India, on the other hand, has attempted economic development while also granting universal franchise from the very beginning. Figure 8, which plots on the x-axis the fraction of years since independence that a country has been democratic and the income level at independence on the y-axis, reveals how rare India's experience is. India is amongst a handful of countries—Botswana, Mauritius, Jamaica, Trinidad and Tobago, and Costa Rica—which are perennial democracies (those on the right hand side).

2.37 Even rarer, India, at independence, was a very *poor* democracy.[7] In the figure, India is close to the bottom, indicating that it was the poorest democracy – in fact, one of the poorest nations, regardless of political system, with a per capita GDP of just $617 measured in purchasing power parity prices (PPP -1990 prices, Maddison).

Figure 8. Precocious Democracy
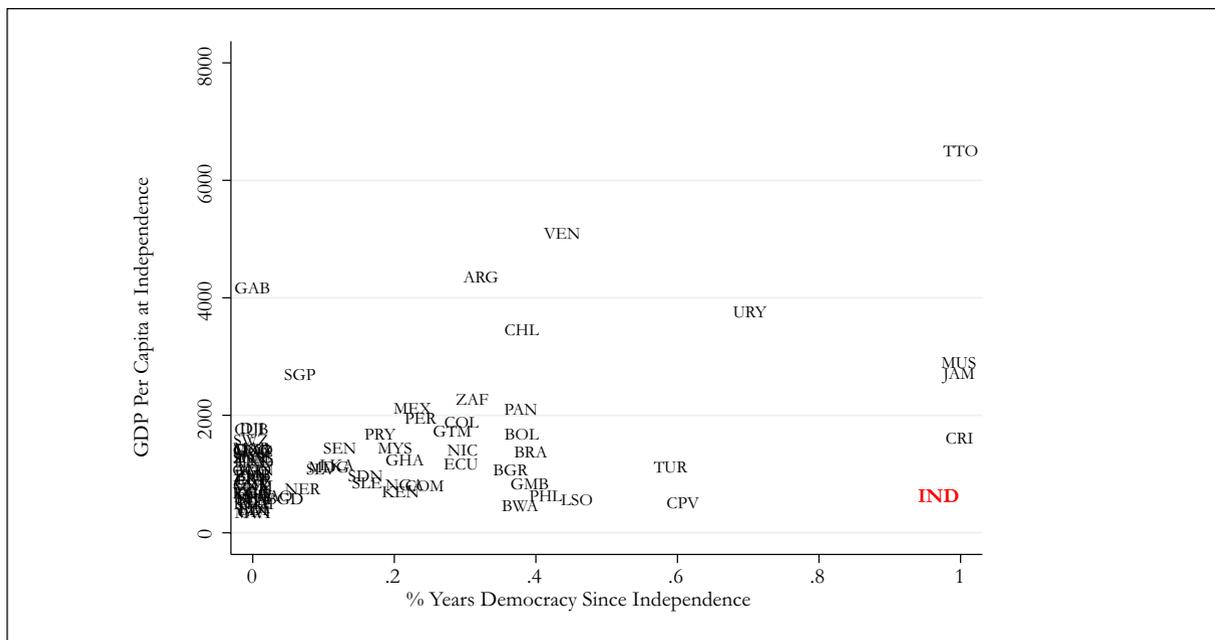
6 For example, property taxes could be levied to finance infrastructure because the benefits in terms of higher land values could be appropriated by the limited set of taxpayers and voters.

7 Basu (2006) discusses the challenges of being a poor democracy at length: "Since most developing countries are not democracies, they did not face the problem, but India did. Once people's opinion had been shaped (and Nehru was instrumental in this), there was no way that policies could be easily dictated to them. Opinion would have to be molded before major policy shifts were possible. Or at least policymakers had to catch people in a moment of doubt or vacillation to usher in changes."

2.38 At the same time, India was also a highly cleavaged society. Historians have remarked how it has many more axes of cleavage than other countries: language and scripts, religion, region, caste, gender, and class (Guha 2016). Measured by ethno–linguistic fractionalization alone, India is similar to other countries (Easterly and Levine, 1997).[8] But if caste is also taken into account (based on Banerjee and Somanathan, 2007), India stands out. In Figure 9, India is a clear outlier in the northwest corner of the plot, indicating both high levels of poverty and deep social fissures.

2.39 A precocious, cleavaged democracy that starts out poor will almost certainly distrust the private sector. Reinforcing this notion was the prevailing intellectual zeitgeist of socialism. The founders of India wanted to "build the country" by developing industry that would make India economically, as well as politically, independent. The private sector had conspicuously failed to do this

under colonial rule, not only in India but in every other newly independent nation, giving rise to severe doubts as to whether it could ever do so. In contrast, the example of the Soviet Union, which had transformed itself from an agricultural nation to an industrial powerhouse in a few short decades, suggested that rapid development was indeed possible, if the state would only take control of the commanding heights of the economy and direct resources into priority areas.

2.40 Of course, while India adopted planning and a large role for the state sector, it never abolished the private sector unlike the Soviet Union. Instead, it tried to control private businesses through licensing and permits. Paradoxically, however, this only further discredited the private sector, because the more the state imposed controls, the more the private sector incumbents were seen as thriving because of the controls, earning society's opprobrium in the process.

Figure 9. Precocious and Cleavaged India
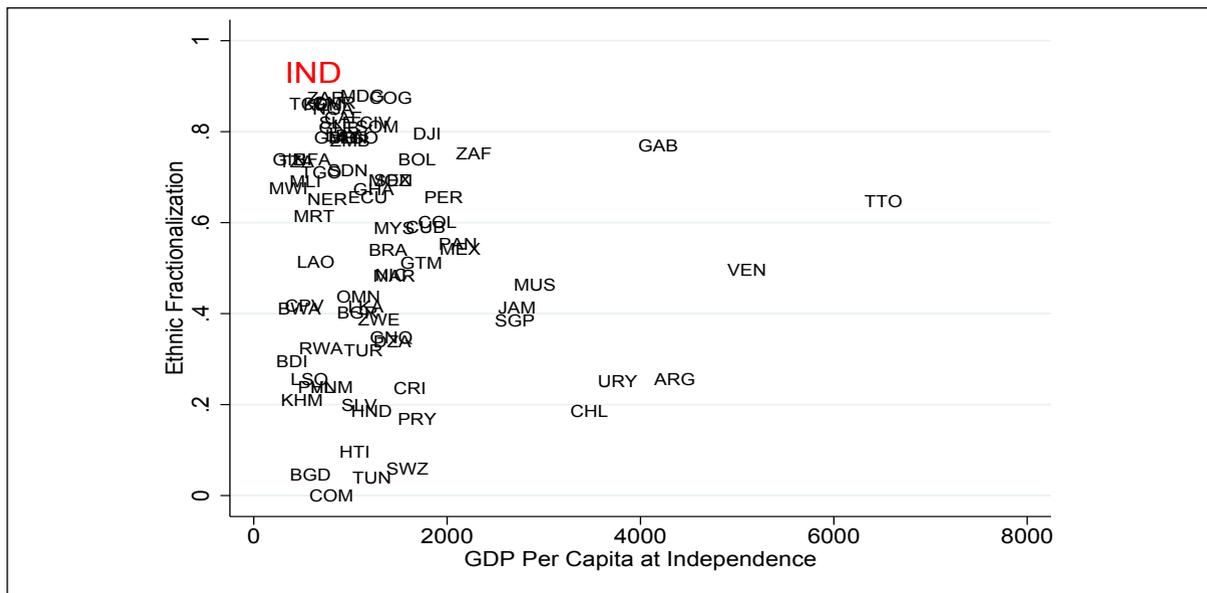
Source: **Banerjee & Somanathan, 2007/***Survey* **Calculations**

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[8] The measure of ethnolinguistic fractionalization captures the probability that any two individuals drawn randomly from the population will not have the same social identity. Identity can be defined on the basis of religion, language or ethnicity.

2.41 Another important implication of India's precocious, cleavaged democracy is that India had to redistribute early in the development process, when its state capacity was particularly weak. Figure 10 conveys a sense of how challenged Indian state capacity was in a comparative sense. It compares the income levels of different countries that had to spend what India does today, in percent of GDP. Typically, this occurred fairly late in the development process, when these countries had built up state capacity. For example, South Korea spent at a per capita GDP level of close to $20,000 what India spends today at a per capita GDP level of $5,000. Finally, given the pressing need to redistribute, India did not invest sufficiently in human capital – for instance, public spending on health was an un usually low 0.22 per cent of the GDP in 1950-51 (MoHFW, Government of India, 2005). This has risen to a little over 1 per cent today, but well below the world average of 5.99 per cent (World Bank, 2014).

2.42 A poor country with weak state capacity like India when confronted with the pressure to redistribute had necessarily to redistribute inefficiently, using blunt and leaky instruments. The luxury of effectively targeted programs was not an option in 1950 or 1960 or even 1990.

2.43 All this explains why such policy interventions began. But this cannot fully explain why such inefficient redistribution persists because, after all, other countries have graduated toward less inefficient forms of redistribution. A partial explanation is the difficulty of exit. Exit is difficult everywhere but it can be especially difficult in a poor, cleavaged democracy dominated by vested interests, weak institutions and an ideology that favours redistribution over investments (discussed in detail in Chapter 2 of the *Economic Survey 2015-16, Volume I*).

2.44 Another pathology results from this. The history of Europe and the US suggests that typically, states provide essential services (physical security, health, education, infrastructure, etc.) first before they take on their redistribution role. That sequencing is not accidental. Unless the middle class in society perceives that it derives some benefits from the state, it will be unwilling to finance redistribution. In other words, the legitimacy to redistribute is earned through a demonstrated record of effectiveness in delivering essential services.

Figure 10. Early Redistribution
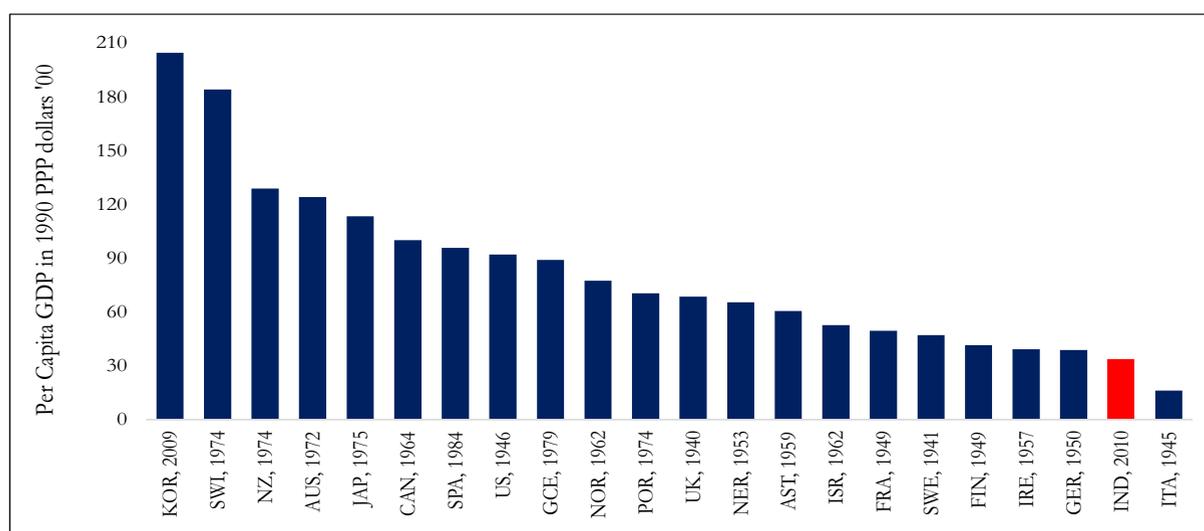
Source: Survey **Calculations**

2.45 A corollary is that if the state's role is predominantly redistribution, the middle class will seek—in Professor Albert Hirschman's famous terminology—to exit from the state (Hirschman 1978). So, a precocious cleavaged democracy is almost destined to succumb to this pathology. One sign of exit is fewer taxpayers. This is abundantly

evident in India. Figure 11 shows how few India's income taxpayers number relative to the voting age population, especially when compared to other countries, and how slowly this ratio has risen over time.

2.46 By reducing the pressure on the state, middle class exit will shrivel it, eroding its legitimacy further, leading to more exit and

Figure 11. India's low tax base[9]

11a. Voting age population and taxpayer to voting age population in India
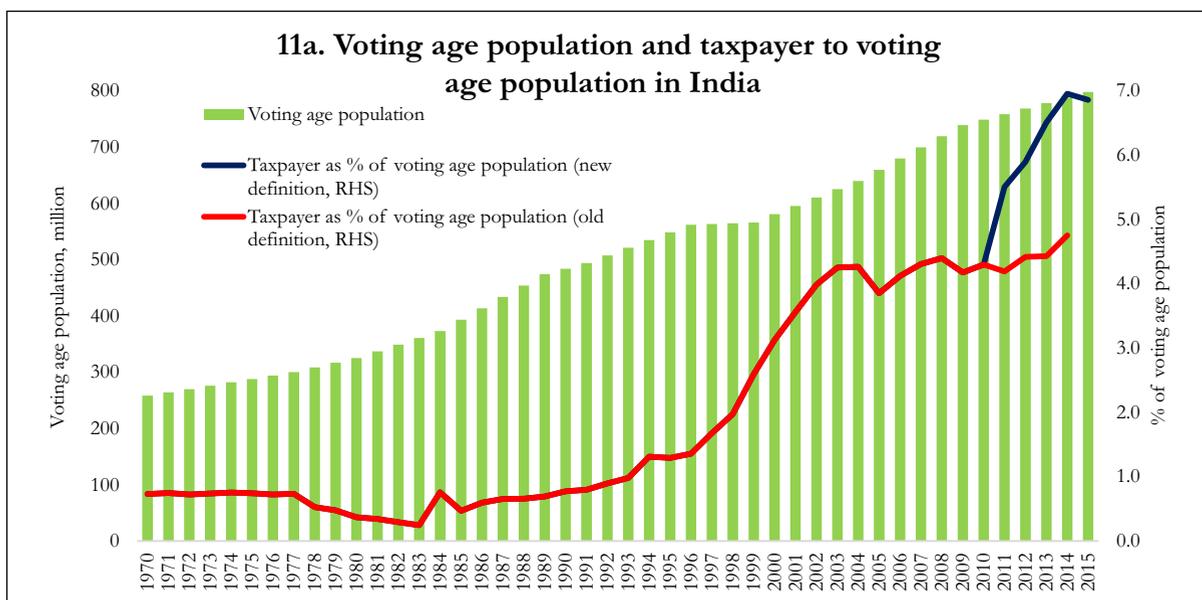
Source: **Piketty, Election Comission, DoR**

11b. Number of taxpayers to voting age population: Cross country comparison
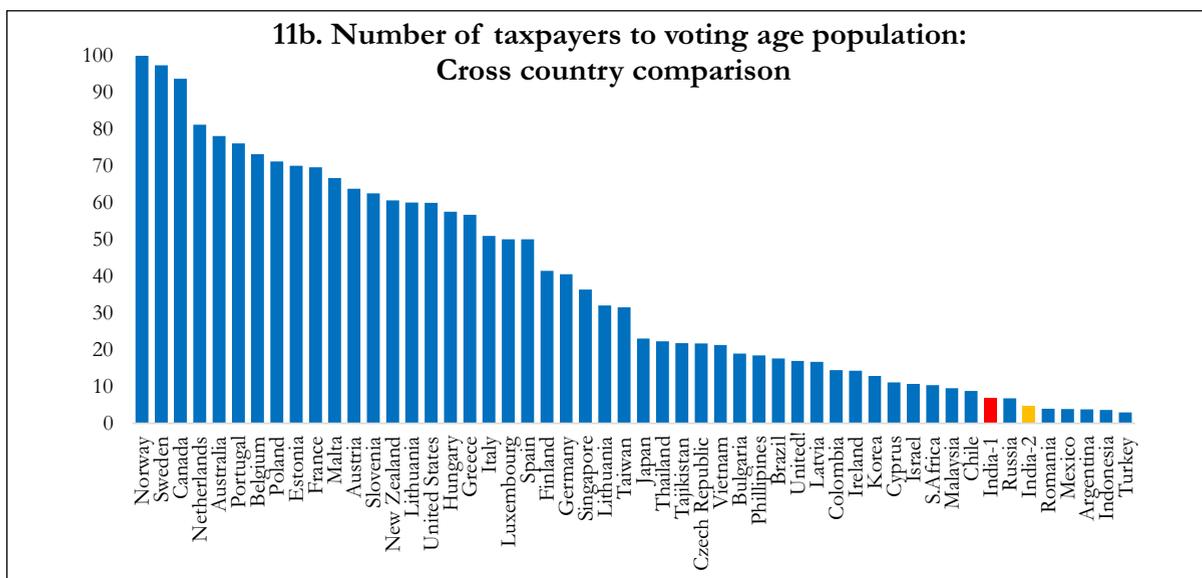
Source: Economic Survey **2015-16**

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[9]   New Definition: Tax filer plus tax deducted but not file the returns. Old Definition: Tax filers only. Source: World Wealth and Income Database (WID.world), http://www.incometaxindia.gov.in/Pages/Direct-Taxes-Data.aspx, Election Commission of India, OCED database.

so on. A state that is forced into inefficient redistribution, risks being trapped in a self-sustaining spiral of inefficient redistribution, reduced legitimacy, reduced resources, poor human capital investments, weak capacity and so on.

IV. Conclusion

2.47 India has come a long way in terms of economic performance and reforms. But there is still a journey ahead to achieve both dynamism and social justice. One tentative conclusion is that completing this journey will require a further evolution in the underlying economic vision across the political spectrum.

2.48 The experience, thus far, of demonetization is instructive. In one perspective, demonetization has been a redistributive device to transfer illicit wealth from the rich to the rest, via the government. In the short run at least, the costs are being borne to a great extent by those in the informal/cash-intensive sectors that tend to be less well-off than the rich. In one sense, this could be thought of as inefficient redistribution. So, if, subsidies have been an inefficient way of redistributing toward the poor, demonetization could be seen as an inefficient way of redistributing away from the rich.

2.49 Yet, at least so far, demonetization has commanded popular support, including and especially from those—the relatively less well affluent—who have borne much of the short term costs.[10] The resonance of demonetization stems from the sense that there is not a level playing field and that some—the rich—gain from, and game, the system in ways that are perceived to be unfair and illegitimate.

2.50 There are lessons here for inefficient redistribution, and the legitimacy of the private sector and the state that may prove crucial as India moves along on the next stage of its economic journey. One such is that further reforms are not just a matter of overcoming vested interests that obstruct them. Broader societal shifts in underlying ideas and vision will be critical.

2.51 Ideas rule.

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Demonetisation: To Deify or Demonize?

03

> *"Taka mati, mati taka (Money is mud, mud is money)."*
> — ***Ramakrishna Paramahamsa***
>
> *"Among all forms of mistake, prophecy is the most gratuitous."*
> — ***George Eliot, Middlemarch***

Demonetisation has been a radical, unprecedented step with short term costs and long term benefits. The liquidity squeeze was less severe than suggested by the headlines and has been easing since end-December 2016. A number of follow-up actions would minimize the costs and maximise the benefits of demonetisation. These include: fast, demand-driven, remonetisation; further tax reforms, including bringing land and real estate into the GST, reducing tax rates and stamp duties; and acting to allay anxieties about over-zealous tax administration. These actions would allow growth to return to trend in 2017-18, following a temporary decline in 2016-17.

I. INTRODUCTION

3.1   On November 8, 2016, the government announced a historic measure, with profound implications for the economy. The two largest denomination notes, Rs 500 and Rs 1000, were "demonetized" with immediate effect, ceasing to be legal tender except for a few specified purposes.[1] At one fell stroke, 86 percent of the cash in circulation was thereby rendered invalid.[2] These notes were to be deposited in the banks by December 30, 2016, while restrictions were placed on

cash withdrawals. In other words, restrictions were placed on the convertibility of domestic money and bank deposits.[3]

3.2   The aim of the action was fourfold: to curb corruption; counterfeiting; the use of high denomination notes for terrorist activities; and especially the accumulation of "black money", generated by income that has not been declared to the tax authorities.

3.3   It followed a series of earlier efforts to curb such illicit activities, including the creation of the Special Investigative Team

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[1]   Strictly speaking, these notes were deprived of their legal tender status, except for specified activities (such as paying utility bills). Nevertheless, as "demonetisation" has entered the public lexicon as the term for the November 8 announcement, we shall use this term.

[2]   Throughout this chapter, the terms "cash," "currency," "currency/cash with public" will be used interchangeably.

[3]   Converting cash into deposits was rendered difficult but was only legally restricted on December 30, 2016 under the Specified Banknotes (Cessation of Liabilities) Ordinance.

(SIT) in the 2014 budget; the Black Money and Imposition of Tax Act 2015; Benami Transactions Act 2016; the information exchange agreement with Switzerland; changes in the tax treaties with Mauritius, Cyprus and Singapore; and the Income Disclosure Scheme. Demonetisation was aimed at signalling a regime change, emphasizing the government's determination to penalize illicit activities and the associated wealth. In effect, the tax on all illicit activities, as well as legal activities that were not disclosed to the tax authorities, was sought to be permanently and punitively increased.

3.4 India's demonetisation is unprecedented in international economic history, in that it combined secrecy and suddenness amidst normal economic and political conditions. All other sudden demonetisations have occurred in the context of hyperinflation, wars, political upheavals, or other extreme circumstances. But the Indian economy had been growing at the fastest clip in the world on the back of stable macroeconomics and an impressive set of reforms (Chapter 1). In such normal circumstances, demonetisations—such as the one announced recently in Europe—tend to be phased in gradually (See Appendix 1 for a list of cross-country episodes of both gradual and sudden demonetisations.)

3.5 India's action is not unprecedented in its own economic history: there were two previous instances of demonetisation, in 1946 and 1978, the latter not having any significant effect on cash as Figure 1 shows.[4] But the recent action had large, albeit temporary, currency consequences. Figure 1 shows annual percentage changes in currency since 1953. For 2016-17, this

Figure 1. Growth in average currency with public (%, yoy)
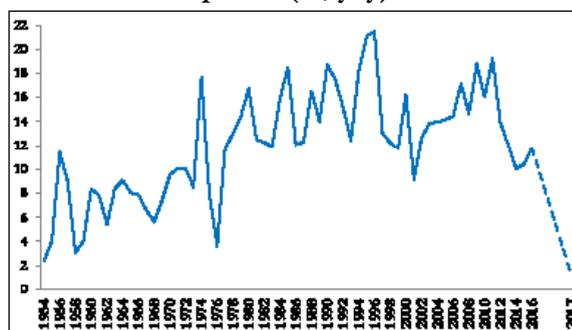
Source: Survey calculations
Note: **Years are financial years and only even number years have been labeled**

change is expected to be only 1.2 percent year-on-year, more than 2 percentage points lower than four previous troughs, which averaged about 3.3 percent.[5]

3.6 In the wake of the Global Financial Crisis (GFC), advanced economies have used monetary policy to stimulate growth, stretching its use to domains heretofore considered heretical such as negative interest rate policies and "helicopter drops" of money. In fact, India has given a whole new expression to unconventional monetary policy, with the difference that whereas advanced economies have focused on expanding the money supply, India's demonetisation has reduced it. This policy could be considered a "reverse helicopter drop", or perhaps more accurately a "helicopter hoover".

3.7 The public debate on demonetisation has raised three sets of questions. First, broader aspects of management, as reflected in the design and implementation of the initiative. Second, its economic impact in the short and medium run. And, third, its implications for the broader vision underlying the future conduct of economic policy. This *Survey* is not the forum to discuss

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[4] In 1970, a Committee headed by former Chief Justice K.N. Wanchoo, in its interim report, recommended demonetisation of the 10, 100, and higher denomination notes to combat the scourge of black money. These denominations accounted for 86.6 percent of the then money stock.

[5] The average nominal GDP growth in those four previous troughs was 3.5 percent.

the first question, and the third is discussed in Chapter 1. This chapter focuses on the second question.

3.8   What are the background facts? What are the analytics? What are the long-term benefits and short-term costs? And what policy responses going forward would maximise benefits and minimizes costs? This section attempts to answer these questions. The Survey does not discuss the broader welfare and other non-economic dimensions (Rai, 2016). There have been reports of job losses, declines in farm incomes, and social disruption, especially in the informal, cash-intensive parts of the economy but a systematic analysis cannot be included here due to paucity of macro-economic data.

3.9   A cautionary word is in order. India's demonetisation is unprecedented, representing a structural break from the past. This means that forecasting its impact is hazardous. The discussion that follows, especially the attempts at quantification, must consequently be seen as tentative and far from definitive. History's verdict, when it arrives through the "foggy ruins of time," could surprise today's prognostications.

II.   BACKGROUND FACTS

3.10 To dispel confusion and sharpen understanding of the issues, key distinctions must be made at the outset. Cash can be understood along two dimensions: its function and its nature/origins. In terms of

function, cash can be used as a medium of exchange (for transactions) or as a store of value like other forms of wealth such as gold and real estate. In terms of nature, cash can be illicit or not.

3.11 Function and nature are quite distinct (Table 1). For example, cash used as a store of value could be white (the savings that all households keep for an emergency), while cash used for transactions could be black (if it was earned through tax evasion and/or corruption). Moreover, categories are fluid. Cash held as black money can be converted to white through laundering and other means, or by declaring it to the authorities and paying the associated tax/penalty.

3.12 A few facts are relevant to, and have motivated, demonetisation.

3.13 First, India's currency to GDP ratio has evolved in two broad phases. It declined fairly steadily for the first decade and a half after Independence, falling from around 12 percent in 1952-53 to about 9 percent in 1967-68. Thereafter, the ratio appears to have responded to the growth of the economy. It began its upward trend in the late 1970s when growth increased, and then accelerated further during the growth boom of the 2000s. This ratio declined during the period of high inflation in the late 2000s and early 2010s but it rebounded after 2014-15 to 12 percent when inflation declined again. The value of high denomination notes (INR

Table 1. Dual Dimensions of Cash

	Origin/nature	
	White	*Black*
Function		
Transactions	Company pays employee salary in cash; payment and receipt are declared to tax authorities	Small enterprise pays for input in cash; neither declares the transaction to tax authorities
Store of value	Household keeps savings in cash for emergencies	Businessman hoards undeclared cash, with a view to distributing it to his candidate during elections

500 and INR 1000) relative to GDP has also increased in line with rising living standards (green line in the second chart of Figure 2).

3.14 Second, India's economy is relatively cash-dependent, even taking account of the fact that it is a relatively poor country. Figure 1 plots the cash to GDP ratio against country per capita GDP, showing that on average the use of cash does indeed decline with development (yellow line). India's level is somewhat higher than other countries in its income group (central panel).

3.15 This might seem to suggest that some of the cash holdings were not being used

Figure 2. Currency in Circulation, High Denomination Notes and Real GDP Growth
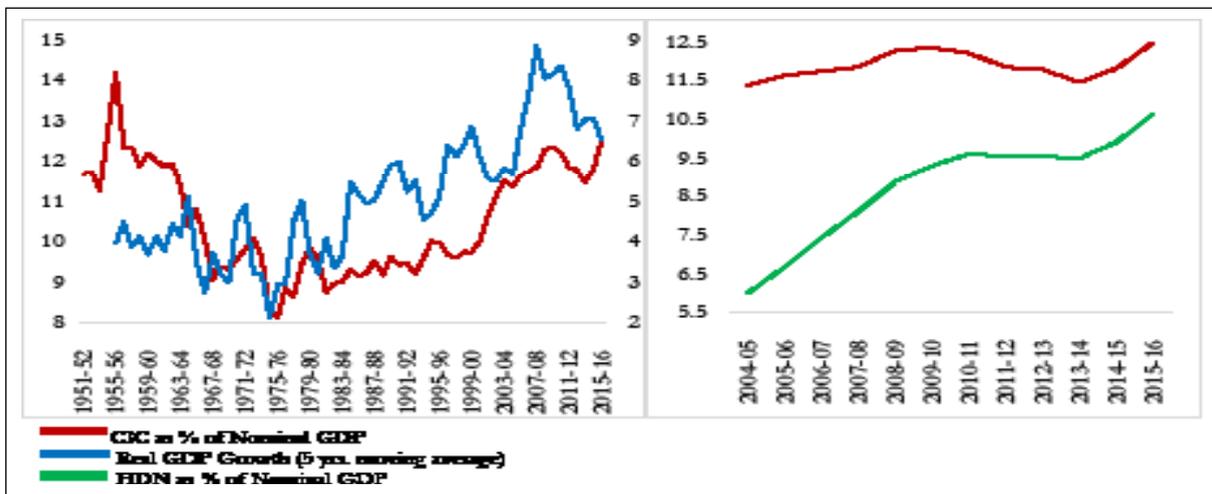
Source: **RBI**

Note: **CIC = Currency in Circulation**

HDN = High Denomination Notes (INR 500 and INR 1000)

Figure 3. Cash-to-GDP Ratio Versus Per capita GNI in PPP Terms
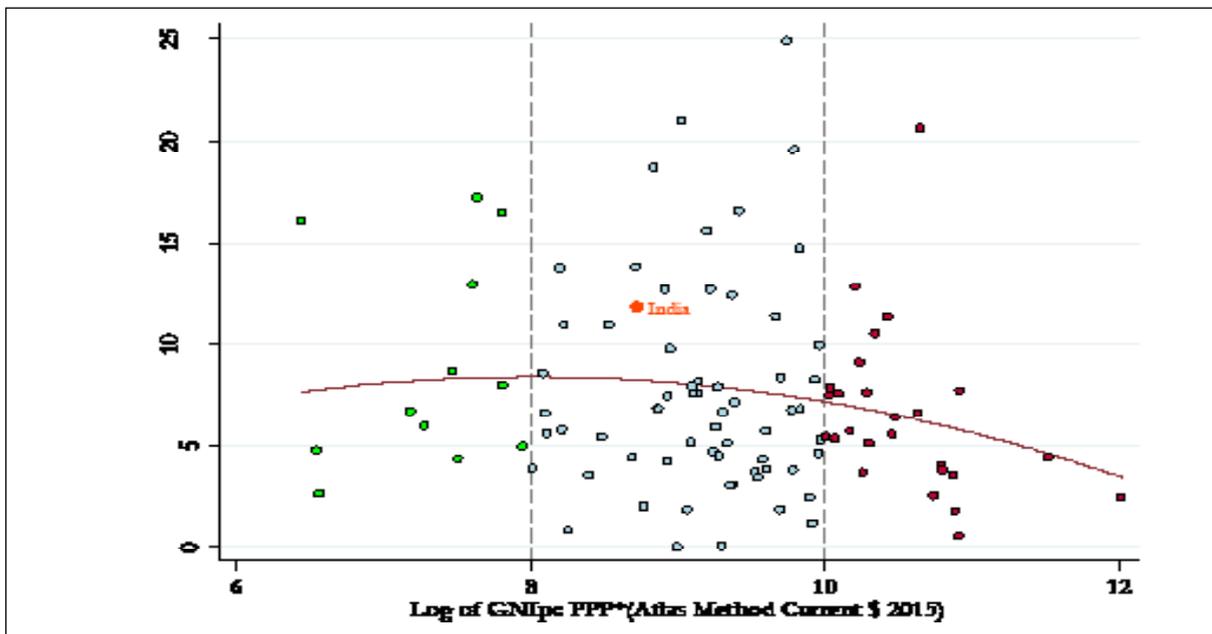
Source: **World Development Indicators; International Financial Statistics**

for legitimate transactions, but perhaps for other activities such as corruption.[6] This presumption is especially strong because across the globe there is a link between cash and nefarious activities: the higher the amount of cash in circulation, the greater the amount of corruption, as measured by Transparency International (Figure 4).

3.16 In this sense, attempts to reduce the cash in an economy could have important long-term benefits in terms of reducing levels of corruption. Yet India is "off the line", meaning that its cash in circulation is relatively high for its level of corruption. This suggests two possibilities. Perhaps India's level of corruption (or other related pathologies) is much worse than the index shows, so that the orange dot should really be placed to the right. Or cash is being used for other, presumably legitimate purposes.

3.17 But even if high levels of cash are needed this doesn't mean high denominations are needed. It is usually the case that high value notes are associated with corruption because they are easier to store and carry, compared to smaller denominations or other stores of value such as gold (Sands, 2016; Henry, 1980; Summers, 2016; Rogoff, 2016).

3.18 How high were India's high denomination notes in terms of their use for transactions relative to store of value? Figures 5-6 shed some light. In particular, it is useful to look at the size of the notes relative to nominal per capita income. The higher a note is relative to income, the less likely it is to be used purely for transactions purposes. In India's case, the denomination/income ratio has fallen sharply over the past quarter century because incomes have been growing rapidly relative to the prevailing

Figure 4. Cash-to-GDP Ratio and Corruption
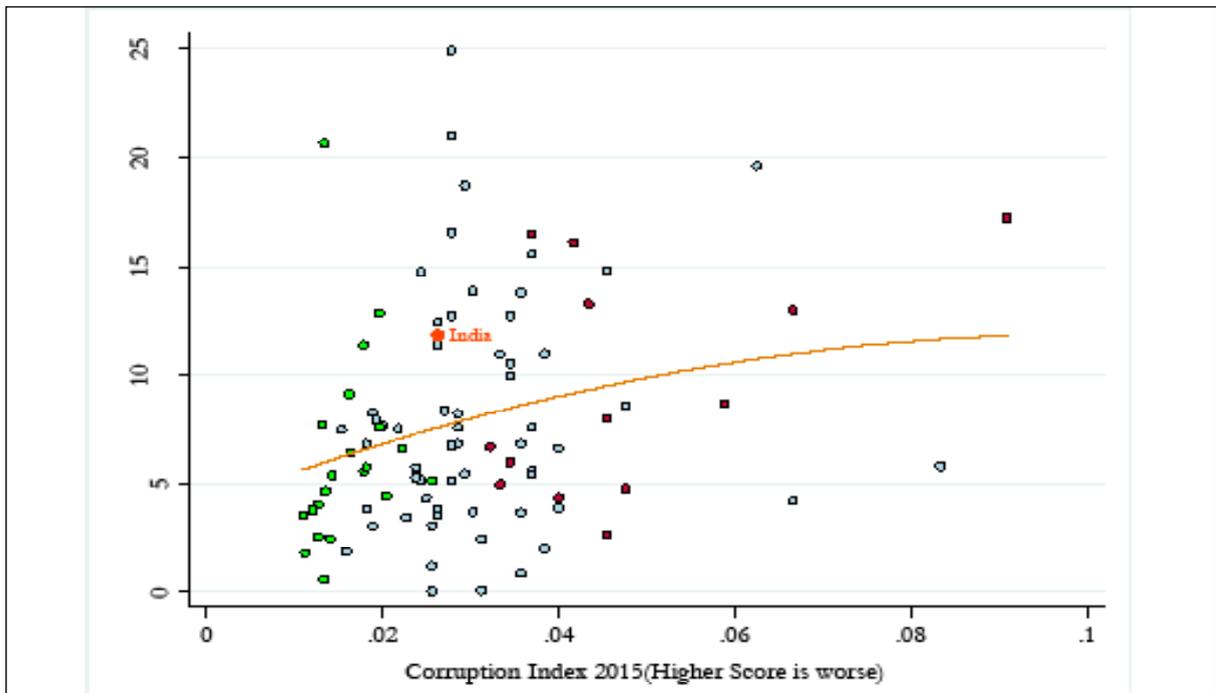
Source: **Transparency International, World Development Indicators**

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[6]   It is worth underscoring that although income from corruption is by definition black money, most black money is earned through perfectly legal activities. In most cases, income becomes black solely because it has not been declared to the tax authorities. An NIPFP report (1985) authored by Shankar Acharya and Associates discusses these issues in greater detail.

highest denomination notes (Figure 5). This suggests that the high denomination notes have become increasingly useful for transactions over time.

3.19 This impression is confirmed by cross country data, which show that the Rs 1,000 note was in the middle of the pack compared

to other currencies, especially those of its peer group of lower middle-income economies (Figure 6).

3.20 Perhaps the most conclusive evidence on the extent to which Rs 500 and Rs 1000 notes are used for transactions comes from data on "soil rates," that is the rate at which

Figure 5. Highest Denomination/Income Ratio (Percent of GDP per capita)
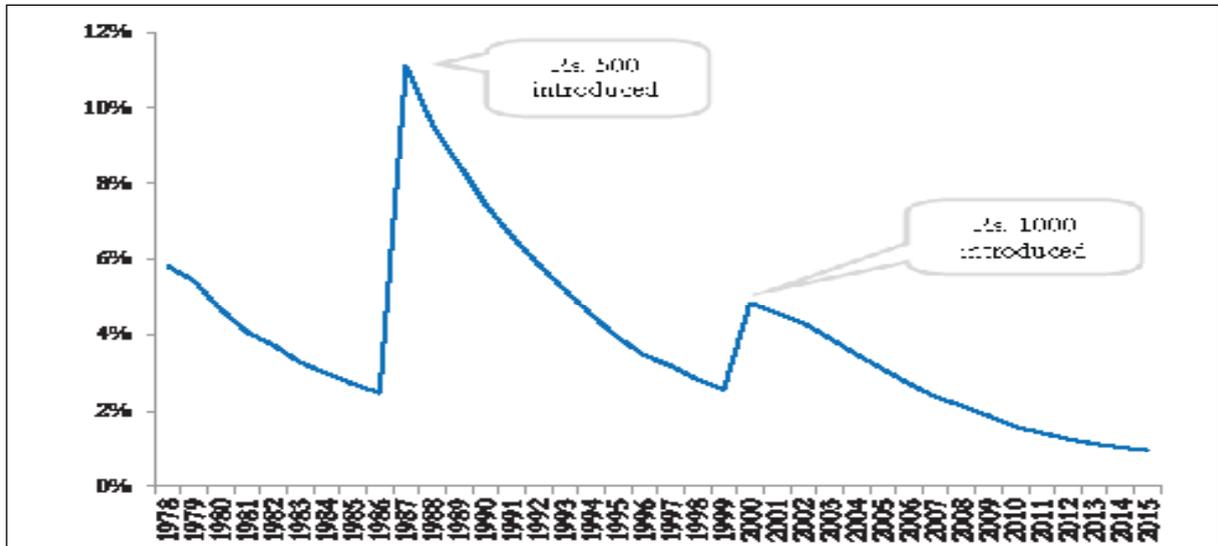
Source: World Development Indicators; RBI

Figure 6. Highest Denomination Notes (Percent of GDP per capita)[7]
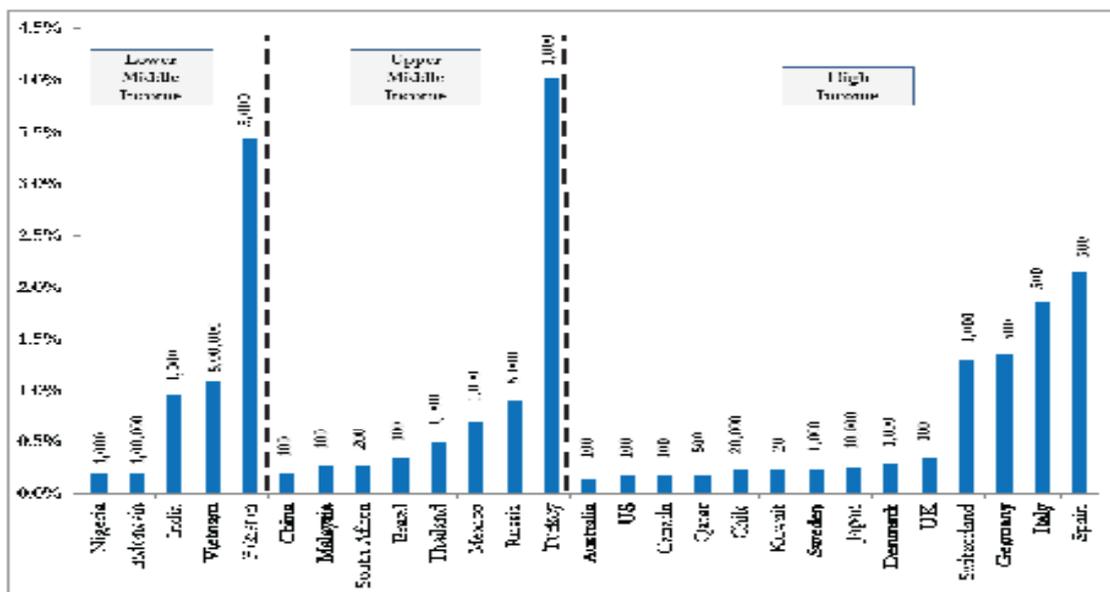
Source: Central Banks's Balance Sheets, World Development Indicators

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[7]   As of 8th November, 2016.

notes are considered to be too damaged to use and have been returned to the central bank. RBI data show that in India low denomination notes have a soil rate of 33 percent per year. In contrast, the soil rate for the Rs 500 note is 22 percent, and the Rs 1000 just 11 percent. One way to estimate black money is to assume that all these notes should soil at the same rate, if they were really being used for transactions. This would yield an estimate of money that is not used for transactions at Rs. 7.3 lakh crores.

3.21 But this assumption would be extreme since the lower soil rates for the high denomination notes could arise if they are used in the same way, but just less frequently because there are fewer high value transactions.

3.22 There is a way, albeit not perfect, to differentiate between these two hypotheses, by comparing Indian data to soil rates in other countries. In principle, if a rupee-denomination note and a foreign-denomination note fulfill a similar transaction function, then their soil rates should be similar (all else equal). If the Indian soil rate is instead lower, this suggests that a fraction of the notes are not being used for transactions, but rather for storing black money.

3.23 Using relative soil rates for the US $50 and $20 notes and applying them to comparable Indian high denomination notes, yields an estimate of the amount not used for transactions, and hence potentially black, of about Rs. 3 lakh crore. This is substantial, as it represents about 2 percent of GDP.

III. ANALYTICS

3.24 Understanding the benefits and costs of demonetisation requires spelling out the analytics of demonetisation, which are rich and complicated. Broadly, there will be a number of effects, which are sketched out schematically in Table 2 below.

3.25 Analytically, demonetisation should be seen as comprising the following:

- a money supply contraction but only of one type of "money"—cash;

- a tax on unaccounted private wealth maintained in the form of cash – black money; and

- a tax on savings outside the formal financial system.

Table 2. Impact of Demonetisation

Sector	Impact	
	Effect through end-December	**Likely longer-term effect**
Money/interest rates	Cash declined sharply	Cash will recover but settle at a lower level
	Bank deposits increased sharply	Deposits will decline, but probably settle at a slightly higher level
	RBI's balance sheet largely unchanged: return of currency reduced the central bank's cash liabilities but increased its deposit liabilities to commercial banks	RBI's balance sheet will shrink, after the deadline for redeeming outstanding notes
	Interest rates on deposits, loans, and government securities declined; implicit rate on cash increased	Loan rates could fall further, if much of the deposit increase proves durable
Financial System Savings	Increased	Increase, to the extent that the cash-deposit ratio falls permanently
Corruption (underlying illicit activities)		Could decline, if incentives for compliance improve

Unaccounted income/black money (underlying activity may or may not be illicit)	*Stock* of black money fell, as some holders came into the tax net	Formalization should reduce the *flow* of unaccounted income
Private Wealth	Private sector wealth declined, since some high denomination notes were not returned and real estate prices fell	Wealth could fall further, if real estate prices continue to decline
Public Sector Wealth	No effect.	Government/RBI's wealth will increase when unreturned cash is extinguished, reducing liabilities
Formalization/ digitilisation	Digital transactions amongst new users (RuPay/ AEPS) increased sharply; existing users' transactions increased in line with historical trend	Some return to cash as supply normalises, but the now-launched digital revolution will continue
Real estate	Prices declined, as wealth fell while cash shortages impeded transactions	Prices could fall further as investing undeclared income in real estate becomes more difficult; but tax component could rise, especially if GST imposed on real estate
Broader economy	Job losses, decline in farm incomes, social disruption, especially in cash-intensive sectors	Should gradually stabilize as the economy is remonetized
GDP	Growth slowed, as demonetisation reduced demand (cash, private wealth), supply (reduced liquidity and working capital, and disrupted supply chains), and increased uncertainty	Could be beneficial in the long run if formalization increases and corruption falls
	Cash-intensive sectors (agriculture, real estate, jewellery) were affected more Recorded GDP will understate impact on informal sector because informal manufacturing is estimated using formal sector indicators (Index of Industrial Production). But over time as the economy becomes more formalized the underestimation will decline. Recorded GDP will also be overstated because banking sector value added is based (*inter alia*) on deposits which have surged temporarily	Informal output could decline but recorded GDP would increase as the economy becomes more formalized
Tax collection	Income taxes rose because of increased disclosure Payments to local bodies and discoms increased because demonetised notes remained legal tender for tax payments/ clearances of arrears	Indirect and corporate taxes could decline, to the extent growth slows Over long run, taxes should increase as formalization expands and compliance improves
Uncertainty/ Credibility	Uncertainty increased, as firms and households were unsure of the economic impact and implications for future policy Investment decisions and durable goods purchases postponed	Credibility will be strengthened if demonetisation is accompanied by complementary measures. Early and full remonetisation essential. Tax arbitrariness and harassment could attenuate credibility

3.26 The money supply contraction effects are discussed later as these are likely to be transitional in nature, focusing first on the benefits.

IV. BENEFITS

a. Tax on black money

3.27 Perhaps the most important way to view demonetisation is as a tax administration measure, one designed to tax holdings of black money. Of course, demonetisation of large denomination notes is not exactly the same as demonetisation of black money. Some cash holdings were perfectly "white", the fruit of income upon which taxes had either been paid or had not been applicable in the first place (agricultural income, for example).

3.28 Accordingly, the scheme included a screening mechanism, aimed separating "white" income from "black". Cash holdings arising from income that had been declared could readily be deposited at banks and ultimately exchanged for new notes. But those with black money faced three difficult choices. They could:

- declare their unaccounted wealth and pay taxes at a penalty rate;

- continue to hide it, not converting their old notes and thereby suffering a tax rate of 100 percent; or

- launder their black money, paying a cost for converting the money into white.

3.29 Anecdotal evidence suggests there was, indeed, active laundering. One laundering mechanism seems to have been to "re-time" the accrual of income, by constructing receipts that made it seem as if the black money had just been earned in the period immediately before November 8th, 2016. Such schemes might have allowed black money to have been deposited in bank accounts -- but only if the income was reported and taxes paid on it. In this way, demonetisation would have brought black money into the tax net.

3.30 Other schemes would have required black money holders to pay a percentage to private intermediaries as a price for converting it into white. For example, some holders reportedly paid individuals to queue up at banks to exchange or deposit money for them. It was also widely reported that Jan Dhan accounts witnessed a surge in deposits during the 50-day window between November 8 and December 30 – though the amount of this increase was relatively small, around Rs 42,000 crore.[8]

3.31 In all these cases, black money holders still suffered a substantial loss, in taxes or "conversion fees". Moreover, bank accounts are still being screened for suspicious transactions, which means that those who engaged in laundering run the risk of punitive taxes and prosecution, in addition to the fees or taxes already paid.

3.32 Meanwhile, some amount of unreturned high denomination notes. The December 30, 2016 Ordinance has declared the unreturned notes as no longer constituting legal tender. When the grace period expires, the RBI could declare that these unreturned notes are no longer valid in any way, either as legal tender or as assets that can be exchanged for new currency. When this occurs, the associated liability will be extinguished, and the RBI's net worth will increase. In this sense, demonetisation has effected a transfer of wealth from holders of illicit black money to the public sector, which can then be redeployed in various

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[8] Figure refers to increase between November 10 and December 23, 2016. See http://www.hindustantimes. com/india-news/jan-dhan-accounts-deposits-double-to-rs-87-000-crore-i-t-dissects-data/story-Nf4iM7X8bynNglVo8okVaN.html

productive ways – to retire government debt, recapitalize banks, or even redistribute back to the private sector.

3.33 More to the point, the amount of unreturned high denomination notes is not the proper measure of the amount of black money that has been "taxed" away from holders of illicit wealth. In addition, one needs to add the taxes collected on money declared under disclosure scheme (Pradhan Mantri Garib Kalyan Yojana, PMGKY), as well as the "taxes" paid to intermediaries who laundered money.

b. Tax compliance

3.34 Demonetisation can also be interpreted as a regime shift on the part of the government. It is a demonstration of the state's resolve to crack down on black money, showing that tax evasion will no longer be tolerated or accepted as an inevitable part of life. Since this action has commanded support amongst the population, demonetisation shows that black money will no longer be tolerated by the wider public, either.

3.35 These two sanctions – financial penalty and social condemnation – could have a powerful and long-lasting effect on behavior, especially if they were combined with other incentive-compatible measures, described in Section X. In this case, evaders might decide in the years to come that it would be better to pay a moderate regular tax, rather than risk having to pay a sudden penal tax. Corruption and compliance could be permanently affected.

3.36 Demonetisation could also aid tax administration in another way, by shifting transactions out of the cash economy and into the formal payments system. With large denominations eliminated, households and firms have begun to shift from cash to electronic payment technologies.

3.37 As a result, the tax-GDP ratio, as well as the size of the formal economy, could be permanently higher.

c. Tax on informal savings

3.38 Beyond reducing tax evasion, demonetisation could have other far-reaching effects. For example, it will channel savings into the formal financial system. Without doubt, much of the cash that has been deposited in the banking system will be taken out again, as the cash withdrawal limits are eased and the note supply improves. But some of the new deposits will surely remain in the banks, where they will provide a base for banks to provide more loans, at lower interest rates.

3.39 In the longer-term, if demonetisation is successful, it will reduce the equilibrium cash-GDP and cash-deposits ratio in the economy. This will increase financial savings which could have a positive impact on long run growth.

V. EARLY EVIDENCE FOR POTENTIAL LONG-TERM BENEFITS

3.40 By definition, it is too early to quantify the direction and magnitude of long term changes. It will take several years to see the impact of demonetisation on illicit transactions, on black money, and on financial savings. But there are some signs pointing to change.

a. Digitalisation

3.41 One intermediate objective of demonetisation is to create a less-cash or cash-lite economy, as this is key to channeling more saving channeled through the formal financial system and improving tax compliance. Currently, India is far away from this objective: the Watal Committee has recently estimated that cash accounts for

about 78 percent of all consumer payments.[9] According to Pricewaterhouse Coopers (2015) India has a very high predominance of consumer transactions carried out in cash relative to other countries (accounting for 68 percent of total transactions by value and 98 percent by volume; Figure 7). And there are many reasons for this situation. Cash has many advantages: it is convenient, accepted everywhere, and its use is costless for ordinary people, though not of course for society at large. Cash transactions are also anonymous, helping to preserve privacy, which is a virtue as long as the transactions are not illicit or designed to evade taxation.

3.42 In contrast, digital transactions face significant impediments. They require special equipment, cellphones for customers and Point-Of-Sale (POS) machines for merchants, which will only work if there is internet connectivity. They are also costly to users, since e-payment firms need to recoup their costs by imposing charges on customers,

merchants, or both. At the same time, these disadvantages are counterbalanced by two cardinal virtues. Digital transactions help bring people into the modern "wired" era. And they bring people into the formal economy, thereby increasing financial saving, reducing tax evasion, and leveling the playing field between tax-compliant and tax-evading firms (and individuals).

3.43 Digitalisation can broadly impact three sections of society: the poor, who are largely outside the digital economy; the less affluent, who are becoming part of the digital economy having acquired Jan Dhan accounts and RuPay cards; and the affluent, who are fully digitally integrated via credit cards. One simple measure that illustrates the size of these three categories is cell phone ownership. There are approximately 350 million people without cellphones (the digitally excluded); 350 million with regular "feature" phones, and 250 million with smartphones.

Figure 7. Consumer Transactions Carried Out in Cash (%, 2015)
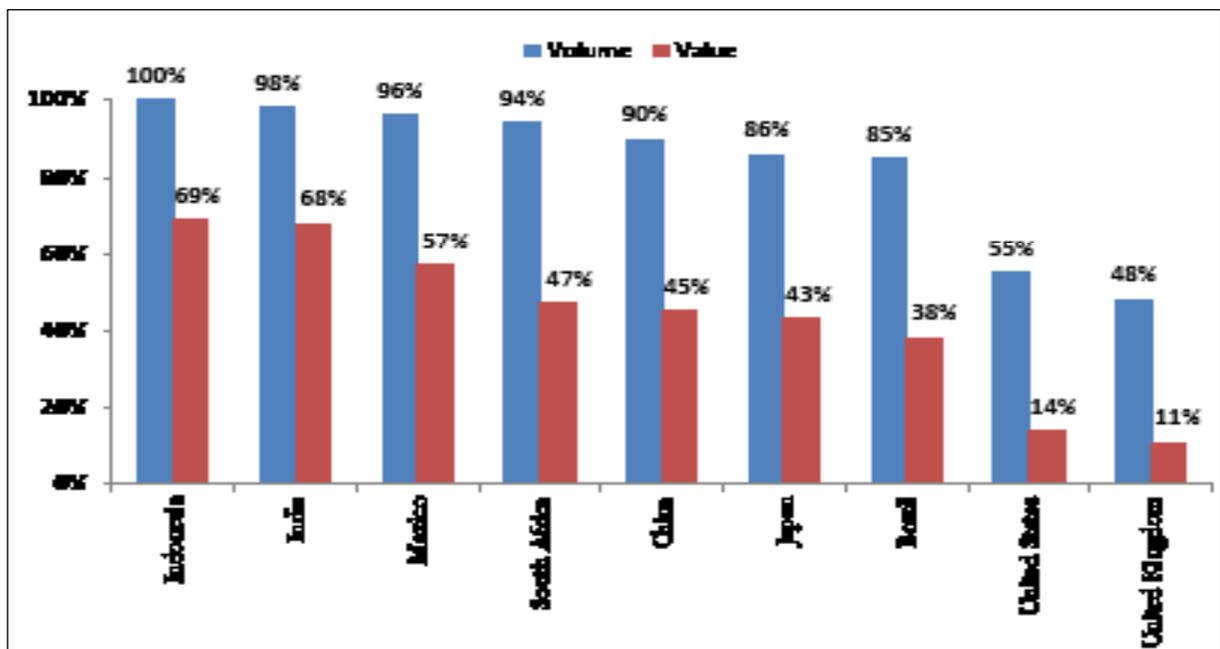
Source: **PricewaterhouseCoopers 2015**

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[9]   http://www.finmin.nic.in/reports/watal_report271216.pdf

3.44   In the wake of the demonetisation, the government has taken a number of steps to facilitate and incentivize the move to a digital economy. These include:

- Launch of the BHIM (Bharat Interface For Money) app for smartphones. This is based on the new Unified Payments Interface (UPI) which has created inter-operability of digital transactions. As of January 10, there had been 10 million downloads, and over 1 million transactions had been conducted. The 250 million digital-haves can use their smartphone to make simple and quick payments.[10]

- Launch of BHIM USSD 2.0, a product that allows the 350 million feature phone users to take advantage of the UPI.

- Launch of Aadhaar Merchant Pay, aimed at the 350 million who do not have phones. This enables anyone with just an Aadhaar number and a bank account to make a merchant payment using his biometric identification. Aadhar Merchant Pay will soon be integrated into BHIM and the necessary POS devices will soon be rolled out.

- Reductions in fees (Merchant Discount Rate) paid on digital transactions and transactions that use the UPI. There have also been relaxations of limits on the use of payment wallets. Tax benefits have also been provided for to incentivize digital transactions.

- Encouraging the adoption of POS devices beyond the current 1.5 million, through tariff reductions.

3.45 So far, facilities such as RuPay and payment wallets still make up only a tiny proportion of digital transactions, much less overall financial transaction. For example, RBI survey data indicates that during December 2016 digital wallets accounted for just Rs 95 billion in transactions and UPI only Rs 7 billion, compared to Rs 314 billion for debit (excluding RuPay and ATM transactions) and Rs 270 billion for credit cards. Still, they are growing rapidly.

3.46 The impact on the digitally excluded category can be gleaned via transactions in the Aadhaar-Enabled Payments System (AEPS). We find that total AEPS transactions have been steadily rising before November 8, 2016 but have accelerated thereafter (Figure 8a).

Figure 8a. Digital Transactions (Rs crores) of Digitally Excluded
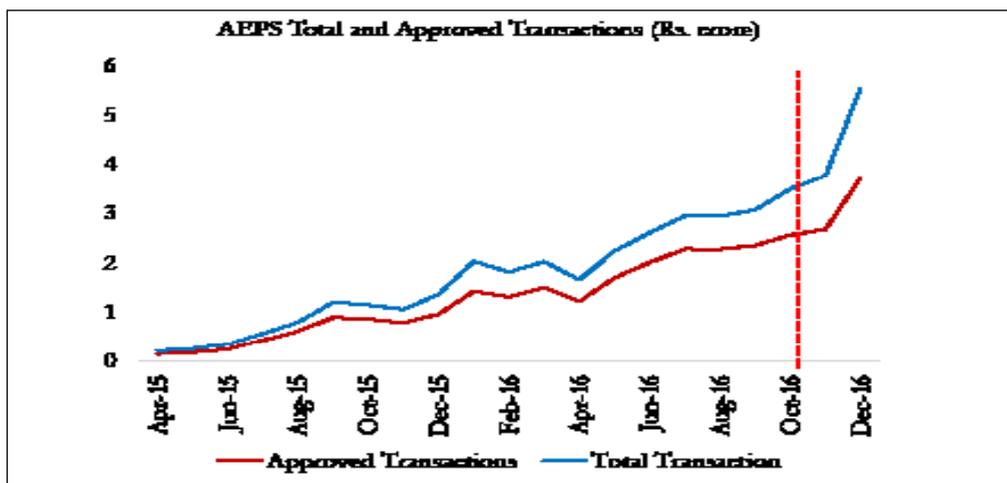
Source: **NPCI**
Note: **AEPS – Aadhaar Enabled Payment System**

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[10]   It has used standard interoperable UPI QR codes for merchants.

3.47 The impact on the middle category of digitally connected can be gleaned via Rupay transactions. Here data from the National Payments Corporation of India (NPCI) show that RuPay-based electronic transactions increased by about Rs. 13,000 crore in case of POS transactions and about Rs. 2,000 crore in e-commerce, an increase of over 300-400 percent (Figure 8b).

3.48 The impact on the digital-haves can be discerned from credit card and debit card transactions excluding for RuPay cards and ATMs that were affected by cash shortages (Figure 8c). There appears to have been a sharp increase of about 21 percent after November 8, 2016 and it remains to be seen whether this will be sustained even as remonetisation accelerates. Unique Payment Interface (UPI) transactions have also soared but from negligible initial levels.

3.49 As people have started to use such e-payment systems, they have discovered that it is more convenient to conduct financial activities electronically. And they are finding that such transactions are feasible in many more places, because demonetisation is creating network effects: as first movers embrace e-payments, others find it worthwhile joining them; and as more households participate, more firms are

Figure 8b. Daily Digital Transactions (Rs crore) of Less Affluent Consumers
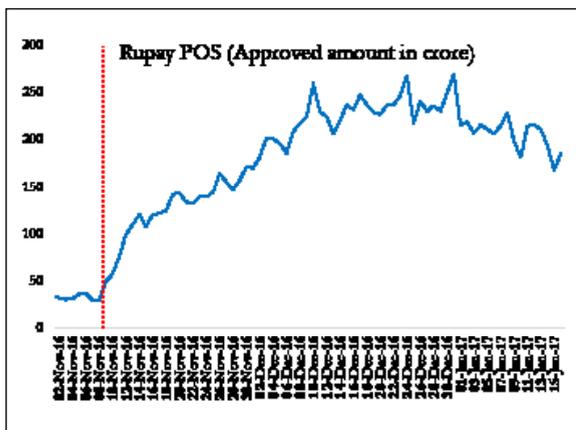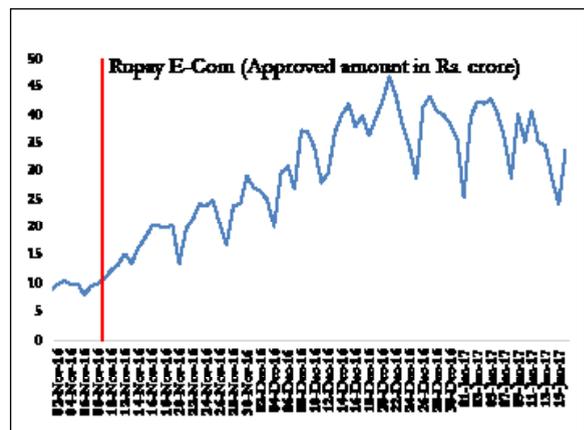
Source: **NPCI**

Source: **NPCI**

Figure 8c. Monthly Digital Transactions – Affluent Consumers

Source: **NPCI**

Figure 8d. Daily Digital Transactions Using Unified Payments Interface
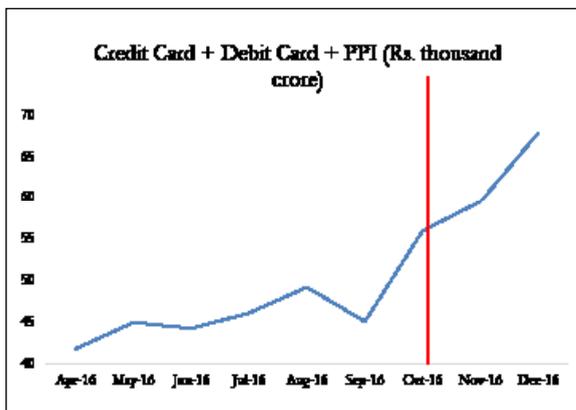
Source: **NPCI**

Note: **PPI – Prepaid Payment Instruments**

Debit card transactions exclude ATM and RuPay transactions

<div style="background:#c00;color:#fff;text-align:center">
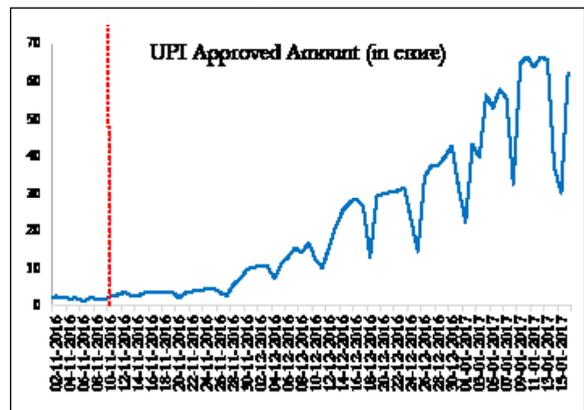
Box 1. Preventing Banks from Thwarting Inter-Operability

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The success of digitalization will depend considerably on the inter-operability of the payments system. The Unified Payments Interface (UPI) created by the NPCI is the technology platform that will be the basis for ensuring inter-operability. But to ensure this, individual banks should facilitate not thwart inter-operability.

One way of quantifying the degree of inter-operability is to contrast the decline rate of transactions that involve the same issuing and remitting bank (On-US transactions), on the one hand, and transactions that involve different banks (Off-US). Based on detailed data provided by NPCI, the decline rates were calculated for Aadhar-enabled payments (Figure 9) as of mid- Jan 2016.

Figure 9. Decline Rates for Aadhar Enabled Payments
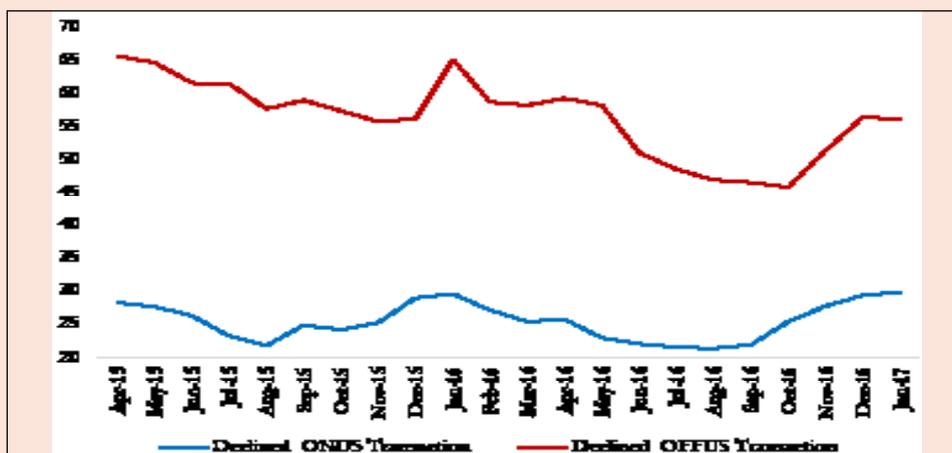
Source: **RBI**

The figure above shows that the decline rate for Off-US transactions was nearly 56 percent, almost double that for On-US transactions.

One plausible hypothesis for this differential is that the larger banks are declining transactions involving smaller remitting banks while ensuring that transactions involving themselves are honored. There could be valid reasons for this. But such problems will need to be addressed, since payments banks, telecommunications companies, and small banks are in the vanguard of financial inclusion. So their access to the UPI platform will be critical for advancing digitalization, especially for the poor.

participating as well. That said, the security features of these e-payment systems will need to inspire trust, to ensure this trend continues.

b. Real estate

3.50 Demonetisation could have particularly profound impact on the real estate sector. In the past, much of the black money accumulated was ultimately used to evade taxes on property sales. To the extent that black money is reduced and financial transactions increasingly take place through electronic means, this type of tax evasion will also diminish. While too early to assess whether there will be permanent effects,

Figure 10 shows that the weighted average price of real estate in eight major cities, which was already on a declining trend fell further after November 8, 2016. An equilibrium reduction in real estate prices is desirable as it will lead to affordable housing for the middle class, and facilitate labour mobility across India currently impeded by high and unaffordable rents.

VI. Short-term impact

3.51 Notwithstanding its long-term potential, demonetisation will impose short-term costs on the economy. Assessing the extent of these costs remains difficult, as sectoral data has only recently begun to

Figure 10. Real Estate Prices
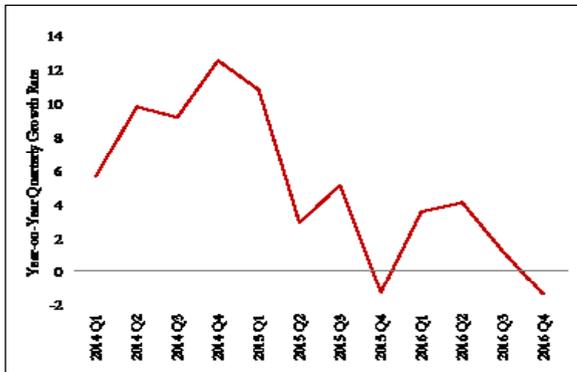
Source: **Knight Frank and Survey calculations.**

filter in. Moreover, the overall economy is so large and diverse that extrapolating from a few indicators is an exceptionally hazardous venture. And above all demonetisation represents a large structural shock so that underlying behavioral parameters of the past will be imperfect indicators of future behavior and hence outcomes. Nevertheless, an analytical framework to assess the situation remains indispensable.

3.52 We first quantify the cash impact, which then serves as the basis for estimating the GDP impact.

a. Impact on cash/money

3.53 To estimate the impact on GDP, it is first necessary to establish the impact of demonetisation on the supply of cash. Even to estimate the impact that has already occurred is not easy because the effective level of cash in circulation during November 9-December 30, 2016 depended on the extent to which:

a) old notes were still being used for transactions;

b) the new Rs 2000 notes were actually liquid, in the sense that individuals and firms could actually use them for transactions;

c) cash, old or new, was not returned.

3.54 To calculate the effective cash in circulation, we need further assumptions on (a)-(b) above.

• On (a), it was assumed that 75 percent of outstanding Rs 500 and Rs 1000 rupee denominations continued to serve de facto as legal tender.

• On (b), it was assumed that only 75 percent of the Rs 2000 notes were liquid in November, improving to 85 percent in December and 100 percent from January onwards, as new Rs 500 notes came increasingly into circulation.[11]

3.55 Projecting beyond end-December is much more straightforward, since the old notes are no longer circulating. Instead, the critical variable is the pace at which new notes and their denominations can be supplied ("remonetisation").

3.56 All these assumptions and inputs lead to estimates of effective currency in circulation between November 8, 2016 and the end of April, 2017. These estimates are expressed in absolute terms as well as a percentage of likely transactions demand. The latter is based on underlying nominal GDP growth as well as an assumed increase in the extent of digitalization and equilibrium reduction in the cash-deposits ratio, which will reduce the transactions demand for cash going forward. Since the transactions demand is an estimate, we show the confidence bands around our central estimates (Figure 11b).

3.57 The resulting figures for effective currency in circulation are markedly different from market perception based headline numbers (Figure 11a).

3.58 These headline numbers suggest that the currency decline after November 8, 2016 amounted to 62 percent by end-November,

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[11] Based on the nature of replenishments, Rs 2000 notes accounted for about 14 per cent, 35 per cent and 47 per cent of the value of all cash in circulation between November and January, 2016, tapering down to about 39% by end-March, 2016.

2016 narrowing to 41 percent by end-December, 2016. Our comparable numbers are 25 percent and 35 percent, respectively (Figures 11a and 11b). In other words, the true extent of the cash reduction was much smaller than commonly perceived, and the true peak of the monetary – as opposed to the psychological – shock occurred in December, rather than November.

3.59 The effective numbers also show that the shortfall is now narrowing rapidly. At end-December 2016, effective currency was only about 65 percent of estimated demand, but this is likely to rise to about 86 percent of transactions demand by end-February.

3.60 These estimates in turn yield numbers for growth in two transactions demand-related monetary aggregates that can help estimate the impact on GDP growth--cash in circulation and money (cash plus demand deposits). It is assumed that the increase in demand deposits for each month is equivalent

Figures 11a: Effective Currency in Circulation (Market Perception)*
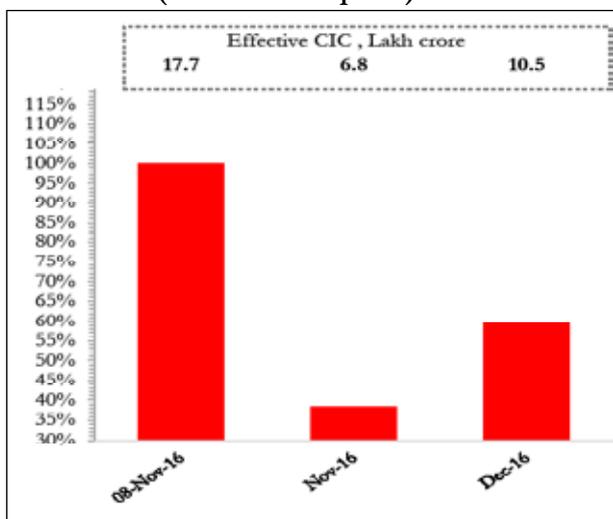
11b: Effective Currency in Circulation as a Proportion of Estimated Transactions Demand*
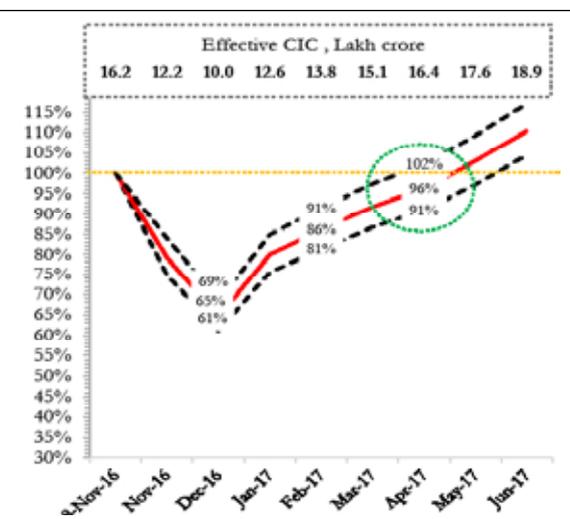
Source: Survey calculations

*End of the month unless otherwise specified.

Figure 12. Growth in Average Currency with Public and Demand Deposits (%)
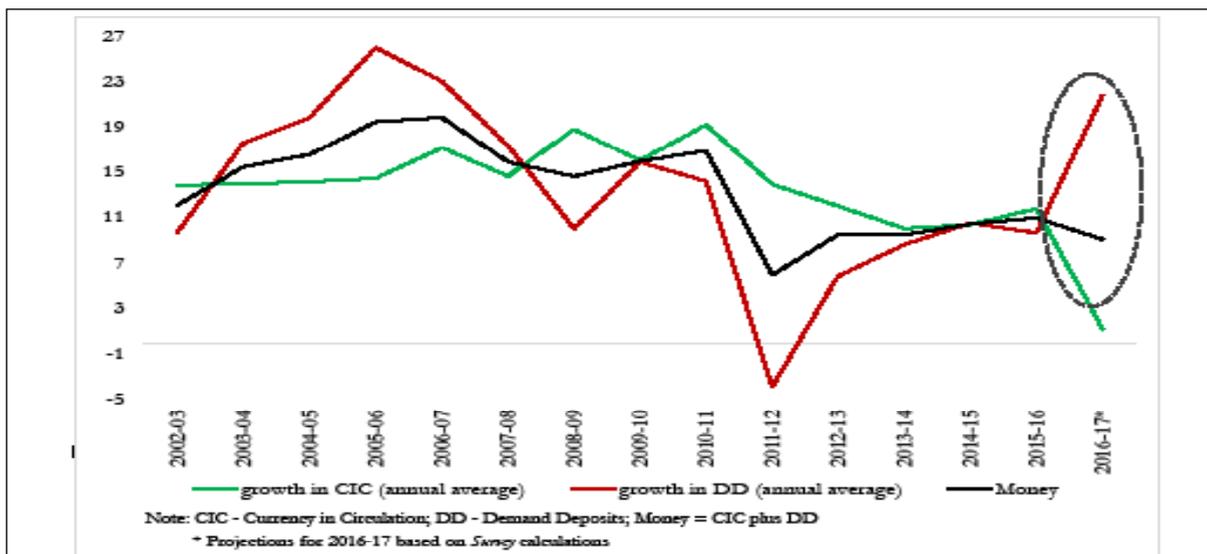
Source: Survey calculations

to old currency notes deposited with banks netted out for new cash replenishment and any loan repayments. Effective cash and money are estimated in year-on-year terms, as follows:

- *Second half of 2016-17 (average)*: -12.5 percent (cash) and +3.5 percent (cash plus demand deposits)

- *2016/17 (average)*: + 1.2 percent and + 9.1 percent.

VII. IMPACT ON GDP

3.61 It is first important to understand the analytics of the demonetisation shock in the short run. Demonetisation is potentially:

- an aggregate demand shock, because it reduces the supply of money and affects private wealth (especially of those holding unaccounted money and owning real estate);

- an aggregate supply shock to the extent that cash is a necessary input for economic activity (for example, if agricultural producers require cash to pay labour);

- and an uncertainty shock because economic agents face imponderables related to the impact and duration of the liquidity shock as well as further policy responses (causing consumers to defer or reduce discretionary consumption and firms to reconsider investment plans).

3.62 Anecdotal and other survey data abound on the impact of demonetisation. But we are interested in a macro-assessment and hence focus on five broad indicators:

- Agricultural (rabi) sowing;

- Indirect tax revenue, as a broad gauge of production and sales;

- Auto sales generally, as a measure of discretionary consumer spending, and two-wheelers in particular as it is the best available indicator of rural and demand of the less affluent;

- Real estate prices; and

- Real credit growth

3.63 Contrary to early fears, as of January 15, 2016 aggregate sowing of the two major rabi crops—wheat and pulses (gram)-- exceeded last year's planting by 7 percent and 15 percent, respectively (Figure 13). Whether this will lead to a commensurate increase in production will depend on the extent to which farmers' access to inputs—seeds, fertiliser, credit, and labour—was impeded by demonetisation.

Figure 13. Rabi Sowing for Wheat and Gram (in mn ha)

Wheat

Gram
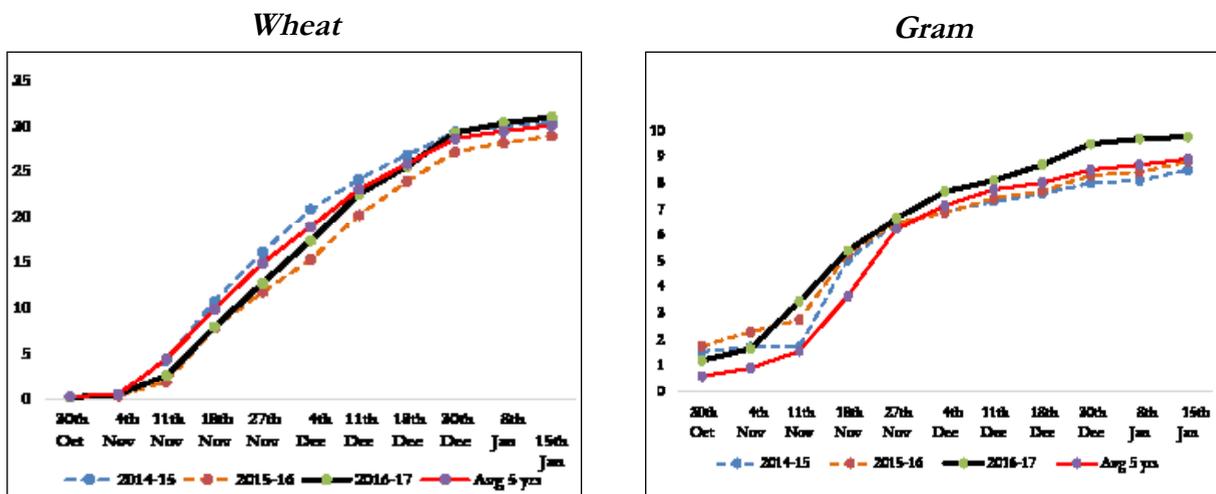
Source: **Ministry of Agriculture**

3.64 The high frequency indicators present a mixed picture (Figures 13-16). Agricultural sowing, passenger car sales, and overall excise taxes bear little imprint of demonetisation; and sales of two-wheelers show a marked decline after demonetisation; credit numbers were already looking weak before demonetisation, and those pre-existing trends were further reinforced after November 8. Indirect tax performance stripped of the effects of additional policy changes in 2016-17 (depicted as the dotted lines "ARM" in Figure 14) looks less robust than the headline number, but growth rates remain strong. It would be reasonable to conclude that real GDP and

Figure 14. Growth in Indirect Taxes (YoY monthly & cumulative, %)
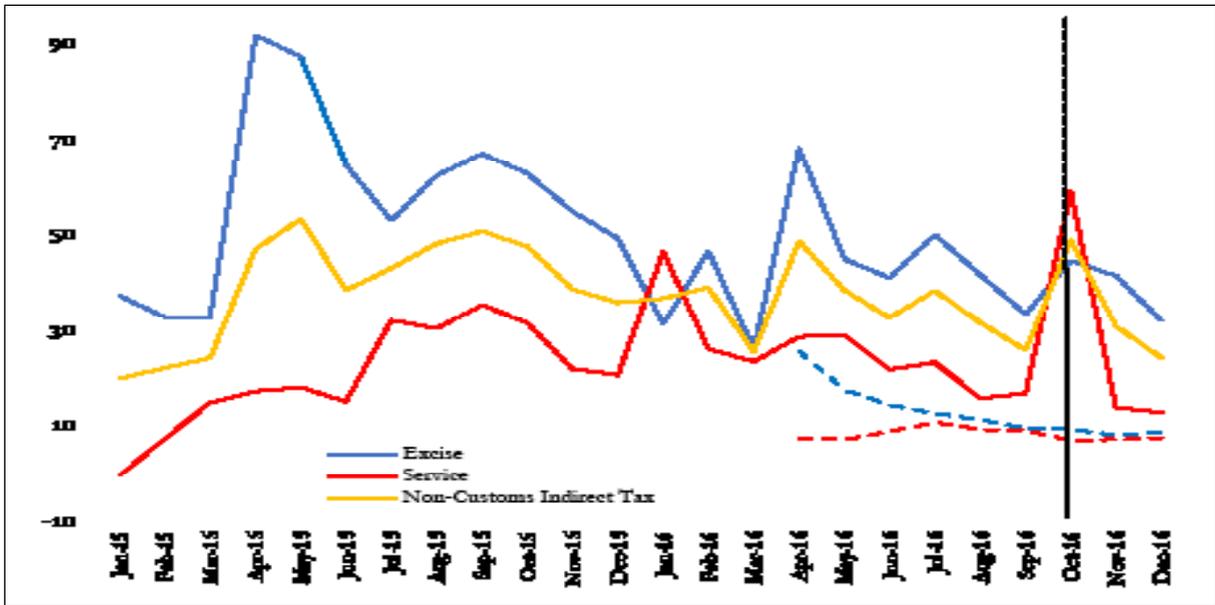
"ARM" refers to additional revenue measures (such as tax increases).
Source: Department of Revenue and *Survey* calculations

Figure 15. Growth in Automobile Sales (YoY, %)
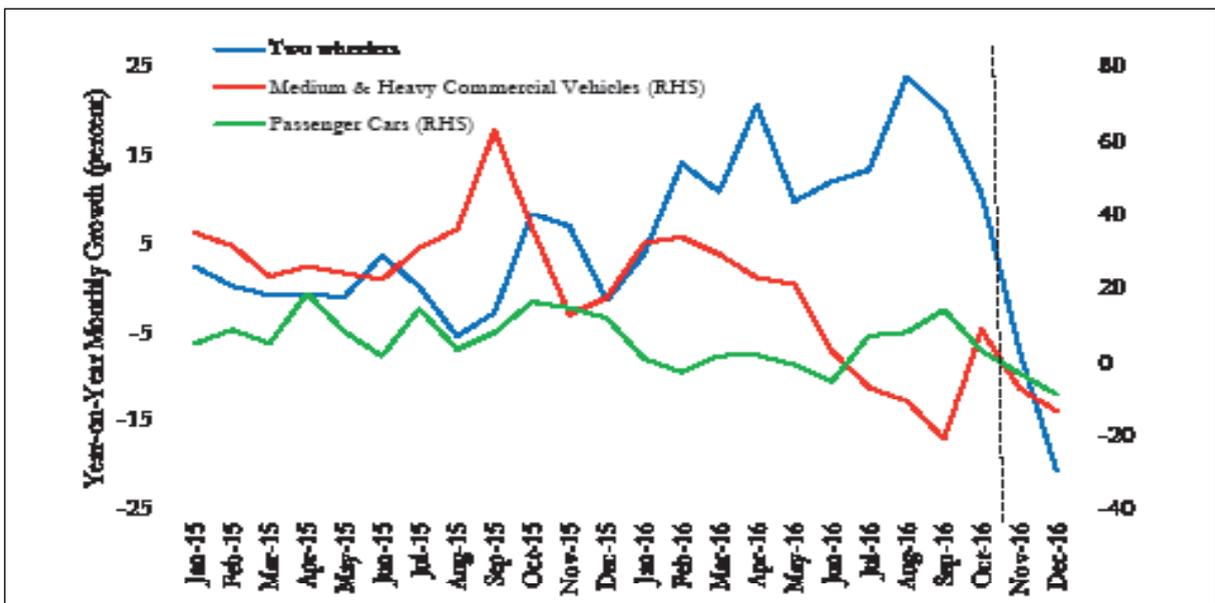
Source: Society of Indian Automobile Manufactures

Figure 16. Real Estate Prices (YoY Quarterly, %)[12]
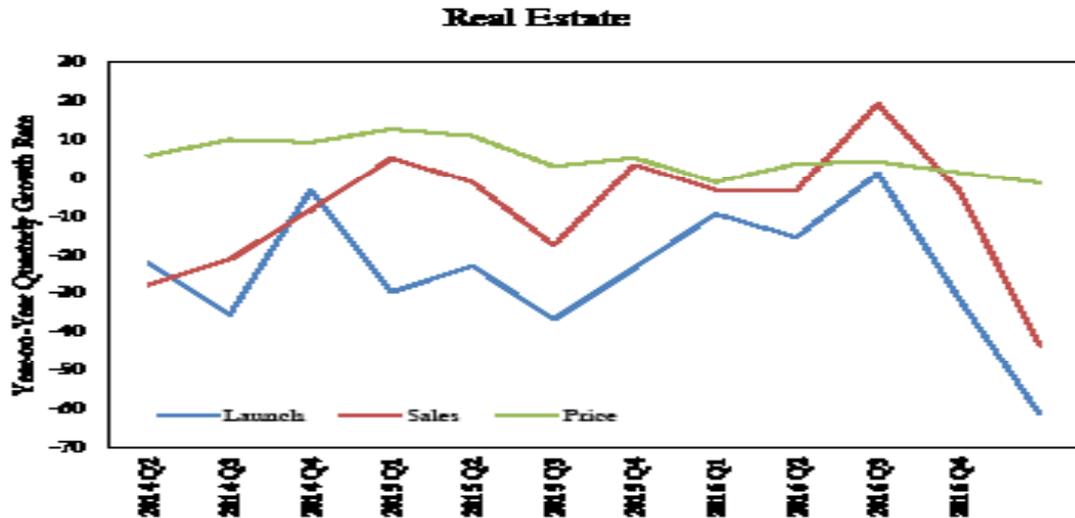
Source: **Knight Frank data and Survey calculations**

Figure 17. Real Credit Growth (YoY, %)
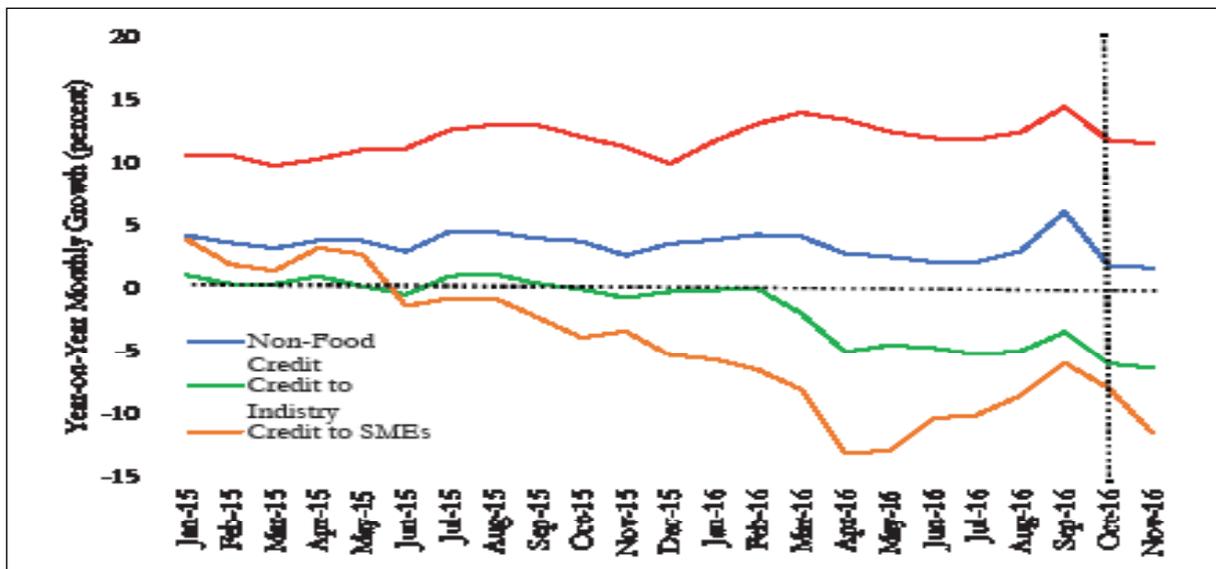
Source: **RBI**

Note: **Deflated by CPI New Series 2012 prices.**

economic activity has been affected adversely, but temporarily, by demonetisation. The question is: how much? The short answer is between ¼ and ½ percentage points relative to the baseline of about 7 percent. Over the medium run, the implementation of GST, follow-up to demonetization and other

structural reform measures should take the trend rate of growth of the economy to the 8-10 percent range that India needs. The next section elaborates.

a.   Framework

3.65 The next step is assessing the impact of the cash crunch on economic activity.

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[12] The quarterly data on real estate prices as collected by Knight Frank is as per calendar year viz. Q4 implies October-December

The standard way to do this is by employing the standard "quantity theory of money". Under this equation:

MV = PY, where

- M refers to the money supply

- V is velocity, the rate at which money turns over (the value of final sales [GDP] per rupee note)

- P, the price level

- Y, real GDP

3.66 In words, this equation says that if the money supply is reduced, either the remaining stock of money will need to be used more intensively, or else nominal GDP will fall. Some of this fall in nominal GDP would take the form of a reduction in prices. But there would also be some impact on real activity.

b. Operationalising the Model: *Estimate cash and non-cash proportions of economy and assume that demonetisation does not affect cashless part of the economy*

3.67 To operationalise this equation and use it to make forecasts, two conceptual issues need to be settled. The first issue is how to define the money supply. Normally, economists prefer broad measures that encompass both cash and bank deposits, because these are very close substitutes. A key aspect of the November 8 measure, however, is that the convertibility between cash and bank deposits was impeded. Cash could not be easily deposited into bank accounts, while withdrawals were subject to strict limits. As a result, cash and bank deposits need to be considered separately.

3.68 A similar distinction needs to be made between the informal and formal economies.

Clearly, the cash crunch must have affected the informal economy, which depends heavily on bank notes for its transactions and has been estimated to account for nearly half of the overall economy (Sen, 2016). This may even be an underestimate if consumer payment transactions were in any way indicative of the extent of cash-dependence of the economy in production.

3.69 Equally clearly the cash crunch would have had little direct impact on the formal economy, which depends instead on the banking system, where liquidity has actually improved. So once again, it makes sense to think about things separately, assuming that the cash shortfall affects the informal economy, but has had no impact on the formal economy.

3.70 Of course, this is not literally true, for there are important second-round effects. As workers in the informal economy have been laid off, they have bought fewer products (such as fast-moving consumer goods or two-wheelers) from the formal economy.[13] Conversely, some participants in the informal economy have shifted into the formal payments systems (such as kirana shops installing POS terminals). Also, in the cash-intensive economy, the liquidity shortage has led at least transiently to a greater recourse to informal credit (such as kirana shops allowing regular customers to pay at a later date).

3.71 The indirect demand and digitalisation/credit effects go in opposite directions, with the former amplifying the effect of the cash shortage and the latter reducing it. Two scenarios are identified and assumptions are made in each about the initial level of the cash-intensive part of the economy and the extent to which it will change between November 8 and end-March 2017.

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[13] More broadly, the informal and formal economies are inextricably entwined, so that problems in one inevitably affect the other. For example, many firms that operate in the formal economy depend on suppliers from the informal economy.

3.72 The framework itself cannot shed any light on how nominal GDP growth estimates can be decomposed into their real and price components. However, if demonetisation is predominantly an aggregate demand shock, we should expect some reduction in prices as well. Accordingly, we project prices till the end of March under two scenarios, one in which demonetisation reduces inflation and one in which it does not.

3.73 Based on all of the above and given the uncertainty, a range is provided and not a point estimate. For nominal GDP, the impact would be lower growth between ¼ percentage points and 1 percentage point relative to the baseline of 11¼ per cent. For real GDP the impact would be between ¼ percentage points and ½ percentage points relative to the baseline of 7 per cent. Over the medium run, the implementation of GST, follow-up to demonetization and other structural reform measures should take the trend rate of growth of the economy to the 8-10 percent range that India needs. How to interpret and not interpret these estimates is highlighted in Box 2.

3.74 A final and important point to make is that the adverse impact of demonetisation on GDP growth will be transitional. Once the cash supply is replenished, which should largely be achieved by end-March 2017, the economy should revert to normal, perhaps even with a bounce reflecting reversion to the mean. Therefore real GDP growth in 2017-18 is projected to be in the 6¾-7½ percent range.

3.75 A few concluding observations on the impact of demonetization on economic activity. It is clear that recorded GDP growth in the second half of FY2017 will understate the overall impact because the most affected parts of the economy—informal and cash-based—are either not captured in the national income accounts or to the extent they are, their measurement is based on formal sector indicators. For example, informal manufacturing is proxied by the Index of Industrial Production, which includes mostly

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Box 2. Clarifying in Advance Possible Misinterpretations in GDP-Demonetization Effects

The GDP growth estimates of the CSO and the Survey, and especially the demonetization impact, could potentially give rise to a number of misinterpretations which must be anticipated and clarified.

For example, many commentators will be tempted to compare this year's real GDP growth estimate with last year's outturn of 7.6 percent. But this would be inappropriate, because many other factors have influenced this year's performance, quite apart from demonetisation. For example, international oil prices have stopped falling, providing less of an updraft to the economy. So growth would have inevitably differed, even without demonetisation.

Consequently, a better benchmark would be an estimate of what real GDP growth would have been in the absence of demonetization. A reasonable counterfactual to use would be the CSO's advance estimate of real GDP growth of 7.1 percent, which is close to the Survey's counterfactual, as well.

An even better counterfactual for comparison would be the level of nominal rather than real GDP growth. After all, demonetization is mostly a nominal demand shock, so its effect in the first instance will be on nominal magnitudes. Moreover, as noted in the Mid-Year Economic Analysis (2015), the large wedge between CPI and WPI inflation has created difficulties in measuring the GDP deflator, which is used to convert nominal magnitudes into real GDP. While the wedge has converged to zero this year as per December 2016 data, nominal magnitudes remain a better basis for identifying the demonetization effect.

Therefore, the most appropriate gauge of demonetization would be to compare actual nominal GDP growth -- or the Survey's estimate of it -- with the counterfactual nominal GDP growth without demonetization. According to the CSO this counterfactual is 11.9 percent, while the Survey's estimate is around 11¼ percent.

Finally, commentators will be tempted to compare the *Survey's* real GDP growth with those of other institutions such as the World Bank and the International Monetary Fund. But their baseline growth for 2016-17 (pre-demonetisation) was much higher than the CSO's Advance Estimates and the *Survey's*. Therefore, the more appropriate comparision would be based on the changes in the forecasts rather than their levels.

large establishments. So, on the production or supply side, the effect on economic activity will be underestimated. The impact on the informal sector will, however, be captured insofar as lower incomes affect demand for formal sector output, for example, two-wheelers.

3.76 Finally, demonetization will afford an interesting natural experiment on the substitutability between cash and other forms of money. Demonetization has driven a sharp and dramatic wedge in the supply of these two: if cash and other forms are substitutable, the impact will be relatively muted; if, on the other hand, cash is not substitutable the impact will be greater.

c.   Validation exercise: *Cash and demand deposits are perfect substitutes versus cash as the binding constraint*

3.77 A validation exercise is conducted, focusing on the growth estimates for the second half.[14] The implied velocity both for money (cash and demand deposits) and cash is calculated to see how they compare with historical behavior. This exercise is carried out for two scenarios. In the first, the money velocity is computed (shown in Figure 18). The underlying assumption here is that cash and demand deposits are perfect substitutes, so that it did not matter that cash was reduced as long as other forms of money replaced it, as indeed happened. This is one extreme assumption. Here the implied velocity for each scenario is found to be slightly higher than historical trends.

3.78 In another scenario (shown in Figure 19), the implied velocity for cash is examined. Here the assumption is that during the period of demonetisation, cash was the binding constraint for transactions. Under this assumption, the implied cash velocity would be very different from that observed historically.

Figure 18. Half-yearly Money Velocity (Cash and Non-cash)
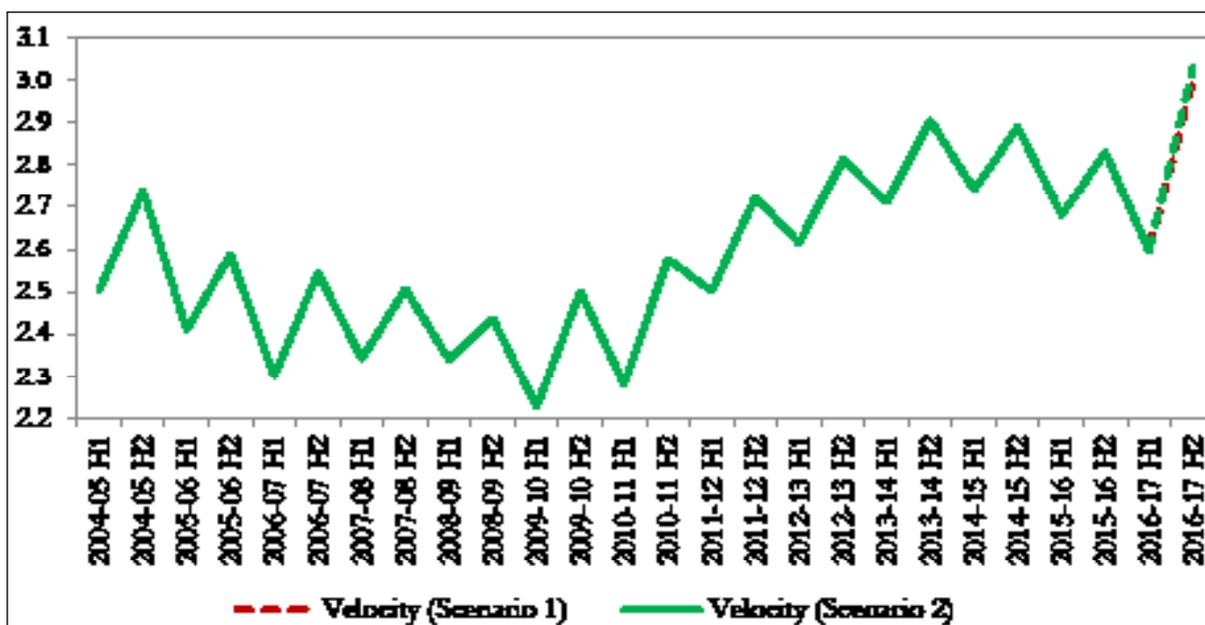
Source: **Survey calculations**

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[14] Another possibility would have been to carry out this exercise for the whole year. Since demonetisation will only affect the second half and since monetary aggregates in the July-September quarter showed unusual movements, the analysis was conducted for the period November 2016-March 2017.

Figure 19. Half-yearly Money Velocity (Cash only)
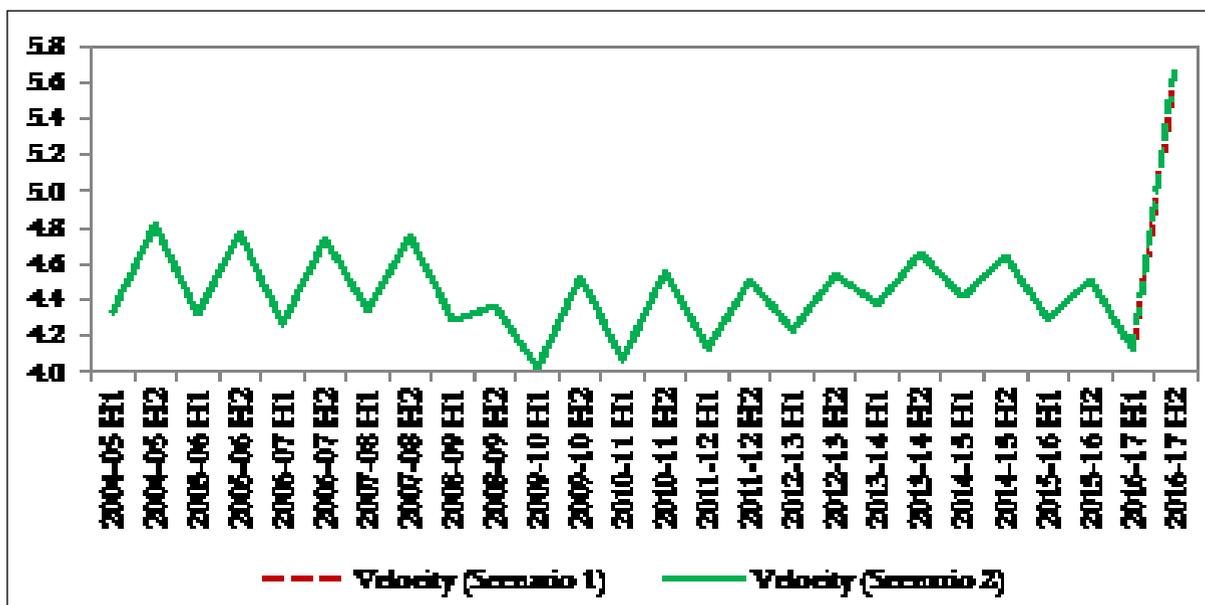
3.79 The reality, of course, is expected to lie somewhere in between. The plausibility of these estimates then depends on the degree of substitutability between cash and non-cash during demonetisation. The more substitutable they are, the more plausible are the growth estimates; the less substitutable they are, the greater will be the adverse impact on GDP.

d.   Supply-side effects

3.80 These estimates are based entirely on the liquidity impact of demonetisation rather than the wealth, aggregate supply, or uncertainty effects. These latter effects are impossible to predict in quantitative terms, but some qualitative assessment is possible. It is likely, for example, that uncertainty caused consumers to postpone purchases and firms to put off investments in the third quarter. But as the economy is remonetised and conditions normalise, the uncertainty should dissipate and spending might well rebound toward the end of the fiscal year. Similarly, there was clearly a wealth shock in the initial months, as cash assets were turned into the

banks (from where they were difficult to withdraw), but as restrictions are lifted this effect should disappear as well. Indeed, to the extent that some of this wealth has been transferred to those with higher propensity to spend, including the government, demand could eventually increase.

3.81 This relatively benign outcome would materialise, however, if and only if remonetisation is effected expeditiously (and Figure 11b shows that around 90 percent of transactions demand can be met before the end of current financial year), and decisive policy actions taken to clear away the uncertainty and dispel fears of an over-zealous tax administration. Only then could the effects of demonetisation prove non-permanent in nature.

3.82 Demonetisation could also affect supplies of certain agricultural products, especially milk (where procurement has been low), sugar (where cane availability and drought in the Southern states will restrict production), and potatoes and onions (where sowings have been low). Vigilance is essential

to prevent other agricultural products becoming in 2017-18 what pulses was in 2015-16 in terms of supply deficiencies and consequential higher inflation.

VIII. REDISTRIBUTION TO THE GOVERNMENT

3.83 Demonetisation will also redistribute resources. For example, to the extent that black money holders have laundered their money by employing people to stand in queues there could be a positive wealth effect because cash would go from agents with a low propensity to spend to those with a greater propensity to spend. But perhaps the most important redistributive effect is that it will shift resources from the private sector to the government. The impact on the overall economy will then depend on how the government responds.

3.84 Demonetisation will affect the fiscal accounts in the following ways.

3.85 Wealth gain: The RBI/government may receive some gains from the unreturned cash.

3.86 Short-term flow impact: The net impact is difficult to discern, as there are many cross-cutting effects. Income taxes could go up as black money was deposited in bank accounts (as discussed in Section IV above). There are also reports of increases in tax payments at state government levels and accelerated payments to discoms. Against this are three negative effects:

- Costs of printing new notes over and above normal replacement.

- The costs of sterilizing the surge in liquidity into the banking system via issuance of Market Stabilization Scheme bonds.

- If nominal GDP growth declines, corporate and indirect tax revenues of the centre could decline but so far there is no clear evidence.

3.87 Overall, the total cost will be clear at the end of the full year.

IX. MARKERS OF SUCCESS

3.88 Demonetisation can have long term benefits. These may not necessarily become manifest in the next six months but evidence should start trickling in over a one-year horizon and beyond. And it is not difficult to identify the future markers of success.

3.89 First, changes in the use of digital payment methods across the three categories of digital access identified earlier, namely, smart phone users, regular phone users and the phoneless, respectively. The early signs are encouraging.

3.90 Second, the cash-GDP ratio, which should decline as more saving is channeled through the formal financial system and black money falls. On one estimate of black money, the cash-GDP ratio could decline permanently by about 2 percentage points.

3.91 Perhaps the most important marker of success will be taxes. The number of new income tax payers as well as the magnitude of reported and taxable income should go up over time. The situation as of 2013-14 is given in Table 3 below. Over time, each of these numbers should rise significantly. That will be the surest sign of success.

Table 3. Distribution of Individual Income Tax Payer for FY 2013-14

Range of Gross Income	Number of Taxpayers (in lakhs)	Total Income (Rs lakh crore)
Rs 0-2.5 lakh	137.2	2.6
Rs 2.5-5 lakh	138.5	4.8
Rs 5-10 lakh	65.1	4.4
Rs 10 lakh +	24.4	6.7
Taxpayers who filed tax returns	365.1	18.4
Taxpayers who paid tax but didn't file returns	172.9	-
Grand Total	**538. 0**	**-**

3.92 To the extent that demonetisation has also raised the costs of non-compliance with indirect taxes, we should also expect to see an increase in registration under the service and excise taxes and under the states' VATs. These should drift up steadily in the future.

X. Maximising long-term benefits, minimising short-term costs

3.93 Moving forward, the emphasis must be on maximising demonetisation's benefits while minimising its costs.

3.94 On the latter, the most important effort must be to replenish the cash shortage as quickly as possible. The faster remonetisation takes place, the shorter and less severe will be the overall impact of demonetisation.

3.95 One point bears emphasis. Supply of currency should follow actual demand and not be dictated by official estimates of "desirable demand". In other words, the RBI should re-establish internal convertibility, guaranteeing to give the public the amount of currency that the latter wants. The early elimination of withdrawal limits will help build confidence. By the same token, there should be no penalties on cash withdrawals, which would only encourage cash hoarding.

3.96 Internal convertibility is a bedrock of every single financial system in the world, for some very practical reasons. Unless people have confidence that money deposited in bank accounts is freely convertible into cash, and vice versa, they will be reluctant to deposit their cash in the first place. Instead, they will hoard it, starving the formal financial system of resources and the informal economy of the currency it needs for transactions. And this would affect the poor most, not just because they are more likely to work in the informal economy, but because the affluent will likely corner the limited currency available. Gradually, of

course, the proportion of low denomination notes should certainly rise at the expense of higher ones. But there should not be any restrictions on aggregate supply.

3.97 Meanwhile, the government windfall arising from unreturned notes should be deployed toward capital-type expenditures rather than current ones. And since the windfall will be one-off its use should be one-off and not lead to entitlements that create permanently higher expenditures.

3.98 In the medium term, the impetus provided to digitalization must continue. A few principles must guide this effort going forward. Digitalisation is not a panacea, nor is cash all bad. Public policy must balance benefits and costs of both forms of payments. Second, the transition to digitalisation must be gradual; take full account of the digitally-deprived; respect rather than dictate choice; and be inclusive rather than controlled.

3.99 To the extent that digitalisation must be incentivised-- and the incentives favouring cash neutralized--the cost must be borne by the public sector (government/RBI) and not the consumer or financial intermediaries. Incentivisation should be strictly time-bound because as volumes increase digitalisation should become privately profitable. To increase trust in digital payments, cyber-security systems must be strengthened considerably. One key need is to ensure inter-operability of the payment system, which will be at the heart of increasing digitalisation going forward, building upon the newly created UPI.

3.100 Above all, ensuring that demonetisation indeed proves a catalyst for long-run changes in behavior will require measures to complement demonetisation with other non-punitive, incentive-compatible measures that reduce the incentives for tax evasion. Demonetisation was a potentially

powerful stick which now needs carrots as complements. A five-pronged strategy could be adopted:

- a GST with broad coverage to include activities that are sources of black money creation—land and other immovable property—should be implemented;

- individual income tax rates and real estate stamp duties could be reduced;

- the income tax net could be widened gradually and, consistent with constitutional arrangements, could progressively encompass all high incomes. (After all, black money does not make fine sectoral distinctions);

- the timetable for reducing the corporate tax rate could be accelerated; and

- tax administration could be improved to reduce discretion and improve accountability.

3.101 Finally, it is imperative that the effort to collect taxes on newly disclosed (and undisclosed) wealth does not lead to tax harassment by officials at all rungs of the hierarchy. There must be a shift to greater use of data, smarter evidence-based scrutiny and audit, greater reliance on on-line assessments with correspondingly less interaction between tax payers and tax officials. At a time when the GST will be providing so much more data on individual transactions, greater information sharing between the direct and indirect tax departments at the centre, along with coordination with the states, could lead to greater compliance through non-punitive means, not just in relation to indirect but also direct tax collections. Big Data and the digital age, and the promise they offer, should also be embraced by the tax administration.

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APPENDIX 1. CROSS-COUNTRY INSTANCES OF DEMONETISATION

Major Instances of Sudden Demonetisation/sharp currency contractions/changes since 1982[15]

Country	Year	Measures	Rationale	Effects
Ghana	1982	Demonetisation of 50 cedi notes in 1982; no exchange facility for long; freeze on bank deposits	Excess liquidity and inflation	Loss of confidence in the banking system
Myanmar	1985	50 and 100-kyat notes demonetized; limited exchange facility; 75-kyat notes were introduced	Need to fight black marketing	Public protests
Myanmar	1987	25, 35, and 75-kyat notes demonetised with hardly any exchange facility; new denominations were introduced.		Hurry to buy and stock goods pushed inflation up
Brazil	1990	Collor Plan: monetary contraction by freezing all deposits above certain limit; de-indexation of the economy; price and wage freezes. Deposits upto a ceiling denominated in the old currency (cruzado novo) were converted to the new currency (cruzeiro) at parity.	Fight hyperinflation	Contraction of output; price moderation only very gradual due to uncontrolled re-injection of liquidity
Brazil	1993	Real Plan: New currency introduced, the cruzeiro real, worth 1000 cruzeiros, with both old and new currencies circulating	Fight hyperinflation	Economy stabilized gradually
Soviet Union	1991	50- and 100-ruble notes were withdrawn suddenly in January for exchange to new rubles; exchange to be completed in three days and in very small amounts per person.	Fight organized crime and address money overhang	Loss of public confidence, hyperinflation, cash drying up, job losses
Russia	1993	Similar to the 1991 step; Russia also negotiated with neighbours to establish a new ruble zone, but only Belarus signed agreement.	Need to complete exchange of old bank notes and control inflation	Did not strengthen ruble; problems for neighbouring currencies
Iraq	1993	25 dinar notes replaced by new locally printed, low-quality notes; limited time to exchange notes; residents in the north could not exchange notes; their holdings of old dinars in effect became their new currency.	Southern Iraq, being unable to cope with UN sanctions and print money abroad, printed it locally to finance fiscal deficits.	Uncontrolled printing caused inflation to soar
North Korea	2009	Old notes demonetized/revalued with strict limits on exchange, which was raised later; In February 2010, some curbs on the free market were eased.	To crack down black currency market and fight inflation	Activities halted for a week; public panic; won depreciated in black market; protests.
Cyprus	2013	On acceptance of the European-IMF bailout package, Cyprus imposed a one-time bank deposit levy on uninsured deposits.	Weakened banking system after Greece defaulted on its debts	Banking system gradually regained its footing
Greece	2015	June 2015: announced that banks would remain closed for a while; and capital controls were imposed.	Fiscal and banking crisis.	Banks reopened in July 2015 but capital controls remained.
Venezuela	2016	Announced in December 2016 that 100 boliver notes would be recalled.	To fight inflation and profiteering	Public unrest

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[15] There have been other instances of sudden demonetisation mentioned, for example in the K.N. Wanchoo Committee Report, that have occurred historically, including Belgium, the Netherlands, Greece, France, Romania and Ceylon.

Major instances of Pre-announced/Gradual Demonetisation/Sharp Currency Contractions/Changes

Country	Year	Measures	Rationale	Effects
Singapore	1967	In June 1967, the currency union of Malaysia, Singapore and Brunei ended and each issued its own currency; As per Interchangeability Agreement 1967, the three currencies were interchangeable at par.	Two years after Singapore's independence from Malaysia in 1965, the monetary union broke down.	Interchangeability is still maintained with Brunei dollar.
Australia	1988& 2015	After thorough research during 1970s-80s on higher-quality reprographic technology, counterfeit-resistant polymer banknotes were released in 1988; February 2015 announcement-- next generation of notes would include a 'tactile' feature to assist the vision-impaired.	Prevent counterfeiting	The first country to have a full series of circulating polymer bank notes.
Euro	1999	The agreement for a single currency by 1999 was reached in 1992; After careful planning, and announcement of design, euro was introduced in non-physical form in January 1999; Old currencies remained legal tender till January 2002 when new notes were issued; Old currencies were exchangeable till end-June 2002 and even beyond.	Create a common currency for the European Union	Transition was generally smooth.
Singapore	1999& 2014	The Portrait notes, the fourth series of currency notes, were launched in September 1999 with sophisticated security features. Discontinued issuance of S$10,000 note and instructed banks to stop re-circulating it since October 2014; but still remained legal tender	2014 move: Mitigate higher money-laundering risks associated with large-value cash transactions	
Canada	2011	Unveiled polymer bank notes in June 2011; disseminated information; issued new $100 notes in November 2011 and $50 notes in March 2012.	Improve public confidence in currency; deter counterfeiting	
Denmark	2012	From 2009 to 2011, introduced a new banknote series with a number of advanced features; in 2012, the Faroese banknote series was upgraded.	Fight counterfeiting threats	
Sweden	2013-2016	50-krona and 1,000-krona banknotes without foil strips were made invalid after December 2013; new 20, 50, 200 and 1,000 krona notes were issued in October 2015; Use of old versions limited till June 2016; in October 2016, new 100 and 500 krona banknotes and some coins were issued; payments using the earlier versions will be till June 2017.	Decisions were part of the preparations for the replacement of the banknote and coin series which was scheduled to begin in 2015.	

Zimbabwe	2015	Zimbabwean dollar (ZD) was demonetised. The plan was to have complete switch to US dollar by September 2015 and to adopt multiple currencies.	Following hyperinflation, ZD was effectively abandoned in 2009 and use of foreign currencies was legalised;	Consumer prices stabilised.
Pakistan	2015	In June 2015, it was announced that old design notes of Rs 10, 50, 100 & 1000 would be non-legal tender from 1st December 2016; banks would exchange old notes with new ones till end- November 2016; State Bank of Pakistan-Banking Services Corporation field offices would continue to accept the old notes till end-December 2021	Fight corruption, black money and terrorism	No credible information available to confirm status.
Euro area	2016	New €50 banknotes were unveiled in July 2016; will start circulating from April 2017 European Central Bank further announced: issuance of the €500 will be stopped by end-2018, when the €100 and €200 banknotes of the Europa series will be introduced.	Make Euro more secure and safe with state-of-the-art security features: Decision on €500 took into account concerns that this banknote could facilitate illicit activities	

The Festering Twin Balance Sheet Problem

04

CHAPTER

"The most costly outlay is time."

– Antiphon the Sophist
Athens, 5th Century BCE

For some time, India has been trying to solve its Twin Balance Sheet problem–over-leveraged companies and bad-loan-encumbered banks -- using a decentralised approach, under which banks have been put in charge of the restructuring decisions. But decisive resolutions of the loans, concentrated in the large companies, have eluded successive attempts at reform. The problem has consequently continued to fester: NPAs keep growing, while credit and investment keep falling. Perhaps it is time to consider a different approach — a centralised Public Sector Asset Rehabilitation Agency that could take charge of the largest, most difficult cases, and make politically tough decisions to reduce debt.

I.   Introduction

4.1   In February 2016, financial markets in India were rocked by bad news from the banking system. One by one, public sector banks revealed their financial results for the December quarter. And the numbers were stunning. Banks reported that non-performing assets had soared, to such an extent that provisioning had overwhelmed operating earnings. As a result, net income had plunged deeply into the red.

4.2   The news set off alarm bells amongst investors, who responded by fleeing public sector bank shares, bringing their prices to such low levels that at one point the medium-sized private sector bank HDFC was valued as much as 24 public sector banks put together (Figure 1).

4.3   What had happened? Normally, non-performing assets (NPAs) soar when there is an economic crisis, triggering widespread bankruptcies. This is precisely what happened in East Asia during 1997-98 and the US and UK in 2008-09. But there was no economic crisis in India; to the contrary, GDP was growing at a world-beating pace. Nor had there been any major calamity in the corporate sector; no large firm had gone bankrupt.

4.4   At one level, the explanation was straightforward. The RBI had conducted an Asset Quality Review (AQR), following which banks cleaned up their books, sweeping away the debris that had accumulated over many years. But this only begged a deeper question of how so much debris had accumulated in the first place. Moreover, as 2016 proceeded it became clear that the AQR was not the only factor at work. The mandated adjustments

Figure 1. Market Capitalisation - Public Sector Banks & HDFC (Rs. trillion)
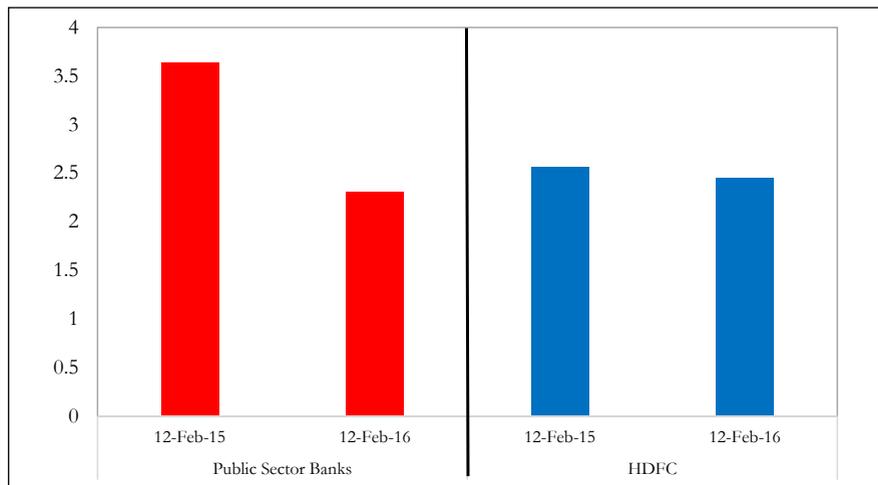
Source: **Bloomberg.**

were completed in March. But NPAs nonetheless continued to climb, reaching 9 percent of total advances by September -- double their year-ago level. Equally striking was the concentration of these bad loans. More than four-fifths of the non-performing assets were in the public sector banks, where the NPA ratio had reached almost 12 percent (Figure 2a).

4.5   Meanwhile, on the corporate side,

Credit Suisse reported that around 40 percent of the corporate debt it monitored was owed by companies which had an interest coverage ratio less than 1, meaning they did not earn enough to pay the interest obligations on their loans (Figure 3).[1]

4.6   As this data filtered into the public consciousness, it became clear that India was suffering from a "twin balance sheet problem", where both the banking and

Figure 2. Gross NPA Ratio (Per cent of Gross Advances)
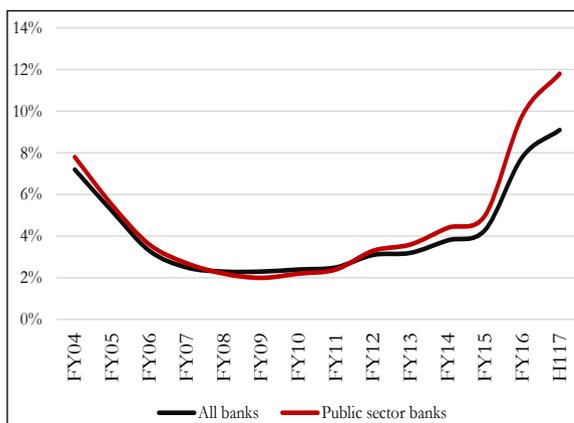
Figure 3. Share of Debt Owed by Stressed Companies*
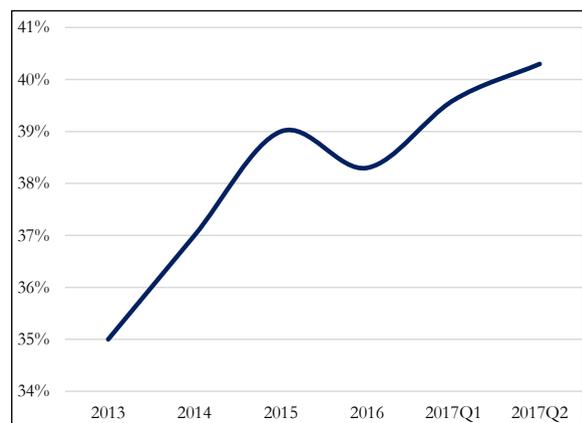
Source: **Reserve Bank of India for NPAs; Credit Suisse for debt share.*: Percent of debt owed by companies that have interest coverage ratio less than one, where cash flow is measured by EBIT, earnings before interest and taxes. Based on sample of 3,700 listed nonfinancial companies. Debt share numbers are for end-March for 2013-2016. H117 refers to the first half of FY17.**

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[1]   The analysis in this chapter has utilized the Credit Suisse database, particularly its information on 3700 listed firms.

corporate sectors were under stress. Not just a small amount of stress, but one of the highest degrees of stress in the world. At its current level, India's NPA ratio is higher than any other major emerging market (with the exception of Russia), higher even than the peak levels seen in Korea during the East Asian crisis (Figure 4).

Figure 4. NPA Ratios: Selected Countries (Per cent of Gross Loans)
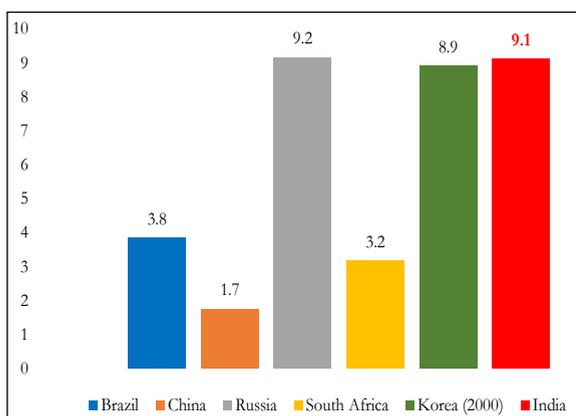
Source: **RBI for India. World Development Indicators, World Bank for others.**

4.7   How can this possibly be explained? Typically, countries with a twin balance sheet (TBS) problem follow a standard path. Their corporations over-expand during a boom, leaving them with obligations that they can't repay. So, they default on their debts, leaving bank balance sheets impaired, as well. This combination then proves devastating for growth, since the hobbled corporations are reluctant to invest, while those that remain sound can't invest much either, since fragile banks are not really in a position to lend to them.

4.8   This model, however, doesn't seem to fit India's case. True, India had boomed during the mid-2000s along with the global economy. But it sailed through the GFC largely unscathed, with only a brief interruption in growth before it resumed at a rapid rate. According to conventional

wisdom, this happened because Indian companies and banks had avoided the boom-period mistakes made by their counterparts abroad. More precisely, in this view, they were prevented from accumulating too much leverage, because prudential restrictions kept bank credit from expanding excessively during the boom, while capital controls prevented an undue recourse to foreign loans.

4.9   If this narrative is correct, then it is puzzling that India nonetheless wound up with a twin balance sheet problem. Conversely, if the narrative is wrong and India followed the classic path to the TBS problem, then it is unclear why the consequences have seemed so minor.

4.10   One   reason   for   the   modest consequences comes readily to hand. In other TBS cases, growth was derailed because high NPA levels had triggered banking crises. But this has not happened in India. In fact, there has not even been a hint of pressure on the banking system. There have been no bank runs, no stress in the interbank market, and no need for any liquidity support, at any point since the TBS problem first emerged in 2010. And all for a very good reason: because the bulk of the problem has been concentrated in the public sector banks, which not only hold their own capital but are ultimately backed by the government, whose resources are more than sufficient to deal with the NPA problem. As a result, creditors have retained complete confidence in the banking system.

4.11   That said, India's TBS experience remains deeply puzzling. This chapter attempts to answer four sets of questions:

- What went wrong – and when did it go wrong?

- How has India managed to achieve rapid growth, despite its TBS problem?

- Is this model sustainable?

- What now needs to be done?

4.12 The answers to these questions are complex. But the policy implications can be summarised easily enough. For some years, it seemed possible to regard TBS as a minor problem, which would largely be resolved as economy recovery took hold. But more recently it has become clear that this strategy will not work. Growth will not solve the problems of the stressed firms; to the contrary, the problems of the stressed firms might actually imperil growth.

4.13 To avoid this outcome, a formal agency may be needed to resolve the large bad debt cases – the same solution the East Asian countries employed after they were hit by severe TBS problems in the 1990s. In short, the time may have arrived to create a 'Public Sector Asset Rehabilitation Agency' (PARA, Box 1).

A.   What went wrong?

4.14 The origins of the NPA problem lie not in the events of the past few years, but much further back in time, in decisions taken during the mid-2000s. During that period, economies all over the world were booming, almost no country more than India, where GDP growth had surged to 9-10 percent per annum. For the first time in the country's history, everything was going right: corporate profitability was amongst the highest in the world, encouraging firms to hire labour aggressively, which in turn sent wages soaring. It seemed that India had

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Box 1. Why is a Public Sector Asset Rehabilitation Agency (PARA) Needed?

The argument for PARA is developed at length in the third section. But it is worth outlining in advance the seven steps that lead to this conclusion.

1. **It's not just about banks, it's a lot about companies.** So far, public discussion of the bad loan problem has focused on bank capital, as if the main obstacle to resolving TBS was finding the funds needed by the public sector banks. But securing funding is actually the easiest part, as the cost is small relative to the resources the government commands. Far more problematic is finding a way to resolve the bad debts in the first place.

2. **It is an economic problem, not a morality play.** Without doubt, there are cases where debt repayment problems have been caused by diversion of funds. But the vast bulk of the problem has been caused by unexpected changes in the economic environment: timetables, exchange rates, and growth rate assumptions going wrong.

3. **The stressed debt is heavily concentrated in large companies.** Concentration creates an opportunity, because TBS could be overcome by solving a relatively small number of cases. But it presents an even bigger challenge, because large cases are inherently difficult to resolve.

4. **Many of these companies are unviable at current levels of debt requiring debt write-downs in many cases.** Cash flows in the large stressed companies have been deteriorating over the past few years, to the point where debt reductions of more than 50 percent will often be needed to restore viability. The only alternative would be to convert debt to equity, take over the companies, and then sell them at a loss.

5. **Banks are finding it difficult to resolve these cases, despite a proliferation of schemes to help them.** Among other issues, they face severe coordination problems, since large debtors have many creditors, with different interests. If PSU banks grant large debt reductions, this could attract the attention of the investigative agencies. But taking over large companies will be politically difficult, as well.

6. **Delay is costly.** Since banks can't resolve the big cases, they have simply refinanced the debtors, effectively "kicking the problems down the road". But this is costly for the government, because it means the bad debts keep rising, increasing the ultimate recapitalization bill for the government and the associated political difficulties. Delay is also costly for the economy, because impaired banks are scaling back their credit, while stressed companies are cutting their investments.

7. **Progress may require a PARA.** Private Asset Reconstruction Companies (ARCs) haven't proved any more successful than banks in resolving bad debts. But international experience shows that a professionally run central agency with government backing – while not without its own difficulties -- can overcome the difficulties that have impeded progress.

finally "arrived", earning the long-awaited reward for the efforts made since 1991 to establish a modern, competitive economy. And the next step seemed clear: the country was going to join the path blazed by China, in which double-digit growth would persist for several decades.

4.15 Firms made plans accordingly. They launched new projects worth lakhs of crores, particularly in infrastructure-related areas such as power generation, steel, and telecoms, setting off the biggest investment boom in the country's history. Within the span of four short years, the investment-GDP ratio had soared by 11 percentage points, reaching over 38 percent by 2007-08 (Figure 5).

4.16 This investment was financed by an astonishing credit boom, also the largest in the nation's history, one that was sizeable even compared to other large credit booms internationally. In the span of just three years, running from 2004-05 to 2008-09, the amount of non-food bank credit doubled.

And this was just the credit from banks: there were also large inflows of funding from overseas, with capital inflows in 2007-08 reaching 9 percent of GDP. All of this added up to an extraordinary increase in the debt of non-financial corporations. Put another way, as double digit growth beckoned, firms abandoned their conservative debt/equity ratios and leveraged themselves up to take advantage of the perceived opportunities.

4.17 But just as companies were taking on more risk, things started to go wrong. Costs soared far above budgeted levels, as securing land and environmental clearances proved much more difficult and time consuming than expected. At the same time, forecast revenues collapsed after the GFC; projects that had been built around the assumption that growth would continue at double-digit levels were suddenly confronted with growth rates half that level.

4.18 As if these problems were not enough, financing costs increased sharply. Firms that

**Figure 5. Gross Capital Formation: Aggregate and Private Corporate
(Per cent of GDP)**
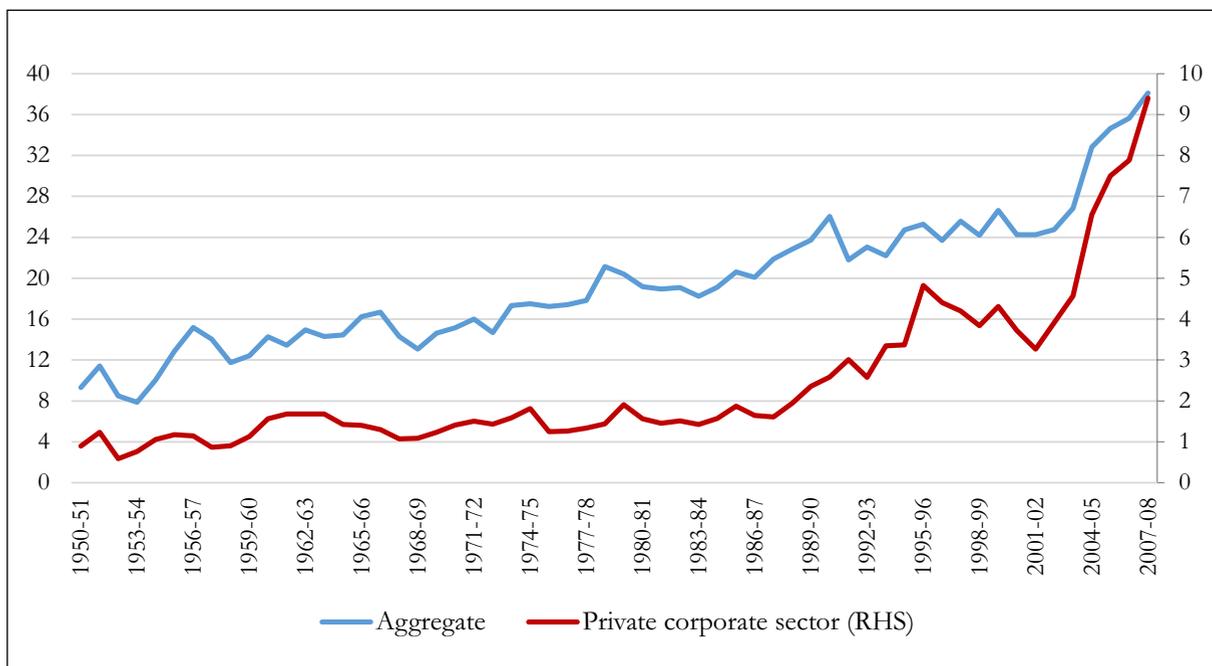
Source: **Central Statistics Office.**

borrowed domestically suffered when the RBI increased interest rates to quell double-digit inflation. And firms that had borrowed abroad when the rupee was trading around Rs 40/dollar were hit hard when the rupee depreciated, forcing them to repay their debts at exchange rates closer to Rs 60-70/dollar.

4.19 Higher costs, lower revenues, greater financing costs — all squeezed corporate cash flow, quickly leading to debt servicing problems. By 2013, nearly one-third of corporate debt was owed by companies with an interest coverage ratio less than 1 ("IC1 companies"), many of them in the infrastructure (especially power generation) and metals sectors. By 2015, the share of IC1 companies reached nearly 40 percent, as slowing growth in China caused international steel prices to collapse, causing nearly every Indian steel company to record large losses. The government responded promptly by imposing a minimum import price, while international prices themselves recovered somewhat, thereby affording the steel industry some relief. Even so, the IC1 share remained above 40 percent in late 2016.

B. What Explains the Twin Balance Sheet Syndrome with Indian Characteristics?

4.20 In other words, contrary to conventional wisdom, India did indeed follow the standard path to the TBS problem: a surge of borrowing, leading to overleverage and debt servicing problems. What distinguished India from other countries was the *consequence* of TBS. Even as Indian balance sheets have suffered structural damage on the order of what has occurred in crisis cases, the impact on growth has been quite modest. TBS did not lead to economic stagnation, as occurred in the U.S. and Europe after the Global Financial Crisis and Japan after its

bubble burst in the 1990s. To the contrary, it co-existed with strong levels of aggregate domestic demand, as reflected in high levels of growth despite very weak exports and moderate, at times high, levels of inflation. In other words, India developed its own unique version of TBS: what recent *Economic Surveys* called a 'Balance Sheet Syndrome with Indian Characteristics'.

4.21 What could possibly explain India's exceptional experience? In part, and as mentioned in the first section, the unusual structure of its banking system, which ensured there would be no financial crisis. But other factors also played a role, including the unusual structure of the economy. India has long suffered from exceptionally severe supply constraints, as the lack of infrastructure has hindered expansion of manufacturing and even some service activities, such as trade and transport. These constraints were loosened considerably during the boom, as new power plants were installed, and new roads, airports, and ports built. As a result, there was ample room for the economy to grow after the GFC, even as the infrastructure investments themselves did not prove financially viable. So, the legacy of the historic mid-2000s investment boom was a curious combination of both TBS and growth. In comparison, the US boom was based on housing construction, which proved far less useful after the crisis. And in any case, the US never suffered from severe supply constraints.

4.22 Perhaps the most important difference between India and other countries, however, was the way in which the financial system responded to the intense stress on corporations. In other countries, creditors would have triggered bankruptcies, forcing a sharp adjustment that would have brought down growth in the short run (even as the reconfiguration of the economy improved

long run prospects). But in India this did not occur. Instead, the strategy was, as the saying goes, to "give time to time", meaning to allow time for the corporate wounds to heal. That is, companies sought financial accommodation from their creditors, asking for principal payments to be postponed, on the grounds that if the projects were given sufficient time they would eventually prove viable.

4.23   Initially, this request seemed reasonable. For a start, the "giving time to time" strategy had worked well in the previous business cycle, during the early 2000s. At that time, nonperforming loans had also reached high levels, but they then subsided a few years later when demand picked up and commodity prices recovered. It seemed sensible to assume the same might happen this time too, because India would eventually need the infrastructure capacity that was being installed. Accordingly, banks decided to give stressed enterprises more time by postponing loan repayments, restructuring by 2014-15 no less than 6.4 percent of their loans outstanding (Figure 6a). They also extended fresh funding to the stressed firms to tide them over until demand recovered.

4.24   As a result, total stressed assets have far exceeded the headline figure of NPAs. To that amount one needs to add the restructured loans, as well as the loans owed by IC1 companies that have not even been recognised as problem debts – the ones that have been "evergreened", where banks lend firms the money needed to pay their interest obligations. Market analysts estimate that the unrecognised debts are around 4 percent of gross loans, and perhaps 5 percent at public sector banks. In that case, total stressed assets would amount to about 16.6 per cent of banking system loans – and nearly 20 percent of loans at the state banks (Figure 6b).[2]

4.25   In many ways, then, India's path has resembled that of China, albeit on a much smaller scale, since India's estimated bad loans are just one-seventh the amount assessed for China (Table 1). Both countries provided generous amounts of bank financing to allow highly levered corporations to survive. And in both countries this strategy has proved successful so far in allowing rapid growth to continue. But there remains a question of whether the model is truly sustainable.

Figure 6a. Restructured Loan Ratio (Per cent of Gross Loans)

Figure 6b. Total Stress (Per cent)
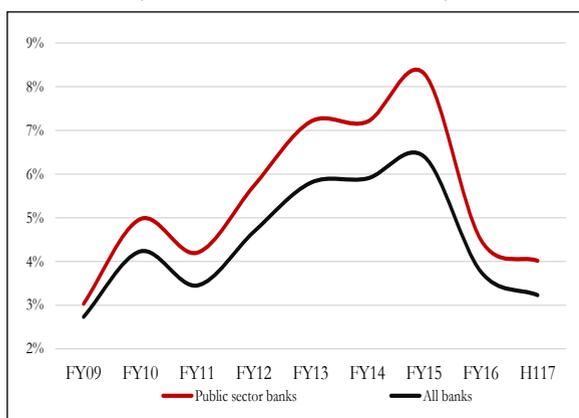
Source: **RBI, except unrecognized stressed assets estimated by Credit Suisse.**

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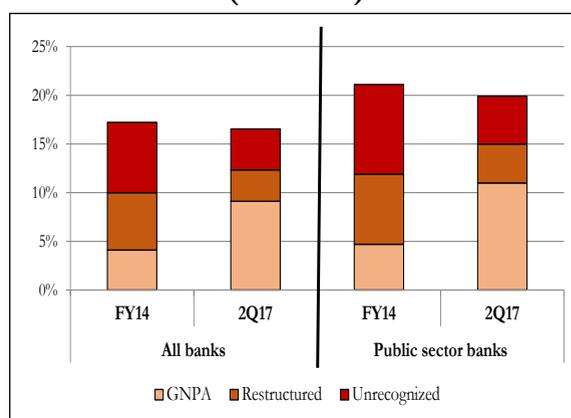
[2]   The reduction in restructured assets after 2014-15 occurred largely because many companies fell out of compliance with the restructuring agreements, leading banks to classify many of the loans as non-performing.

Table 1. Estimated Non-Performing Loans

	India	China	India	China
	1998-99	**2002**	**2016@**	**2015**
Total ($ billion)	14.0	209.1	191.1	1300
Percent of total loans	14.7	23.4	16.6^	15.5
Percent of GDP	3.0	14.4	8.4	12.0
Memo Item				
Bank Credit to GDP (%)	20.5	108#	53.4*	137.5**

Source: **IMF, RBI, Credit Suisse estimates.**
*@: As per latest data available till September 2016. ^: Total stressed loans, which includes NPAs, restructured loans and unrecognised stressed loans; *Using outstanding credit to industry data from RBI as on March 2016; #: People's Bank of China as reported in "Money & Credit: China Social Financing", Yardeni Research, Inc., November 2016. **PRC 2016 Article IV consultation, IMF.*

II.   IS THE STRATEGY SUSTAINABLE?

4.26 In principle, a financing strategy can indeed be sustainable. But for this to occur one of two scenarios would need to materialise. Under the "phoenix" scenario, accelerating growth would gradually raise the cash flows of stressed companies, eventually allowing them to service their debts. In other words, the inherent dynamism of the Indian economy would carry the impaired companies and banks along until the rising tide finally lifted all boats or covered the rocky shoals.

4.27 Alternatively, even if the individual projects themselves do not come right, the Indian economy could still grow out of its balance sheet problems. Under the "containment" scenario, the NPAs would merely need to be limited in nominal terms. Once this is done, they would swiftly shrink as a share of the economy and a proportion of bank balance sheets, since GDP is growing at a nominal rate of more than 10 percent. In that way, the twin balance sheet problem, while never being explicitly solved, could simply fade away in importance.

4.28 For some time, these scenarios actually seemed feasible. From 2012 all the way through mid-2015, the EBIT of the IC1 companies held steady around Rs 25,000 crore per quarter,[3] giving rise to hopes that at least the containment scenario would eventually materialise. But more recently the picture has changed dramatically. By the end of 2015 earnings had diminished to Rs 20,000 crore per quarter. By September 2016 they had fallen to just Rs 15,000 crore per quarter, as a modest recovery in the metals sector was overwhelmed by a further deterioration in the infrastructure companies. In other words, aggregate cash flow in the stressed companies – which even in 2014 wasn't sufficient to service their debts – has fallen by roughly 40 percent in less than two years.

4.29 These companies have consequently had to borrow considerable amounts in order to continue their operations. Debts of the top 10 stressed corporate groups, in particular, have increased at an extraordinarily rapid rate, essentially tripling in the last six years (Figure 7). As this has occurred, their interest obligations have climbed rapidly.

4.30 Stressed companies are consequently facing an increasingly difficult situation. Their cash flows are deteriorating even as

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[3]   These figures, and those in the following five paragraphs, are based on the Credit Suisse database.

Figure 7. Debt of Top Ten Stressed Corporate Groups (Rs billion)*
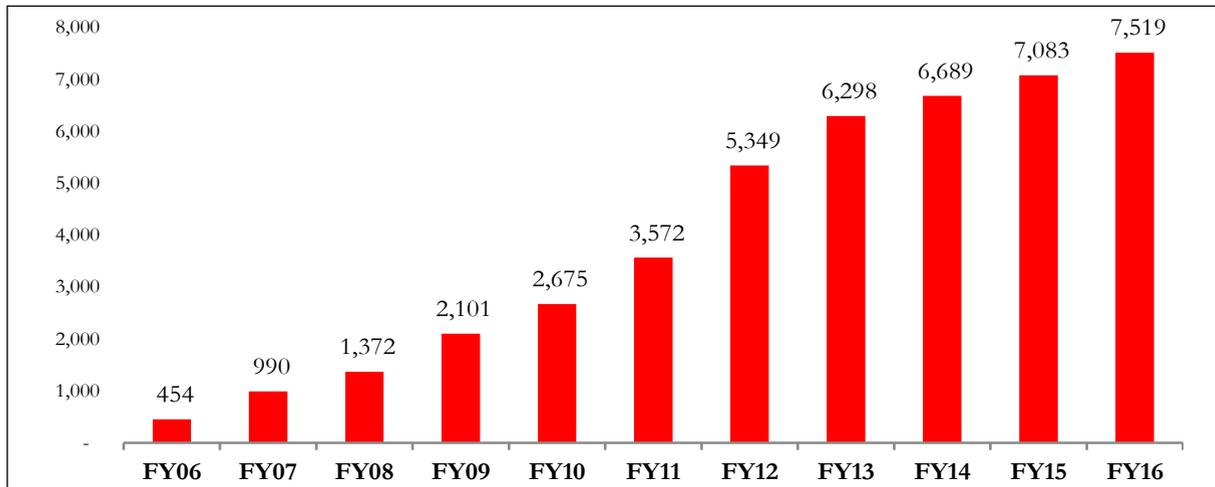
their interest obligations are mounting – and if they borrow more, this will only cause the gap to widen further. In some cases, companies have tried to "square the circle" by selling off some of their assets. But this has sufficed mainly to buy them time, since selling off assets provides immediate revenues but leaves firms with less income to service their debts in the future. And even in the short-term this measure has proved a palliative for only a few companies. The aggregate financial position of the stressed companies consequently continues to haemorrhage., with losses (roughly, the excess of interest payments, depreciation and taxes over EBIT and asset sales) now running around Rs 15,000 crores per quarter, compared with a small net profit two years ago.

4.31 The situation in the power sector illustrates the more general problem. The setbacks discussed in the second section have led to cost overruns at the new private power plants of more than 50 percent in nearly every case, and much more than that in many. To cover these costs, these companies need to sell all the power they are capable of producing at high tariff rates. But the opposite is happening:

* Plant load factors (PLF, actual electricity production as a share of capacity) are exceptionally low – and they are falling, tumbling to just 59.6 percent during April-December 2016 from 62 percent during the same period last year.

* Meanwhile, merchant tariffs for electricity purchased in the spot market have slid to around Rs 2.5/kwh, far below the breakeven rate of Rs 4/kwh needed for most plants, let alone the Rs 8/kwh needed in some cases.[4]

4.32 As a result, cash flow for most private power generation companies falls far short of what is needed to service their interest obligations; put another way, more than 60 percent of the debt owed by the private power producers is with IC1 companies.

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[4]   Of course, much electricity is being sold at higher long-term rates under Power Purchase Agreements (PPAs), but in some of these cases even these rates remain below costs. And the share of electricity purchased under PPAs is falling, as State Electricity Boards increasingly rely on the cheap and abundant power available in the spot market. Note that if there had not been cost overruns, a tariff of Rs 3/kwh would have been sufficient to ensure profitability for most new plants.

Also there is scant sign on the horizon that PLFs and tariffs might improve.

4.33 At the same time, corporate stress seems to be spreading. For much of the period since the Global Financial Crisis, the problems were concentrated in the large companies which had taken on excessive leverage during the mid-2000s boom, while the more cautious smaller and midsize companies had by and large continued to service their debts. Starting in the second half of 2016, however, a significant proportion of the increases in NPAs – four-fifths of the slippages during the second quarter – came from mid-size and MSMEs, as smaller companies that had been suffering from poor sales and profitability for a number of years struggled to remain current on their debts. This trend is likely to continue into 2017.

4.34 Stress has also expanded to the telecom sector, where interest coverage ratios have deteriorated as new entry has increased competition, prompting a major round of price-cutting. In short, stress on the corporate sector is not only deepening; it is also widening.

4.35 There is yet another reason why the economy may not be able to grow out of its debts: the problem itself is beginning to take a toll on growth. As noted in the first section, countries with TBS problems tend to have low investment, as stressed companies reduce their new investments to conserve cash flow, while stressed banks are unable to assume new lending risks (Dell'Ariccia et. al. [2012]).[5] And this seems to be happening in India, as well. Private investment, which had been soaring at the height of the boom, slowed sharply to a 5 percent growth rate by 2010-11. By 2015-16, it had actually started to shrink, and in 2016-17 so far it seems to have contracted by more than 7 percent (Figure 8).[6] To cushion the impact on the overall economy, public investment has been stepped up considerably, but this has still not been sufficient to arrest a fall in overall investment.

Figure 8. Growth in Real Gross Fixed Capital Formation (per cent)
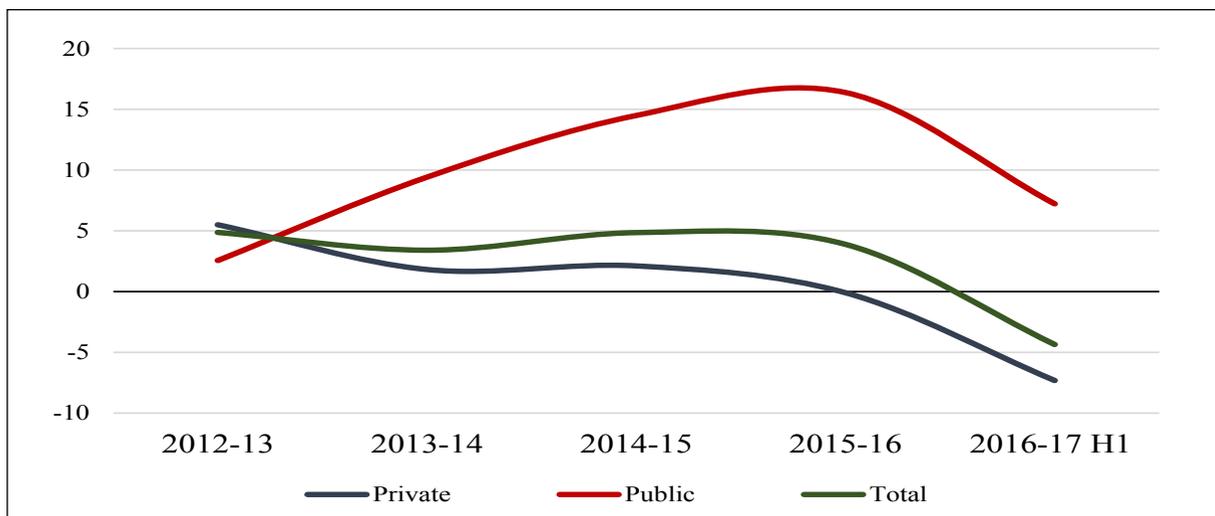
Source: **Ministry of Finance calculations.**

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[5] Dell'Ariccia et al find that three out of five credit booms were characterized by below-trend growth during the six-year period following their end. During these below-trend periods, annual economic growth was on average 2.2 percentage points lower than in "normal" times (excluding crises).

[6] Based on State and Union Government Budgets.

4.36 In the short run, the economy can continue to expand briskly on the back of consumption, with firms fulfilling demand by using the capacity that was built up during the boom years. But over the medium term the downward trend in investment will need to be reversed.

4.37 Meanwhile, TBS is taking a heavy toll on the health of the public sector banks. At least 13 of these banks accounting for approximately 40 per cent of total loans are severely stressed, with over 20 per cent of their outstanding loans classified as restructured or NPAs. With such a large fraction of their portfolios impaired, it has become extremely difficult for them to earn enough income on their assets to cover their running and deposit costs. Banks around the world typically strive for a return of assets (ROA) of 1.5 per cent or above, shown in the red line in figure 9a. But Indian public sector banks are much below this international norm. In fact, their ROA has turned negative over the past two years. And as a result, investors are no longer willing to pay "full price" for public sector bank shares: share prices have fallen to just two-thirds of their book value (Figure 9b).

4.38 Public sector banks have responded to their difficult financial situation in the standard way. They have tried to protect their capital positions by minimizing the new risks they are taking, that is by scaling back their new lending. Some of the lending slack has been taken up by private banks, but there are limits to the extent that they can provide a substitute, because the public sector banks (in aggregate) are much larger. As a result, total credit to the corporate sector has been decelerating steadily. In real terms, such credit growth is now negative, the lowest it has been in 23 years (Figure 10).

4.39 This gradual tightening of the credit constraint has been felt rather unevenly across the economy. Household credit, where default has been minimal and where private sector banks have a comparative lending advantage, has been expanding exceptionally rapidly, fuelling the growth of consumption. Agricultural loans have also continued at a good pace, as they have been protected by the priority sector lending requirements. But corporates and MSMEs have been hit severely. Real loan growth to MSMEs slowed significantly in 2014-15, and actually turned negative during the past two fiscal years

Figure 9a. Public Sector Banks: Return on Assets (ROA) Ratio (per cent)
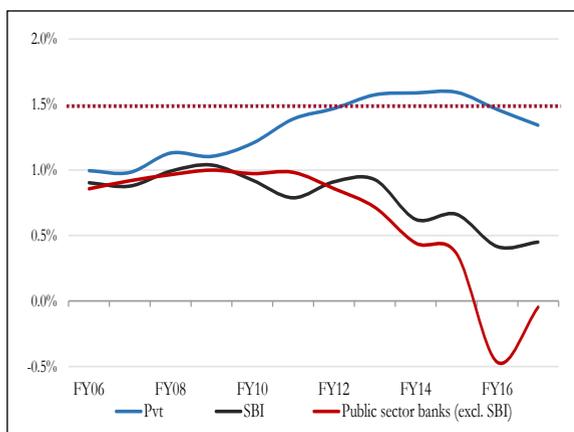
Source: **MoF.**

Figure 9b. Public Sector Banks: Market Capitalisation to Book Value Ratio
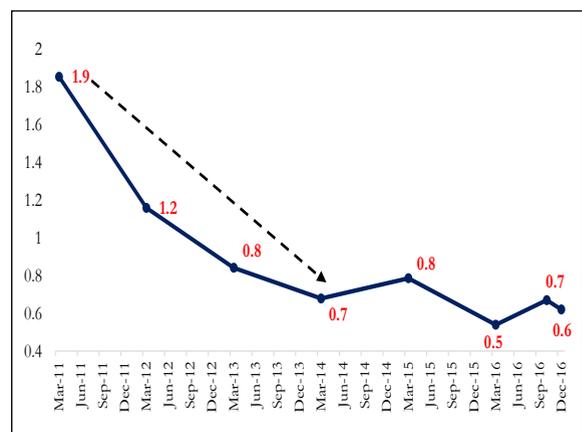
Source: **MoF.**

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7   Leaving aside non-recognised or "evergreened" loans.

Figure 10. Real Loan Growth to Industry*
(Deflated by average of CPI-IW & WPI)
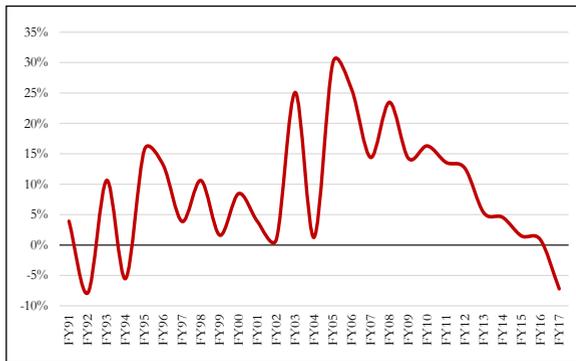
*: Data up to end-November 2016 for FY17.

(Figure 11a). Meanwhile, loans to corporates in the stressed sectors remained buoyant for some time, in line with the strategy of keeping them afloat, but even for this group loan growth turned sharply negative in real terms during 2016-17 (Figure 11b).

4.40 Public sector banks have also responded to their stress in another standard way. They have tried to compensate for the lack of earnings from the non-performing part of their portfolio by widening their interest margins (Figure 12). For example, by

Figure 11a. Real Loan Growth*
(MSME & Corporate)
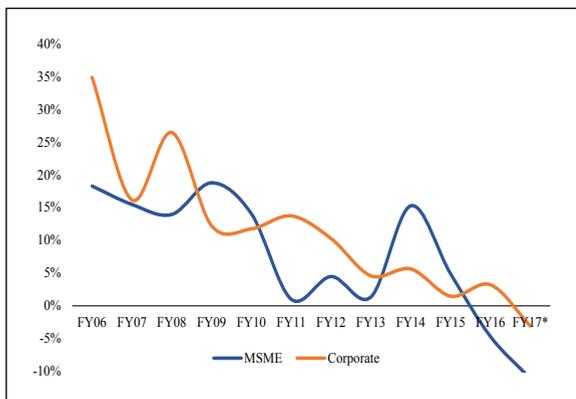
Figure 11b. Real Loan Growth*
(Stressed and Non-stressed)
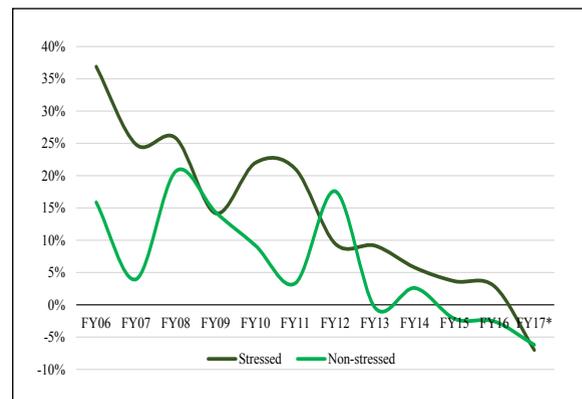
Source: **RBI. *: Deflated by average of CPI and WPI. FY17 data as of November 2016. Corporate sector includes industry and services. Stressed sectors include mining, textiles, basic metals, gems and jewellery, construction and infrastructure.**

Figure 12. Repo, Base Lending Rate and Term Deposit Rate (Per cent)
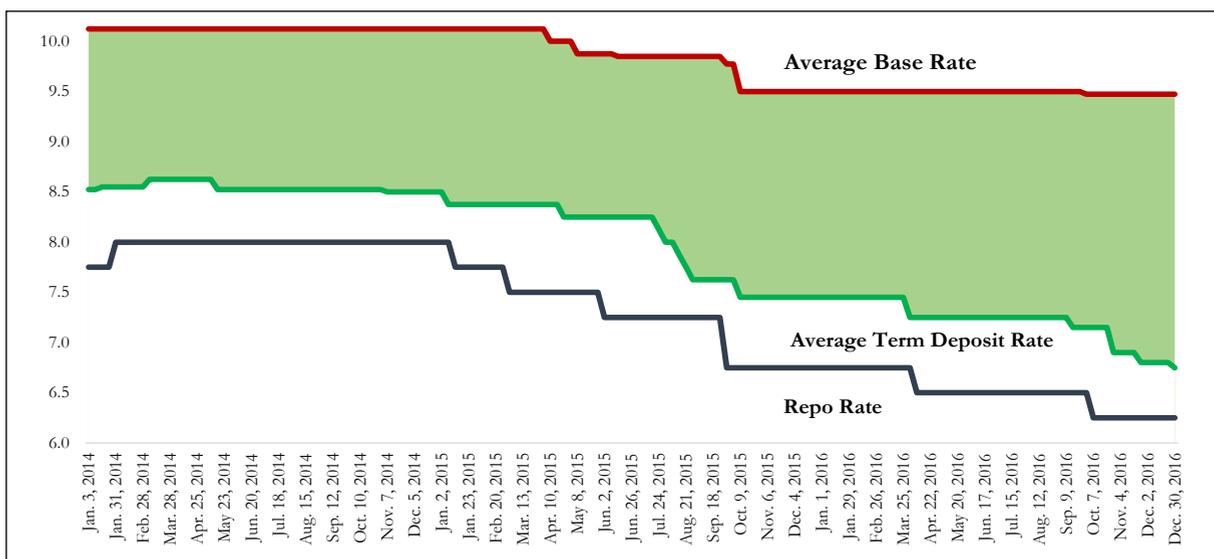
Source: **RBI. The base rate is the average of all banks. Average term deposit rate is for deposits of more than one year.**

December 2016 the gap between the average term deposit rate and the average base rate had grown to 2.7 percentage points, from 1.6 percentage points in January 2015. It was only following the extraordinary influx of deposits consequent on demonetisation that public sector banks finally cut their lending rates by significant amounts.

4.41 The widening of spreads, in turn, has encouraged disintermediation from the banking system. The increase in margins means that performing borrowers and depositors are effectively being taxed in order to subsidise the non-performing borrowers. Inevitably, the good borrowers are seeking funding elsewhere: from the commercial paper market for their short term needs and the bond market for longer-term financing (Figure 13). This could, in a way, be considered desirable, as it is helping develop the country's capital markets. But if this trend of disintermediation continues, it will leave much of the "tax" burden on the MSMEs, who cannot decamp for the bond markets, since they require the knowledge-intensive type of lending that is provided only by banks. This trend may also pose risks for the banks themselves, who risk beinjg left with just the riskier ones, with the better ones migrating.

Figure 13. Growth in Nominal Corporate Bank Credit, Corporate Bonds, and Commercial Paper (Per cent)
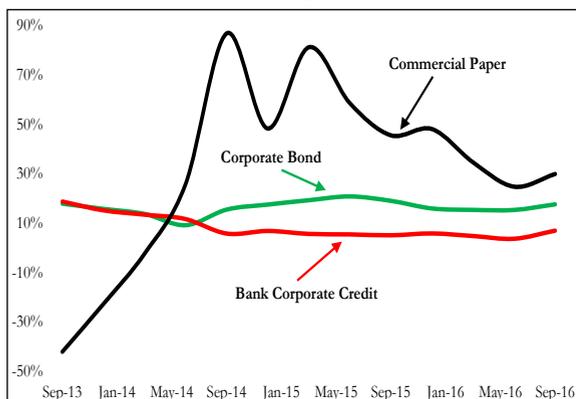
Source: **Credit Suisse.**

4.42 Summing up, for some years the financing strategy has worked, in the sense that it has allowed India to grow rapidly, despite a significant twin balance sheet problem. But this strategy may now be reaching its limits. After eight years of buying time, there is still no sign that the affected companies are regaining their health, or even that the bad debt problem is being contained. To the contrary, the stress on corporates and banks is continuing to intensify, and this in turn is taking a measurable toll on investment and credit. Moreover, efforts to offset these trends by providing macroeconomic stimulus are not proving sufficient: the increase in public investment has been more than offset by the fall in private investment, while until demonetisation monetary easing had not been transmitted to bank borrowers because banks had been widening their margins instead. In these circumstances, it has become increasingly clear that the underlying debt problem will finally need to be addressed, lest it derails India's growth trajectory.

III. WHAT NEEDS TO BE DONE?

4.43 The RBI has over the past few years introduced a number of mechanisms to deal with the stressed asset problem (see Appendix). Initially, the schemes focused on rescheduling amortisations to give firms more time to repay. But as it became apparent that the financial position of the stressed firms was deteriorating, the RBI deployed mechanisms to deal with solvency issues, as well.

4.44 Three of these mechanisms are particularly notable. For some time, the RBI has been encouraging the establishment of private Asset Reconstruction Companies (ARCs), in the hope that they would buy up the bad loans of the commercial banks. In that way, there could be an efficient division of labour, as banks could resume focusing on their traditional deposit-and-loan operations,

while the ARCs could deploy the specialist skills needed to restructure corporate debts.

4.45 This strategy, however, has had only limited success. Many ARCs have been created, but they have solved only a small portion of the problem, buying up only about 5 percent of total NPAs at book value over 2014-15 and 2015-16. The problem is that ARCs have found it difficult to recover much from the debtors. Thus they have only been able to offer low prices to banks, prices which banks have found it difficult to accept.

4.46 So the RBI has focussed more recently on two other, bank-based workout mechanisms. In June 2015, the Strategic Debt Restructuring (SDR) scheme was introduced, under which creditors could take over firms that were unable to pay and sell them to new owners. The following year, the Sustainable Structuring of Stressed Assets (S4A) was announced, under which creditors could provide firms with debt reductions up to 50 percent in order to restore their financial viability.

4.47 In principle, these schemes taken together might have provided a comprehensive framework for dealing with solvency problems. Their success, however, has been limited; while two dozen firms have entered into negotiations under SDR, only two cases have actually been concluded as of end-December 2016. And only one small case has been resolved so far under S4A.

4.48 There are several reasons why progress has been so limited. In part, the problem is simply that the schemes are new, and financial restructuring negotiations inevitably take some time. But the bigger problem is that the key elements needed for resolution are still not firmly in place:

- **Loss recognition.** The AQR was meant to force banks to recognise the true state of their balance sheets. But banks nonetheless continue to evergreen loans, as the substantial estimates of unrecognised stressed assets make clear.

- **Coordination.** The RBI has encouraged creditors to come together in Joint Lenders Forums, where decisions can be taken by 75 percent of creditors by value and 60 percent by number. But reaching agreement in these Forums has proved difficult, because different banks have different degrees of credit exposure, capital cushions, and incentives. For example, banks with relatively large exposures may be much more reluctant to accept losses. In some cases the firm's losses aren't even known, for they depend on the extent of government compensation for its own implementation shortfalls, such as delays in acquiring land or adjusting electricity tariffs. And deciding compensation is a difficult and time-consuming task; many cases are now with the judiciary.

- **Proper incentives.** The S4A scheme recognises that large debt reductions will be needed to restore viability in many cases. But public sector bankers are reluctant to grant write-downs, because there are no rewards for doing so. To the contrary, there is an inherent threat of punishment, since major write-downs can attract the attention of investigative agencies. Accordingly, bankers have every incentive to simply reschedule loans, in order to defer the problems until a later date. To address this problem, the Bank Board Bureau (BBB) has created an Oversight Committee which can vet and certify write-down proposals. But it remains open whether it can change bankers' incentives.

- **Capital.** The government has promised under the Indradhanush scheme to infuse Rs 70,000 crores of capital into

the public sector banks by 2018-19. But this is far from sufficient, and inherently so, because there is a principal-agent problem, arising from the separation of the institution with financial responsibility (the government) from its decision-making agent (the state banks). If the government promises unduly large funds in advance, the banks may grant excessive debt reductions. But banks do not receive sufficient assurance of funding, they will not be able to grant companies enough debt relief.

4.49 In short, the road to resolution remains littered with obstacles, even for the most ordinary of bad debt cases. The bulk of the problem, however, is not located in ordinary cases. To the contrary, stressed assets are concentrated in a remarkably few borrowers, with a mere 50 companies accounting for 71 percent of the debt owed by IC1 debtors. On average, these 50 companies owe Rs 20,000 crores in debt, with 10 companies owing more than Rs 40,000 crores apiece. And the large, over-indebted borrowers are particularly difficult to resolve, for several deep-seated reasons:

- **Severe viability issues.** At this point, large write-offs will be required to restore viability to the large IC1 companies. The amounts vary widely from case to case, and require a thorough analysis of the accounts to ascertain. But a broad idea can be obtained by calculating the debt reduction that would be needed to reduce interest obligations to the current level of cash flows. Based on the data for the year ending September 2016,

about 33 of the top 100 stressed debtors would need debt reductions of less than 50 percent, 10 would need reductions of 51-75 percent, and no less than 57 would need reductions of 75 percent or more.[8]

- **Acute coordination failures.** Large debtors have many creditors, who need to agree on a strategy. This is often difficult when major sums are involved.

- **Serious incentive problems.** Public sector bankers are even more cautious in granting debt reductions in major cases, as this may attract the attention of not only the investigative agencies, but also the wider public. At the same time, state banks are often not in a position to take the alternative route of converting their claims to equity, taking over large firms, and then reselling them, even when this is clearly the value-maximising solution – and even though it is encouraged under SDR.

- **Insufficient capital.** Debt write-downs in the case of the large debtors could quickly deplete banks' capital cushions.

4.50 In other words, for the big firms the road is not littered with obstacles. It seems to be positively blocked.

4.51 Could the new Bankruptcy Law provide a viable alternative way forward? In some ways, going down the path of bankruptcy would make sense for cases where the write-down needs are particularly large, which makes them ill-suited for S4A and SDR in the first place. The problem is that the new bankruptcy system is not yet fully in place, and even when it is, the new procedures (and

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8 Based on many simplifying assumptions. Cash flow is measured by earnings before interest, taxes, depreciation, and amortisation (EBITDA); the 46 companies with negative cash flow are included in the group that requires more than 75 percent debt reduction. It is also assumed that the reduction in interest obligations is proportional to the reduction in debt. Perhaps most important, the calculation is based on the premise that cash flows will remain unchanged in the future. In some cases, it may well improve, for example as demand for steel recovers from its cyclical trough. But in other cases, the assumption may well be optimistic, as cash flows of stressed companies as a group have been deteriorating in the past two years, as explained in the fourth section.

participants) will need to be tested first on smaller cases. Some considerable time will consequently elapse before the system will be ready to handle the large, complex cases.

4.52 In other words, the state of play is this: it has now been eight years since the twin balance sheet problem first materialised, and still no resolution is in sight. And because the financial position of the stressed debtors is deteriorating, the ultimate cost to the government and society is rising – not just financially, but also in terms of foregone economic growth and the risks to future growth.

4.53 These difficulties raise a fundamental issue. Most economic problems are best resolved through market-based mechanisms, in which commercially-motivated actors operate within government-designed frameworks. But in this case, this mechanism doesn't seem to be working, because of the constraints and distorted incentives, which have proved difficult to eradicate.

4.54 All of this suggests that it might not be possible to solve the stressed asset problem using the current mechanism, or indeed any other decentralised approach that might materialise in the near future. Instead a centralised approach might be needed.

4.55 One possible strategy would be to create a 'Public Sector Asset Rehabilitation Agency' (PARA), charged with working out the largest and most complex cases. Such an approach could eliminate most of the obstacles currently plaguing loan resolution. It could solve the coordination problem, since debts would be centralised in one agency; it could be set up with proper incentives by giving it an explicit mandate to maximize recoveries within a defined time period; and it would separate the loan resolution process from concerns about bank capital. For all these reasons, asset rehabilitation agencies have been adopted by many of the countries

facing TBS problems, notably the East Asian crisis cases.

4.56 How would a PARA actually work? There are many possible variants, but the broad outlines are clear. It would purchase specified loans (for example, those belonging to large, over-indebted infrastructure and steel firms) from banks and then work them out, either by converting debt to equity and selling the stakes in auctions or by granting debt reduction, depending on professional assessments of the value-maximizing strategy.

4.57 Once the loans are off the books of the public sector banks, the government would recapitalise them, thereby restoring them to financial health and allowing them to shift their resources – financial and human – back toward the critical task of making new loans. Similarly, once the financial viability of the over-indebted enterprises is restored, they will be able to focus on their operations, rather than their finances. And they will finally be able to consider new investments.

4.58 Of course, all of this will come at a price, namely accepting and paying for the losses. But this cost is inevitable. Loans have already been made, losses have already occurred, and because public sector banks are the major creditors, the bulk of the burden will necessarily fall on the government (though the shareholders in the stressed enterprises may need to lose their equity as well). In other words, the issue for any resolution strategy – PARA or decentralised -- is not whether the government should assume any new liability. Rather, it is how to minimize the existing liability by resolving the bad loan problem as quickly and effectively as possible. And that is precisely what creation of the PARA would aim to do.

4.59 That said, the capital requirements would nonetheless be large. From where would this funding come? Part would need to

come from government issues of securities. This would increase the debt stock, but could actually strengthen the government's financial position if establishing PARA hastens the resolution of the stressed asset problem, since doing so would reduce the amount that would ultimately be needed to compensate banks for the losses on the bad loans.

4.60 A second source of funding could be the capital markets, if the PARA were to be structured in a way that would encourage the private sector to take up an equity share. In addition, capital markets could help replenish the capital of the public sector banks, if the government were willing to sell down its holdings.

4.61 A third source of capital could be the RBI. The mechanism for doing this is straightforward (Box 2). The RBI would (in effect) transfer some of the government securities it is currently holding to public sector banks and PARA. As a result, the RBI's capital would decrease, while that of the banks and PARA would increase. There would be no implications for monetary policy, since no new money would be created.

4.62 Of course, establishing a PARA is not a panacea. In fact, experience with government-run asset rehabilitation agencies has not been uniformly positive. Three major issues have bedevilled other agencies, and would need to be resolved to ensure a PARA would actually work as intended.

4.63 First, there needs to be a readiness to confront the losses that have already occurred in the banking system, and accept the political consequences of dealing with the problem. If loans are written off, there could be accusations of favouritism; if defaulting companies are taken over and sold, this could be seen as excessively strong government. The only defence against such charges would be to ensure the PARA is thoroughly professional, with plans that maximize – and

are seen to maximize – recovery value.

4.64 Second, the PARA needs to follow commercial rather than political principles. To achieve this, it would need to be an independent agency, staffed by banking professionals. It would also need a clear mandate of maximizing recoveries within a specified, reasonably short time period. The best, perhaps the only way to achieve this is to set up a structure like the one done for the GST Network, which is broadly within the aegis of the public sector but with government owning 49 per cent.

4.65 The third issue is pricing. If loans are transferred at inflated prices, banks would be transferring losses to the Rehabilitation Agency. As a result, private sector banks could not be allowed to participate – and then co-ordination issues would remain – while private capital would not want to invest in the Agency, since PARA would make losses. To get around this problem, market prices could be used, but establishing the market price of distressed loans is difficult and would prove time consuming.

4.66 All three problems are formidable ones, which is precisely why other schemes have been tried first. But these other schemes have not worked, years have flown by, and meanwhile the costs are continuing to mount. To paraphrase the learned economist Mr. Holmes, "Once you have eliminated the impossible, whatever remains, no matter how difficult, must be the solution."

IV. CONCLUSION

4.67 The *Economic Survey* 2015-16 emphasized that addressing the stressed assets problem would require 4 R's: *Reform, Recognition, Recapitalization,* and *Resolution.* One year on, how much progress has been made?

4.68 Start with the area where the least amount of progress has occurred: the first R, Reform. The past few years have

Box 2. Excess Capital of the RBI

Last year's *Economic Survey* had raised the issue of the government's excess capital in the RBI. That issue could become even more salient this year because of demonetization.

The figure below plots the extent of capital there is in the RBI, updating the calculation in last year's *Survey*. If there is a demonetisation windfall - not included here - the RBI will stand out even more as an outlier in terms of government capital in the central bank.

Figure. Equity as Per cent of Central Bank Balance Sheet
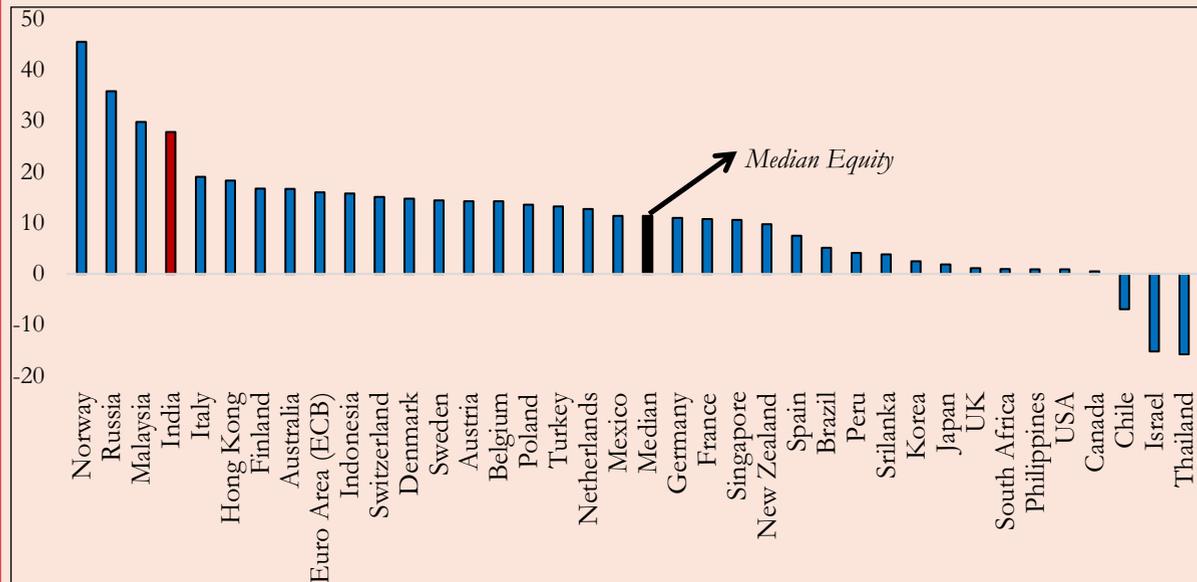
Source: **Latest data from central banks of respective countries. The estimate for India assumes, conservatively, no windfall from demonetisation.**

There is no particular reason why this extra capital should be kept with the RBI. Even at current levels, the RBI is already exceptionally highly capitalized. In fact, it is one of the most highly capitalized central banks in the world. So, it would seem to be more productive to redeploy some of this capital in other ways.

Assuming that the RBI returns Rs. 4 lakh crore of capital to the government, what are the uses to which this capital can be put? It could be used in several good ways:

First, for recapitalizing the banks and/or recapitalizing a Public Sector Asset Rehabilitation Agency (PARA);

Second, for extinguishing debt to demonstrate that the government is serious about a strong public sector fiscal position.

The key principle that should be observed in this process is that the excess capital in the RBI, including that created by demonetisation, is a balance sheet or wealth gain and not an income gain. Hence, the uses to which this is put should be of a balance sheet nature.

It cannot be emphasized enough that any strategy to use the excess capital must be done carefully that in no way undermines or circumvents the relevant laws. It must also be done with the full cooperation of the RBI to ensure that the RBI's independence and credibility are in no way undermined.

What are the possible economic objections to such a strategy?

A. Adequacy of buffers

First, would there be adequate buffers after such a reduction in the RBI's capital? Since a large chunk of RBI's assets (nearly 70 per cent) are in the form of net foreign assets (NFA), some argue that it must maintain a high equity to assets ratio. One argument is that the larger the NFA to total assets ratio of a central bank, the more vulnerable it is

to exchange rate volatility risks. Norges Bank of Norway, for example, has a NFA to total assets ratio of 86 per cent and maintains an equity to assets ratio of about 45 per cent, even higher than the RBI.

Is there really a high positive correlation between NFA and equity holdings of a central bank? To test this claim, a cross-country comparison plotting the ratio of NFA to total assets of central banks against the ratio of equity to assets is undertaken. The correlation between the two ratios turns out to be just .09. So just as a cross-sectional empirical regularity, it is not true that higher foreign assets necessitate or lead to the holding of more capital.

Figure. Assets and Equity
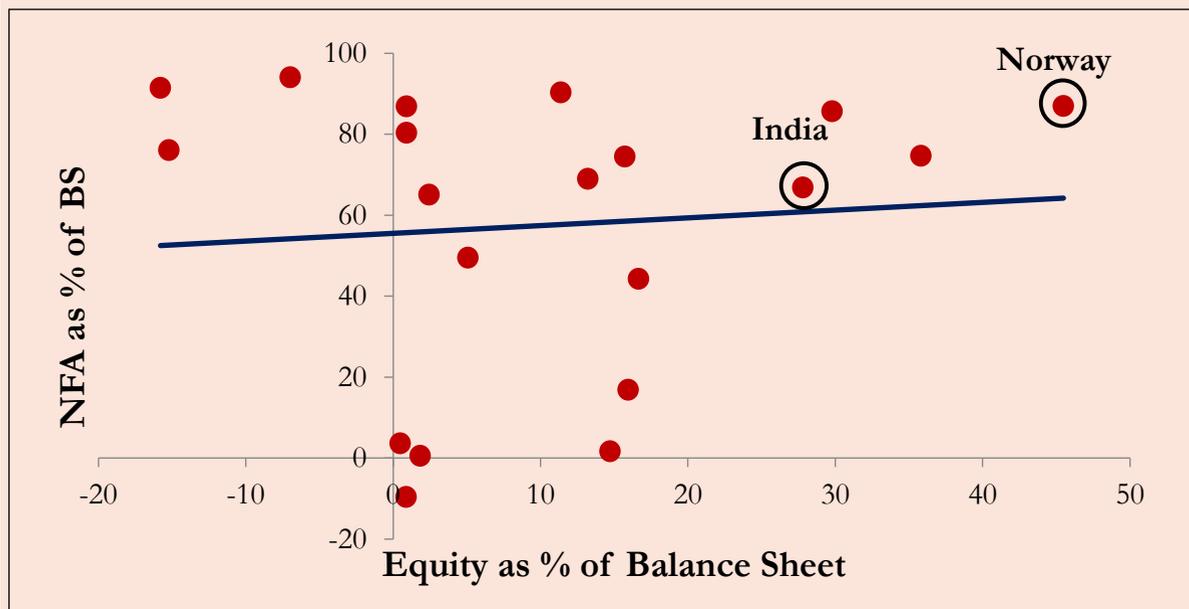
Source: **Central banks of respective countries.**

B.   Likelihood of capital losses

But the really critical question is the following: what kind and magnitude of exchange rate change could undermine the capital position of the RBI?

Note first that valuation losses will arise when the rupee appreciates. So, the appreciation of the rupee required to result in a valuation loss of Rs. 4 lakh crore that would in turn wipe out the remaining capital of the RBI (assuming that Rs 4 lakh crore is redeployed) is calculated. Estimates show that the exchange rate would need to appreciate by 16.3 percent. In terms of the broad based real effective exchange rate (REER) calculated by the RBI, the index would need to rise to 135.8.

The logic is simple: Rs 4 lakh crores is 16.3 percent of foreign reserves (based on data on foreign exchange reserves as on January 13, 2017). So the rupee would have to appreciate by about 16.3 percent relative to today's level to wipe out the RBI's capital. That appreciation would translate into a REER level as shown in the figure below. Such appreciation of the rupee would lead to adverse competitive levels never witnessed in the Indian economy for the last 12 years. Manufacturing would essentially be wiped out. It is therefore clear that such capital losses could never be allowed to be inflicted on the RBI.

C. Feasibility of averting losses

But can the RBI, even if did not want such appreciation, be able to prevent it? The answer is yes. There is a fundamental asymmetry in the operation of central banks. Their supply of foreign currency is limited but their supply of domestic currency is unlimited. So, if the currency starts appreciating, the RBI can intervene to prevent it by buying dollars and supplying rupees. This cannot be always possible with currency depreciation because at some point of time the RBI will run out of dollars. In other words, the RBI has both the ability and incentive to prevent

Figure. Competitiveness Measured by REER*
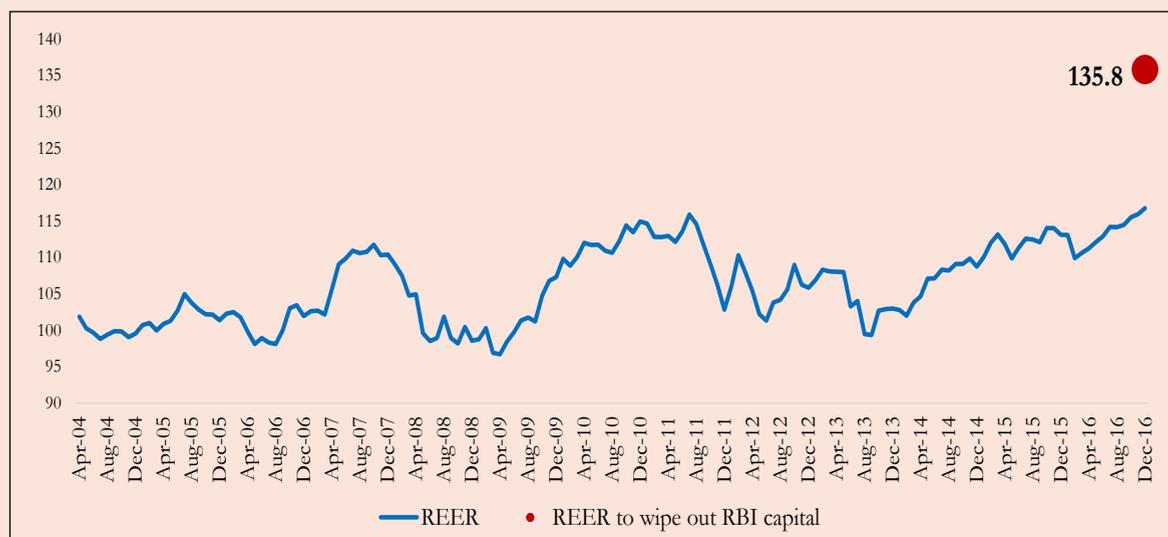
Source: RBI.*: **The 36-currency Real Effective Effective Exchange Rate is the weighted average of Nominal Effective Exchange Rate adjusted by the ratio of domestic price to foreign prices.**

large valuation losses that would jeopardize its capital.[9]

A final concern: supposing that the excess capital were redeployed toward recapitalizing the banks, would redeployment of RBI's reserves amount to the regulator holding a stake in its regulatees- the commercial banks? In fact, what the operation would involve is the *government* altering the composition of its balance sheet, transferring its equity holdings from the RBI to the commercial banks. The RBI would have no equity in the commercial banks. Nor would there be any implications for monetary policy.

The easiest way to think about this is to see these operations in two stages. In stage 1, the RBI's balance sheet shrinks as uses its holdings of government securities (on the asset side) to pay a dividend to the government, thereby reducing its capital (on the liability side). In stage 2, the government would issue new debt to recapitalize the banks. So in the end, government bonds would simply pass from the RBI to the government to public sector banks. In the process capital would also shift. But otherwise nothing would change; in particular, the money supply and overall government equity holdings would be unaffected.

D.   International precedents

Finally, there are prominent international precedents for governments using its capital in the central bank for its own purposes; and for benefiting from the extinguishing of bank notes and using the excess capital in the central bank:

• The US Federal Reserve gave $19 billion from its surplus capital to finance transportation projects in 2015.[10]

• In 2004, the Bundesbank, extinguished its old deutsche mark currency and counted it as income in the profit and loss account because it was deemed highly unlikely that these would ever be exchanged for euros.

• The Bank of Israel recorded a gain of ILS 220 million in its 2010 financial statements (about $62 million at the time) for the face value of notes that had passed the legal date for exchange and were no longer valid for use.

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[9]   The RBI also faces risks to its balance sheet from interest rate changes. If interest rates increase, the value of its government bond holdings will decline, inflicting valuation losses. However, risks from interest rate increases are quantitatively less important for the RBI given the composition of its assets. Moreover, these risks will, in general, be negatively correlated with exchange rate risks.

[10]   See   https://www.bloomberg.com/news/articles/2015-12-01/fed-surplus-tapped-in-highway-bill-as-banks-get-dividend-break.

demonstrated the singular virtue of a public sector dominated banking system, in preserving confidence in the banks when problems arise. But they have also shown its greater disadvantages, in actually dealing with the problems and indeed in allowing them to materialise in the first place. This situation might not matter much if double-digit NPAs at public sector banks were a rare event. But this is the second time in a decade that such a large share of their portfolios has turned non-performing - unless there are fundamental reforms, the problem will recur again and again.

4.69 Indeed, once the Twin Balance Sheet problem is resolved, there could be significant moral hazard problems. Newly cleaned up balance sheets may simply encourage bank managers to lend freely, ignoring the lessons of the past. Structural reform aimed at preventing this can take many forms but serious consideration must also be given to the issue of government majority ownership in the public sector banks.

4.70 Now consider the area where there has been the most progress: the second R, Recognition. After years of following a financing strategy, hoping that providing "time to time" would allow the stressed loans to come right, banks have realised that the financial position of the debtors has deteriorated to such an extent that many will not be able to recover. Accordingly, following the RBI's Asset Quality Review, banks have recognised a growing number of loans as non-performing.

4.71 With higher NPAs has come higher provisioning, which has eaten into banks' capital base. As a result, banks will need to be recapitalised – the third R -- much of which will need to be funded by the government, at least for the public sector banks. This much is automatic. But recapitalisation, for all its importance and attention received in the

public discourse, is not the need of the hour. Not the main need, at any rate.

4.72 Rather, the key issue is the fourth R: Resolution. For even if the public sector banks are recapitalised, they are unlikely to increase their lending until they truly know the losses they will suffer on their bad loans. Nor will the large stressed borrowers be able to increase their investment until their financial positions have been rectified. Until this happens, economic growth will remain under theat.

4.73 The question, then, is how to speed up resolution. In India little progress has been made even eight years after the Global Financial Crisis. Yet after the 1990s crisis, East Asian countries were able to resolve most of the large cases within two years. One reason, of course, was that the East Asian countries were under much more pressure: they were in crisis, whereas India has continued to grow rapidly.

4.74 But a second reason why East Asia was able to clean up its problem debts so quickly was that it had more efficient mechanisms. India has been pursuing a decentralised approach, under which individual banks have been taking restructuring decisions, subject to considerable constraint and distorted incentives. Accordingly, they have repeatedly made the choice to delay resolutions. In contrast East Asia adopted a centralised strategy, which allowed debt problems to be worked out quickly using the vehicle of public asset rehabilitation companies. Perhaps it is time for India to consider the same approach.

REFERENCES:

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Over the past three years the RBI has implemented a number of schemes to facilitate resolution of the stressed asset problem. The figure below depicts these schemes. In what follows a brief overview of these schemes is provided.

Figure. Chronology of RBI policy actions
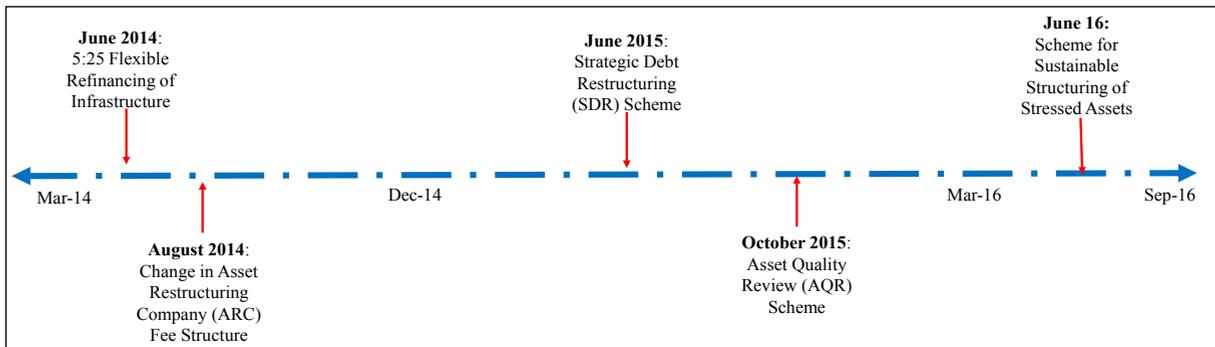
The 5/25 Refinancing of Infrastructure Scheme: This scheme offered a larger window for revival of stressed assets in the infrastructure sectors and eight core industry sectors. Under this scheme lenders were allowed to extend amortisation periods to 25 years with interest rates adjusted every 5 years, so as to match the funding period with the long gestation and productive life of these projects. The scheme thus aimed to improve the credit profile and liquidity position of borrowers, while allowing banks to treat these loans as standard in their balance sheets, reducing provisioning costs. However, with amortisation spread out over a longer period, this arrangement also meant that the companies faced a higher interest burden, which they found difficult to repay, forcing banks to extend additional loans *('evergreening')*. This in turn has aggravated the initial problem.

Private Asset Reconstruction Companies (ARCs): ARCs were introduced to India under the SARFAESI Act (2002), with the notion that as specialists in the task of resolving problem loans, they could relieve banks of this burden. However, ARCs have found it difficult to resolve the assets they have purchased, so they are only willing to purchase loans at low prices. As a result, banks have been unwilling to sell them loans on a large scale. Then, in 2014 the fee structure of the ARCs was modified, requiring ARCs to pay a greater proportion of the purchase price up-front in cash. Since then, sales have slowed to a trickle: only about 5 percent of total NPAs at book value were sold over 2014-15 and 2015-16.

Strategic Debt Restructuring (SDR): The RBI came up with the SDR scheme in June 2015 to provide an opportunity to banks to convert debt of companies (whose stressed assets were restructured but which could not finally fulfil the conditions attached to such restructuring) to 51 percent equity and sell them to the highest bidders, subject to authorization by existing shareholders. An 18-month period was envisaged for these transactions, during which the loans could be classified as performing. But as of end-December 2016, only two sales had materialized, in part because many firms remained financially unviable, since only a small portion of their debt had been converted to equity.

Asset Quality Review (AQR): Resolution of the problem of bad assets requires sound recognition of such assets. Therefore, the RBI emphasized AQR, to verify that banks were

assessing loans in line with RBI loan classification rules. Any deviations from such rules were to be rectified by March 2016.

Sustainable Structuring of Stressed Assets (S4A): Under this arrangement, introduced in June 2016, an independent agency hired by the banks will decide on how much of the stressed debt of a company is 'sustainable'. The rest ('unsustainable') will be converted into equity and preference shares. Unlike the SDR arrangement, this involves no change in the ownership of the company.

Fiscal Framework: The World is Changing, Should India Change Too?

I want the cultures of all lands to be blown about my house as freely as possible. But I refuse to be blown off my feet by any.

– Mahatma Gandhi

Advanced countries have embraced fiscal activism, giving a greater role to counter-cyclical policies and attaching less weight to curbing the debt stock. But India's experience has taught the opposite lessons. It has reaffirmed the need for rules to contain activism, so as to rein in excessive spending during booms and inordinate deficits during downturns, a pattern that contributed to both recent episodes of severe macro-economic instability (1991 and 2013). India's experience has also highlighted the risk of relying on rapid growth rather than steady primary balance adjustment to reduce debt, a strategy that has failed to place the debt-GDP ratio firmly on a downward path. These flow and stock vulnerabilities are the subject of review under the new FRBM Committee.

I. INTRODUCTION

5.1   Since the government came to power, there has been a steadfast commitment to fiscal consolidation, reflected in the steady decline in the fiscal deficit from 4.5 percent of GDP in 2013-14 to 4.1 percent, 3.9 percent, and 3.5 percent over the successive three years. What should be the direction of future fiscal policy? This question has become salient for both international and domestic reasons.

5.2   Since the 2008-09 Global Financial Crisis (GFC), monetary policy has experienced a paradigm shift. Called upon to shore up economic activity in the face of severe tailwinds, monetary policy makers have ventured into realms they had never been before: near-zero interest rates, quantitative easing in the form of exploding central bank balance sheets, and eventually, upturning all normal intuitions, even to negative interest rates so that economic agents are actually paid to hold money.

5.3   Now that monetary easing has run its course, attention has increasingly turned to the role of fiscal policy. And here too there has been a paradigm shift. This shift in conventional wisdom, articulated most clearly recently by Jason Furman of President Obama's Council of Economic Advisers[1], comprises the following:

• Fiscal policy can legitimately be used for

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[1]   In an October 2016 speech. See https://www.whitehouse.gov/sites/default/files/page/files/20161005_furman_ suerf_fiscal_policy_cea.pdf

counter-cyclical policy;

- It is particularly effective when monetary policy is at the zero lower bound, because at that point multipliers are large, close to 1.5;

- And because fiscal policy is effective in increasing GDP, it will lead to significant increases in tax revenue, meaning that fiscal activism can partly pay for itself (Gaspar, Obstfeld, and Sahay 2016);

- In any event, estimates of sustainable debt levels should be revised upwards, because interest rates will remain low;

- Finally, debt sustainability is ultimately less about the ability to pay and more about the willingness of the political system to honor its obligations.

5.4   In other words, the new view of fiscal policy shifts the emphasis from stocks to flows, arguing for greater activism in flows (deficits) and minimizing concerns about the sustainability of the stocks (debt). Of course, since the US elections, it seems that activist fiscal policy might become a reality, even though, ironically, cyclical conditions have changed, as low unemployment is now leading to rising wages and inflation.

5.5   How well does this view apply to India, given its fiscal experience in the last 15 years and its outlook for the next 10-15 years? This is a question that is imperative at a time when India is reviewing the fiscal policy framework enshrined in the Fiscal Responsibility and Budget Management (FRBM) Act of 2003.

II.   INDIA AND THE WORLD: FLOWS

5.6   The case for activist fiscal policy in the advanced economies (AEs) rests ultimately on two pillars: weak economic activity and the inability to address this problem through monetary policy.

5.7   These considerations have some resonance in India. Like some European countries, India is still afflicted by the twin balance sheet problem, which is holding back investment and credit growth and hence overall economic activity. Deleveraging has still not played itself out and hence the debt overhang will continue to constrain economic activity (see Chapter 4). The need for counter-cyclical policy cannot therefore be ruled out.

5.8   That said, India's situation differs from that of the AEs in some important ways. To begin with, Indian growth rates are substantially higher, while inflation rates are also substantially greater. As a result, monetary policy is nowhere close to the zero lower bound, reducing the need for fiscal activism. And because inflation is already relatively high, counter-cyclical policy has to be much more sensitive to triggering higher inflation. Potential growth is notoriously difficult to estimate, especially in India, but one recent attempt suggests that the room for increasing demand without triggering higher inflation may be limited (Chinoy, Kumar and Mishra 2016).

5.9   Perhaps a more important argument against activist counter-cyclical policy is India's own recent experience. Figures 1 and 2 illustrate this history. Figure 1 highlights starkly that the two episodes of Indian macro-vulnerability in the last 35 years—1991 and 2013—were associated with, even preceded by, large increases in fiscal deficits. In the early 1980s, there was an expansion in spending and deficits in response to accelerating growth. The inability to rein in these deficits played a key role in undermining India's external situation, which led to the balance of payments crisis of 1991. The difference between the 1991 and 2013 episodes is that in the former there was a fixed exchange rate which created a full-blown crisis, whereas in the latter the exchange rate was floating,

Figure 1. Gross Fiscal Deficit of Central Government (% of GDP)
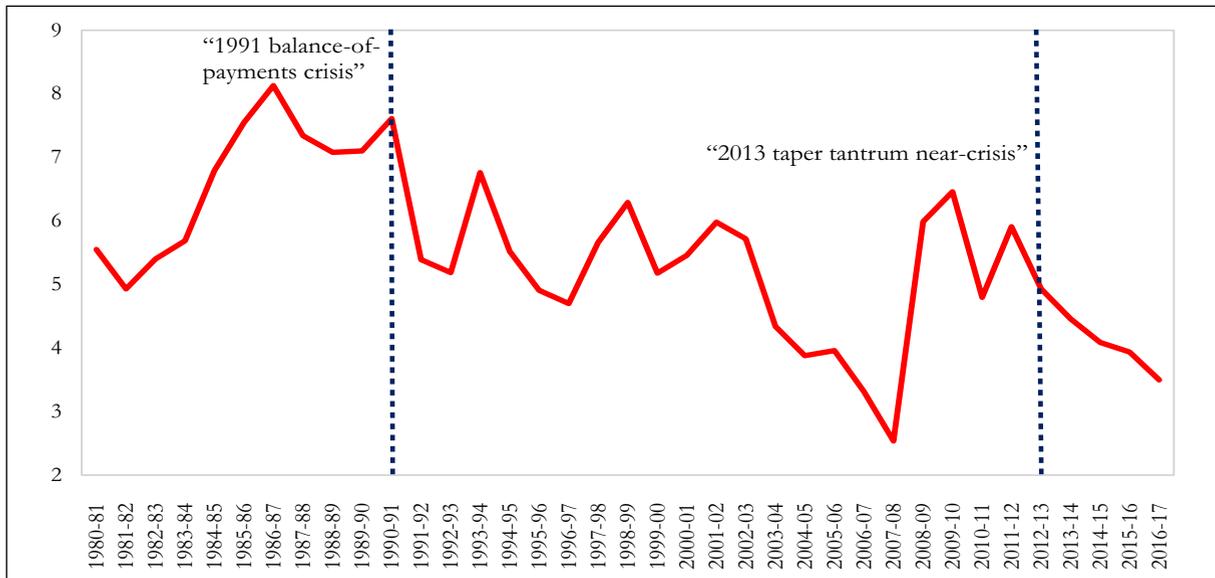
Source: **Budget documents .**

Figure 2. Central Government (CG) Fiscal Deficit and Expenditures (% of GDP)
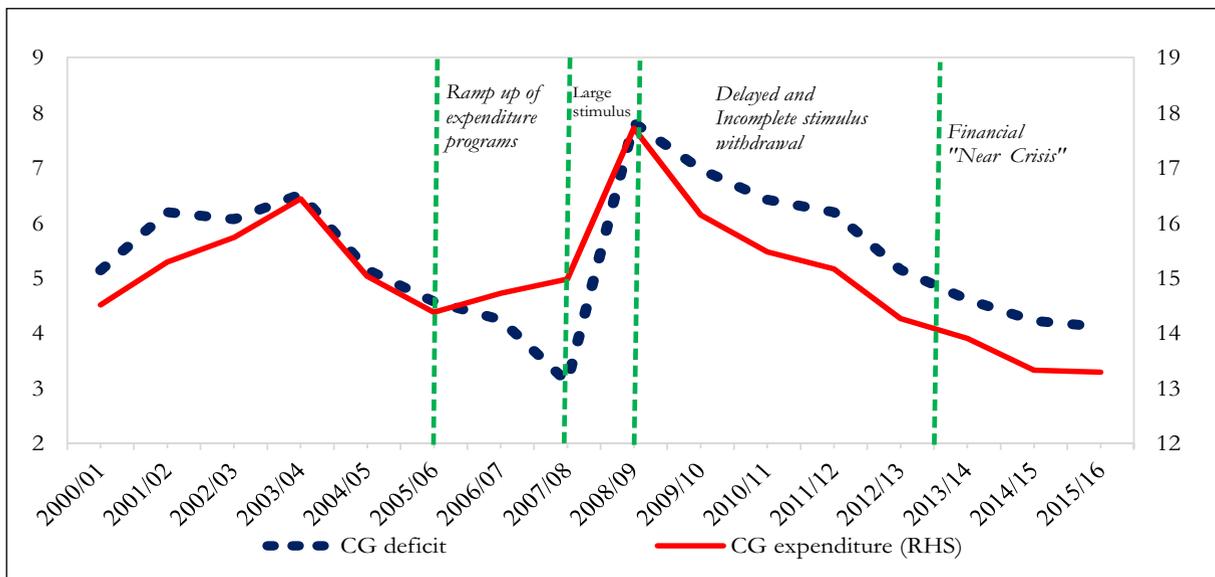
Note: **Fiscal deficit definition as per IMF.**
Source: **International Monetary Fund.**

which attenuated disruptions in other asset prices.

5.10   Figure 2 focusses on the period leading up to the 2013 crisis. During the mid-2000s growth boom, new spending programs were introduced, which could not be sustained when receipts fell back to more normal levels. Then, after the Global Financial Crisis

there was a renewed surge in budget deficits, which rose to exceptionally high levels. This boom-financed spending (since 2005-06) combined with the sharp stimulus (4 percent of GDP) in the wake of the GFC, which was then not withdrawn adequately or on time, led to the financial-currency "near-crisis" in the autumn of 2013.

Table 1. General Government Debt to GDP Ratio

Country	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Japan	183.0	191.8	210.2	215.8	231.6	238.0	244.5	249.1	248.0	250.4
Italy	99.8	102.4	112.5	115.4	116.5	123.3	129.0	132.5	132.7	133.2
United States	64.0	72.8	86.0	94.7	99.0	102.5	104.6	104.6	105.2	108.2
France	64.4	68.1	79.0	81.7	85.2	89.6	92.4	95.3	96.1	97.1
Canada	66.8	67.8	79.3	81.1	81.5	84.8	86.1	86.2	91.5	92.1
United Kingdom	42.2	50.3	64.2	75.7	81.3	84.8	86.0	87.9	89.0	89.0
Brazil	63.7	61.9	64.9	63.0	61.2	62.3	60.4	63.3	73.7	78.3
India	**74.0**	**74.5**	**72.5**	**67.5**	**69.6**	**69.1**	**68.0**	**68.3**	**69.1**	**68.5**
Germany	63.5	64.9	72.4	81.0	78.3	79.5	77.1	74.5	71.0	68.2
Mexico	37.5	42.8	43.9	42.2	43.2	43.2	46.4	49.5	54.0	56.0
Argentina	50.8	43.9	53.8	42.6	38.1	39.4	42.2	43.6	52.1	51.8
South Africa	27.1	26.5	30.1	34.7	38.2	41.0	44.0	46.9	49.8	51.7
China	29.0	27.0	32.6	33.1	33.1	34.0	36.9	39.8	42.9	46.3
Korea	28.7	28.2	31.4	30.8	31.5	32.1	33.8	35.9	37.9	38.9
Turkey	39.9	40.0	46.1	42.3	39.1	36.2	36.1	33.5	32.9	31.7
Indonesia	32.3	30.3	26.5	24.5	23.1	23.0	24.8	24.7	27.3	27.5
Russia	8.0	7.4	9.9	10.6	10.9	11.8	13.1	15.9	16.4	17.1
Advanced Economies	*71.7*	*78.5*	*91.9*	*98.4*	*102.6*	*106.8*	*105.6*	*105.4*	*105.4*	*108.6*
Euro Area	*64.9*	*68.5*	*78.3*	*84.1*	*86.7*	*91.3*	*93.3*	*94.3*	*92.5*	*91.7*
G-7	*80.9*	*88.9*	*103.7*	*111.9*	*117.1*	*121.3*	*119.4*	*118.6*	*117.9*	*121.7*
Emerging Market and Middle-Income Economies	*35.2*	*33.5*	*38.4*	*38.1*	*37.3*	*37.5*	*38.9*	*41.1*	*44.8*	*47.3*

Source: **IMF Fiscal Monitor (October 2016).**

5.11 In other words, India's fiscal stance has an in-built bias toward higher deficits, because spending rises pro-cyclically during growth surges, while revenue and spending are deployed counter-cyclically during slowdowns. This pattern creates fiscal fragility. Fiscal rules, insofar as they can be effective and binding, must therefore aim to prevent spending surges during booms and constrain counter-cyclicality during downturns.

III. India and the World: Stocks

5.12 India also appears to have a stock problem, in that its debt-to-GDP ratio is higher than many other emerging markets (Table 1). But such a mechanical comparison is not an appropriate way of assessing India's fiscal strength: the true problem is much

more subtle.

A. Fiscal commitment

5.13 India shares with AEs the experience of not having defaulted on its domestic debt either de jure or de facto (through long periods of high inflation). In that sense, India is very different from many other emerging markets, especially those in Latin America (and Russia) which have defaulted on their domestic obligations. If fiscal and debt sustainability is about confidence and trust as revealed in the ability and willingness of governments to limit their debt levels and pay them off without disruption, as Reinhart, Rogoff and Savastano (2003) suggest, then India's record is very good. In the recent past, India's highest level of debt has been 83 percent of GDP and it has made sure

that its debt service obligations have been conscientiously met.

5.14 Indeed, India's experience on its external debt obligations is instructive. When doubts about India's ability to meet its debt service obligations to foreign creditors arose in 1991, the government took extreme measures to reassure creditors that it had no intention to default. Gold from the RBI was flown in a special plane and placed in the vaults of the Bank of England to provide collateral and demonstrate India's seriousness about its debt obligations (Sitapati, 2016).

b. Debt dynamics

5.15 Turn next to debt dynamics. The basic equation for debt sustainability is:

$$d_t - d_{t-1} = pd_t - \frac{g_t - r_t}{1 + g_t} * d_t \qquad (1)$$

where:

d_t refers to the debt/GDP ratio in period t;

pd_t, the primary deficit in period t;

g_t, the nominal GDP growth rate; and

r_t, the nominal effective rate of interest (borrowing cost) on government debt.

5.16 This equation shows that if a government is running a primary deficit, pd, then nominal growth must exceed the nominal interest rate ($[g - r]$ must be positive) to keep debt from increasing. In contrast, if the primary balance is positive, then debt ratios can remain steady even if $[g - r]$ turns negative.

5.17 On both $[g-r]$ and pd there are interesting comparisons to be made. In AEs, low inflation rates and weak economic activity in the aftermath of the financial crises have reduced nominal growth, which on its own would create debt fragilities. But at the same time secular trends related to high savings, ageing, and a worldwide increase in demand for safe assets have reduced equilibrium interest rates, as well. In other words, both g and r have fallen, keeping debt dynamics sustainable.

5.18 In India, things are rather different. India is on a convergence path. Being relatively less developed, its growth rate for the next decade or two is likely to be substantial. This dynamic has been evident for the last two decades. The country has grown at just over 6 percent in real terms for 35 years and the scope for continuing this convergence remains considerable. India can grow conservatively at about 7-8 percent for the next 15 years (5.5-7 percent in per capita terms). This combined with an inflation target of 4±2 percent implies that nominal GDP growth over the next decade or so will be in the 11-14 percent range.

5.19 The implications for the growth-interest rate differential are stark. For AEs, $[g - r]$ could remain in the 0-2 percent range, comprising 1-2 percent trend real GDP growth plus 1-2 percent inflation, less 2 percent for the nominal interest rate. But for India the differential could be around 4-6.5 percent, reflecting the high nominal growth rates less interest rates of 7-7.5 percent (inflation plus a country risk premium). As a result, debt dynamics for the next decade will be very favorable for India compared with most AEs and even other emerging markets.

5.20 But what about the other dimension of debt dynamics, pd, the primary deficit? Here too there is a contrast with AEs, but in a way that reveals an Indian vulnerability.

5.21 This vulnerability is the country's primary deficit, that is the shortfall between its receipts and its non-interest expenditures. Put simply, India's government (centre and states combined) is not collecting enough revenue to cover its running costs, let alone the interest on its debt obligations.

5.22 There is nothing extraordinary about

Table 2. General Government Primary Balance (% of GDP) & Real GDP Growth (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average	Real GDP growth (%)
Argentina	1.7	1.8	-1.1	-0.4	-1.4	-1.5	-2.4	-3.2	-5.4	-5.6	**-1.8**	2.3
Brazil	3.2	3.8	1.9	2.3	2.9	1.9	1.7	-0.6	-1.9	-2.8	**1.2**	2.0
China	0.4	0.4	-1.3	1.1	0.4	-0.2	-0.3	-0.4	-2.1	-2.2	**-0.4**	8.9
India	**0.4**	**-5.3**	**-5.2**	**-4.2**	**-3.9**	**-3.1**	**-3.1**	**-2.8**	**-2.3**	**-2.1**	**-3.2**	7.4
Indonesia	0.9	1.7	-0.1	0.0	0.5	-0.4	-1.0	-0.9	-1.2	-1.0	**-0.2**	5.7
Mexico	1.5	1.7	-2.3	-1.4	-1.0	-1.2	-1.2	-1.9	-1.2	0.1	**-0.7**	2.1
Russia	5.6	4.7	-6.2	-3.1	1.7	0.7	-0.8	-0.7	-3.2	-3.4	**-0.5**	1.5
South Africa	3.9	2.1	-2.5	-2.1	-1.1	-1.3	-0.9	-0.6	-0.6	-0.4	**-0.4**	2.1
South Korea	1.4	1.2	-0.7	0.8	0.9	0.8	-0.2	-0.3	-0.4	-0.3	**0.3**	3.3
Turkey	2.9	1.7	-1.4	0.3	2.1	1.1	1.4	1.4	1.2	0.3	**1.1**	3.5

Source: **IMF Fiscal Monitor, October 2016.**

running a primary deficit, per se. Most of the other large emerging markets do so, having fallen into this situation after the Global Financial Crisis when GDP growth and revenues slowed, while stimulus spending was increased (Table 2). Even so, India stands out both for the size of the deficits that it has run over the past decade, especially when compared with its rate of growth. At such rapid rates of growth, substantially greater

than those of its peers, its primary deficit should have been much lower than others; instead it has been significantly greater (Figure 3).

5.23   As a result of running a primary deficit, the government is dependent on growth and favourable interest rates to contain the debt ratio. In fact, in the aftermath of the GFC as growth slowed and disinflation occurred, debt levels started to rise again (Figure 4).

Figure 3. Real GDP Growth and Average Primary Deficit (% of GDP), 2007-
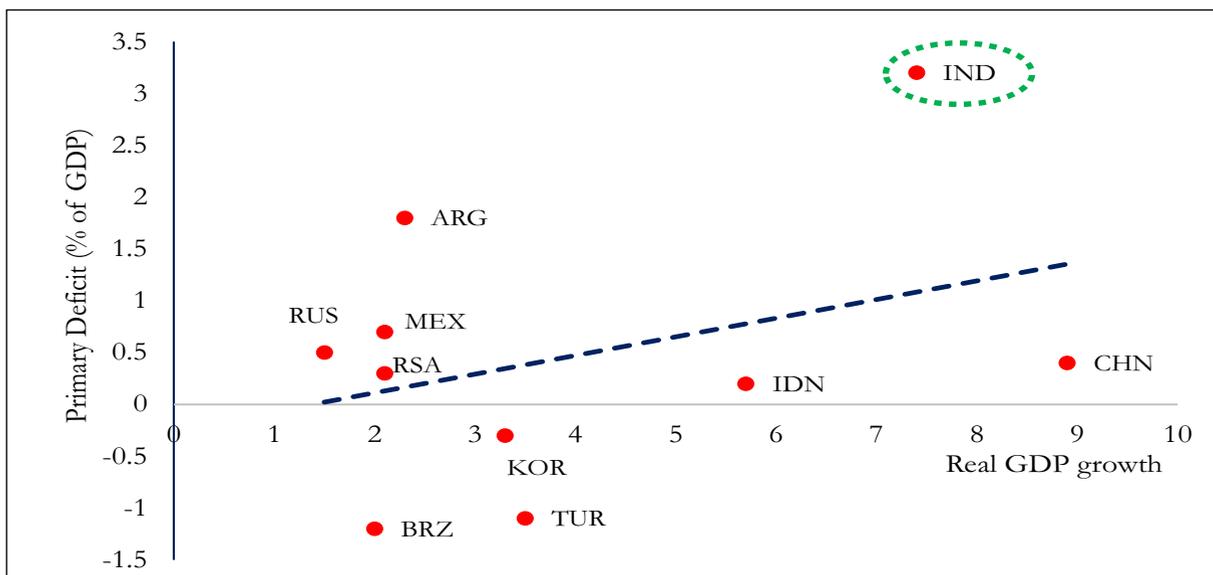
Source: **IMF, World Economic Outlook, October 2016**

**Figure 4. General Government Debt, Primary Balance and Interest
Rate-Nominal Growth Differential**
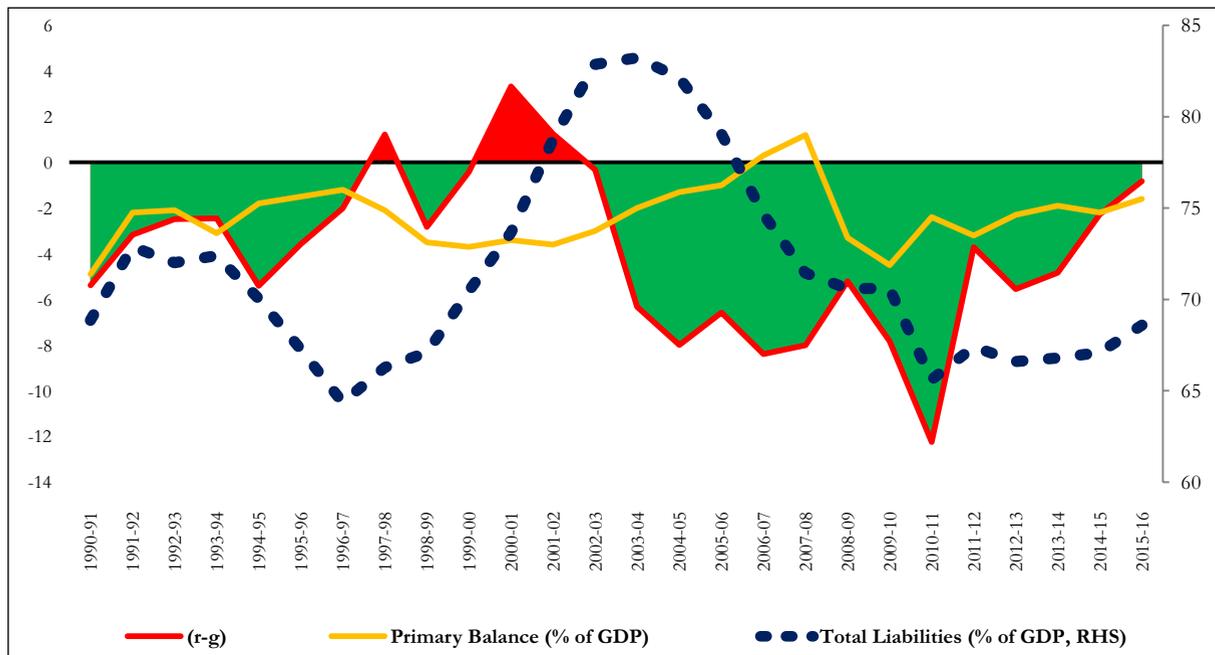
Source: **RBI, Budget documents and Survey estimates.**

5.24 It follows that if one day growth were to falter and interest rates to rise on a sustained basis, the debt ratio could start to spiral upwards. A debt explosion would admittedly require a large, unlikely shock. But it is not just a completely theoretical possibility, either: it is exactly what happened to Greece.

5.25 This contrast between India's primary balance position and that of other countries reflects a deeper point. India normally undertakes policy-related fiscal adjustment only gradually. Aside from crisis periods, the fiscal position has only improved sustainedly when it has benefitted from windfalls, arising from exceptional growth (as in the mid-2000s) or major declines in oil prices that allow for lower petroleum-related subsidies and higher excise taxes. For example, between 2014-15 and 2016-17, lower oil prices will have contributed about a percentage point to fiscal adjustment. Notice that in Figure 4, the primary balance line is relatively stable, and the improvement around 2007, reflects

the growth boom while the strengthening towards the end coincided with low oil prices.

IV. CONCLUSION

5.26 It has now been thirteen years since the FRBM was enshrined in law and the basic principles of prudent fiscal management elaborated. Over this period, the situation in India has changed utterly. Back in 2003, the economy was fairly small and still relatively closed to the outside world, generating per capita incomes that lagged far behind that of other emerging markets. Today, India has become a middle income country. Its economy is large, open, and growing faster than any other major economy in the world.

5.27 In many ways, then, India's economy is converging toward the large, open, prosperous economies of the West. But its trajectory is different in one fundamental way. While India's pace of growth has quickened in the past quarter century, the dynamism of advanced countries has ebbed, particularly since the Global Financial Crisis.

And this has led to a fundamental divergence of fiscal perspectives. Back in 2003 there was common agreement that fiscal rules were better than discretion, that fiscal policy should be aimed at medium-term objectives such as reducing the stock of debt rather than shorter-term cyclical considerations. Now, advanced countries have moved away from these principles toward greater fiscal activism, giving counter-cyclical policies much more of a role and giving correspondingly less weight toward curbing the debt stock.

5.28 But India's experience has taught the opposite lessons. It has reaffirmed the need for rules to contain fiscal deficits, because of the proclivity to spend during booms and undertake stimulus during downturns. It has also highlighted the danger of relying on rapid growth rather than steady and gradual fiscal and primary balance adjustment to do the "heavy lifting" on debt reduction. In short, it has underscored the fundamental validity of the fiscal policy principles set out in the FRBM.

5.29 Even as these basic tenets of the FRBM remain valid, the operational framework designed in 2003 will need to be modified to reflect the India of today, and even more importantly the India of tomorrow. This, then, will be the task of the FRBM Review Committee: to set out a new vision, an FRBM for the 21st century.

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Fiscal Rules: Lessons from the States

CHAPTER

06

"Lord, give me chastity and continence but not yet."

– St. Augustine

Most states achieved and maintained the target fiscal deficit level (3 percent of GSDP) and eliminated the revenue deficit soon after the introduction of their Fiscal Responsibility Legislation (FRL). However, the FRL was not the sole impetus behind this impressive fiscal performance. Acceleration of GDP growth, increased transfers from the Centre, decline in interest payments and increased central CSS expenditure contributed significantly to such consolidation. Desisting from splurging rather than belt-tightening was probably the real contribution of the States. Fiscal challenges are mounting because of the Pay Commission recommendations, slowing growth, and rising payments from the UDAY bonds. Moreover, macro-economic conditions will not be as favorable to states as they were in the mid-2000s. Going forward greater market-based discipline on state government finances will be a major imperative. And, the Centre must take the lead not only in incentivizing fiscal prudence by states but also by acting as a model through its own fiscal management.

I. Introduction

6.1 The problem of fiscal management is the lure of eternal procrastination. To advance rather than defer the desirable goal of fiscal prudence, India like several other countries, embarked in the mid-2000s on an ambitious project of fiscal consolidation, adopting fiscal rules aimed at curbing fiscal deficits. The most well-known and best-studied part of this project was the Fiscal Responsibility and Budget Management (FRBM) Act, adopted by the centre in 2003. This Act was mirrored by Fiscal Responsibility Legislation (FRL) adopted in the states, laws that were no less important than the FRBM, since

states account for roughly half the general government deficit. Other work has shown that states' fiscal position improved after 2005 and that some of this improvement can be attributed to the FRL (see Topalova and Simone, 2009, Chakraborty and Dash 2013). This chapter extends this analysis using more recent and novel data on state finances, budgeting procedures and off-budget expenditure.

6.2 At first blush, the FRL seem enormously successful. The financial position of the states improved considerably after 2005, based on any measure (Figure 1). The average revenue deficit was entirely eliminated, while the average fiscal deficit

Figure 1. Trend in Deficits, Debt 1994-2014
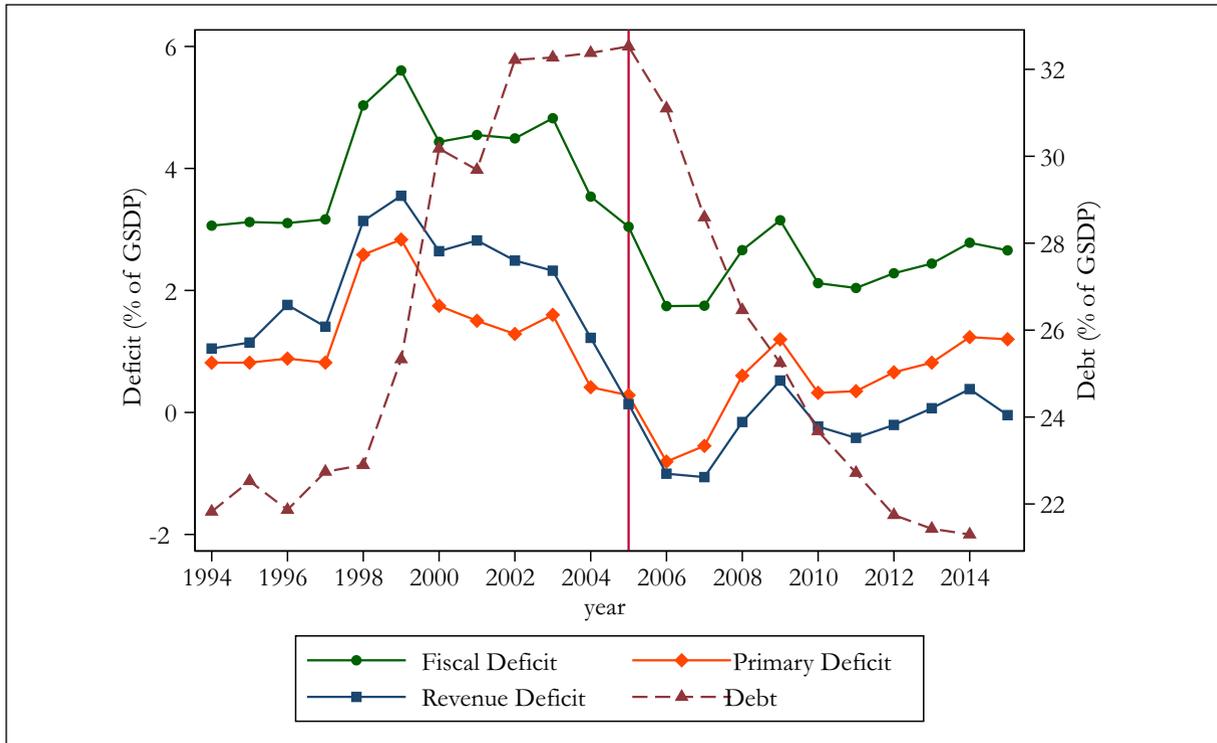
was curbed to less than 3 percent of GSDP, just as the FRL had mandated. The average debt to GSDP ratio accordingly fell by 10 percentage points to a mere 22 percent of GSDP in 2013.

6.3   Yet just because fiscal progress followed the introduction of the FRL doesn't mean the FRLs were *responsible* for this progress. To begin with, the deficit reduction owes much to favorable exogenous factors:

•   An acceleration of nominal GDP growth (of 6 percentage points on average) helped boost states' revenues by about 1 percent of GSDP;

•   Increased transfers from the centre of about 1 percent of GSDP both because of the 13th Finance Commission recommendations and the surge in central government revenues;

•   Reduced interest payments of about 0.9 percent of GSDP on account of the debt restructuring package offered by

the centre; and

•   Reduced need for spending by the states—estimated at about 1.2 percent of GDP—as the centre took on a number of major social sector expenditures under the Centrally Sponsored Schemed (CSS) (see Figure 2). From the states' perspective, this amounted to off-budget spending.

Figure 2. Centre's Contribution to Centrally Sponsored Schemes (CSS) (as % of GDP)
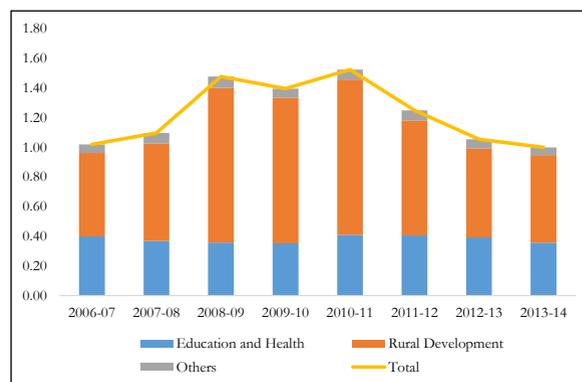
6.4   Accordingly, two questions arise, which this chapter attempts to address:

- To what extent did the FRL really make a difference – and in what ways?

- What are the lessons for future fiscal rules?

II. Summary of the Fiscal Responsibility Legislation

6.5 The FRL aimed to impose fiscal discipline through a number of mechanisms:

- Fiscal targets were established, which were the same for all states: the overall deficit was not allowed to exceed 3 percent of GSDP at any point, while the revenue deficit was to be eliminated by 2008/9 (later extended to 2009/10).

- The 12th Finance Commission allowed states to borrow directly from the market, in the hope that investors would also exercise some discipline, by pushing up interest rates on states whose fiscal position had not improved.

- Finally, broad public discipline was enhanced by introducing new reporting requirements. States were required to publish annual Medium-Term Fiscal Policy reports, which would project deficits over the next three to four years, accounting for growth in big ticket expenditure items like pension liabilities.

6.6 The fiscal deficit target was relaxed temporarily to 3.5 percent of GSDP in 2008/9 and to 4 percent of GSDP in 2009/10 in light of the global financial crisis (RBI, 2010). By FY 2010, the targets were set to the original FRL level of 3 percent. Subsequently, the 14th Finance Commission (FFC) recommended that fiscal deficit limits were to be relaxed by 0.5 percentage points for states which meet three conditions: (1) zero revenue deficit in the previous year; (2) debt to GSDP ratio lower than 25 percent; and (3) interest payments to GSDP ratio less than 10 percent of GSDP.

III. Assessment Methodology

6.7 One reason why figures on fiscal progress since 2005 give a misleading impression of the impact of the FRL is that not all states adopted FRL in that year. For example, five early adopters – Karnataka, Kerala, Uttar Pradesh, Punjab and Tamil Nadu -- enacted their legislation even before the central government did so in 2003. Many others adopted FRLs in 2005/6, while in a few states legislation did not fall into place until 2010 (Figure 3).

6.8 During this period, many other developments occurred that had a profound impact on fiscal positions (Figure 4). States adopted value added taxes (VAT), the 6th Pay Commission wage awards were granted, the 12th and 13th Finance Commissions made substantive changes to central government transfers to states. This was also a period of high nominal GDP growth, which averaged 15.8 percent between 2005 and 2010. So a second challenge is to distinguish the impact of the FRL in imposing fiscal discipline from the impact of these concurrent policy changes and macro-economic trends.

6.9 To deal with these issues, the assessment takes the following approach. We calculate using "FRL time", based on the number of years before or after the particular FRL was adopted. For example, Kerala passed their FRL in 2003 while Haryana adopted theirs in 2005. So year 1 following the FRL is 2004 for Kerala and 2006 for Haryana. This methodology has the advantage that it allows one to answer questions about the first-year and longer-term impacts of adopting an FRL.

6.10 Using FRL time has a second advantage, in that it helps isolate the impact of FRL from other factors affecting fiscal deficits, such as the 6th Pay Commission. This isolation is not complete, of course, but neither is it negligible. For example,

Figure 3. Fiscal Responsibility Legislation by States
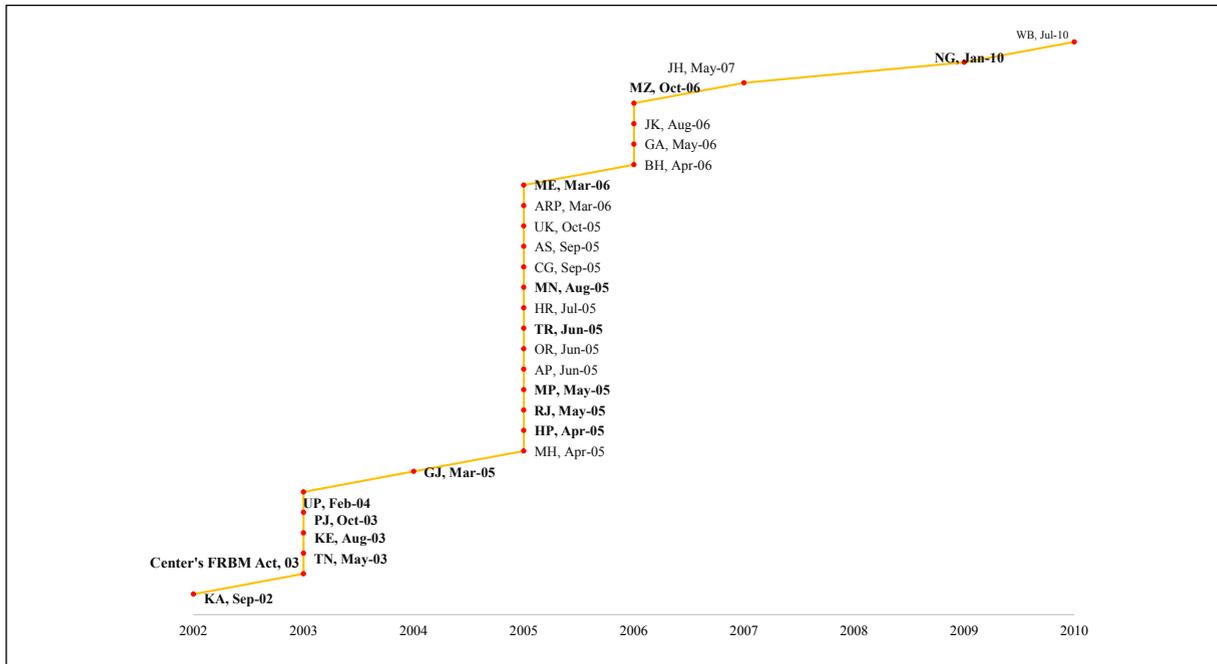
Figure 4. State-wise Adoption of Value Added Tax and Other Major Fiscal Events 2002-2015
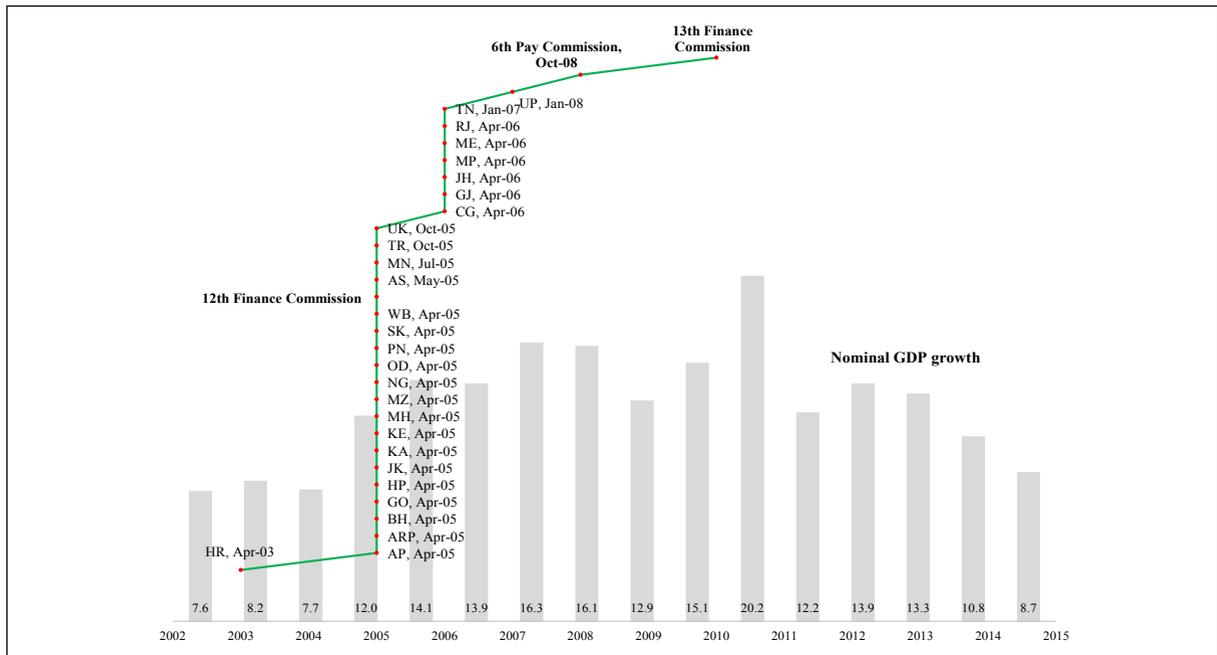
Haryana's year 1 deficit (in 2006) includes the effect of VAT adoption, upward trend in GSDP growth and central transfers while Kerala's (in 2004) does not. So an average across all states in FRL time reduces the role of external factors, compared to averages based on calendar time, particularly if the factors apply to specific years (such as pay awards). The regression analysis (Appendix Tables 1 & 2), we account for some of these major external factors more rigourously.

6.11 There is one factor that cannot be isolated, however. As an incentive for states to adopt fiscal rules and to enable

them to achieve these fiscal targets, the central government provided a conditional debt restructuring window, the Debt Consolidation and Restructuring Facility (DCRF). So states could substantially lower their interest payments in the same year that they adopted the FRL. The change in deficits and other fiscal indicators in FRL time should consequently be seen as a result of both the FRL targets as well as the debt restructuring facility.[1]

IV. Impact on Deficits

6.12 The first thing to note is that states essentially achieved the fiscal targets right away, years in advance of the target year of FY 2008 (extended to 2009/10 due to the financial crisis). Within the first two years, states on average lowered their deficits to target levels -- 3 percent for fiscal deficit and 0 for revenue deficits – while the primary balance shifted into surplus (Figures 5-6).

6.13 Moreover, this progress has proved reasonably durable. Comparing the 11 years before FRL to the 10 years afterwards (the period for which we have a balanced sample of states), fiscal deficits fell by almost half – from an average of 4.1 percent of GSDP on average to 2.4 percent of GSDP. Revenue deficits also fell sharply from 2.1 percent of

Figure 5. Fiscal Deficit (% of GSDP)
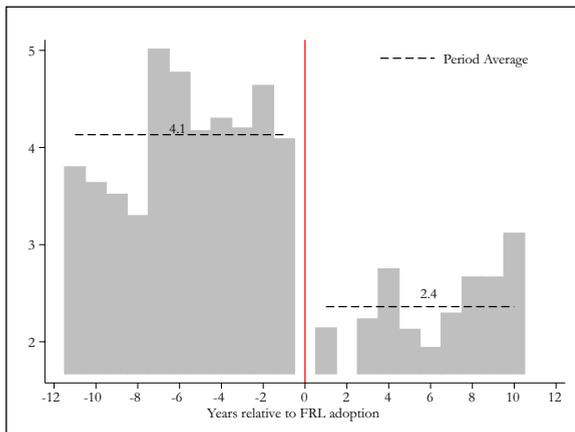
Figure 6. Revenue Deficit (% of GSDP)
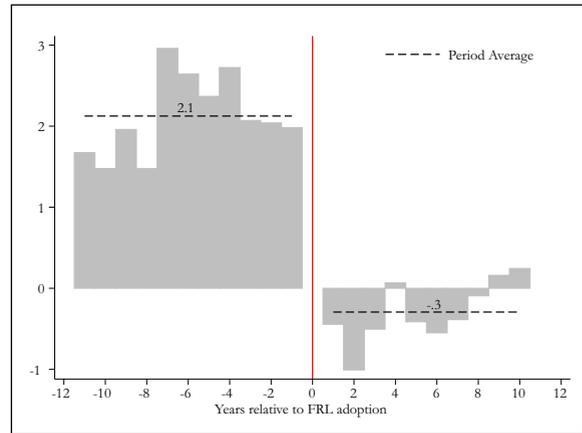
GSDP on average to -0.3 percent of GSDP after the FRL.

6.14 These reductions in deficits mask considerable variation across states. Appendix Figure 7 and 8 show the state-wise change in fiscal and revenue deficits between the 3 years before and the 3 years after the FRL. The largest reductions in fiscal deficits came from states like Orissa, Punjab, Madhya Pradesh and Maharastra which lowered their deficit by more than 3 percentage points. These states also showed some of the largest reductions in revenue deficit.

6.15 Another indication that the FRL had a significant impact is that states kept a tight rein on wage and salary expenditure (Figure 7). Instead, they expanded more discretionary spending, which would be easier to scale back if needed to achieve the deficit targets (see Appendix Figure 5).

6.16 At the same time, the path of primary deficits hints at an underlying problem (Figure 8). A decade into the FRL, the average primary deficit was just as large as it was before the law – and the only reason this slippage hadn't shown up in the other deficit figures was that interest payments had fallen sharply, in large part due to the centre's debt relief.

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[1] One exception: the early adopters like Karnataka and Kerala did not receive this facility concurrently with adoption of the FRL.

Figure 7. Wage and Salary Expenditure (% of GSDP)

Figure 8. Primary Deficit (% of GSDP)
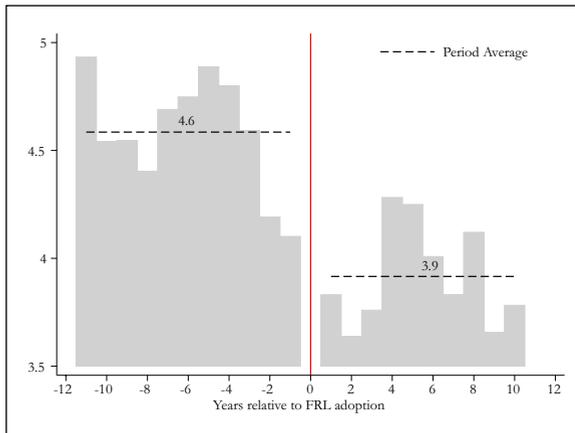
6.17 One can see further indications that external factors played a large role if we break down the improvement into its constituent components. Figure 9 shows the average change in fiscal, primary and revenue deficit of states as a share of GSDP, comparing the average of the 10 years following the FRL and the 11 years prior. The figure reveals that:

- Central transfers as a percent of GSDP increase by 0.9 percentage points over this time period. This is more than half of the reduction in the fiscal deficit and about half the change in revenue deficit.

- Own tax revenues as a percent of GSDP increase by 1 percentage point, largely due to high GDP growth and adoption of VAT.

- Interest payments as a percent of GSDP fell by 0.9 percentage points, owing to debt restructuring.

- Non-interest revenue expenditure shows a modest increase of 0.4 percentage points, suggesting that states used the revenue gains to bring down deficits rather than ramping up spending. This is despite the fact that the post-FRL period includes the Global Financial Crisis of 2008/09.

6.18 The appendix, presents the pre- and post-FRL trends of these various sub-components of state revenue and expenditure, such as revenue receipts, own tax revenue, central transfers, capital expenditure and others (Appendix Figures 1 – 6). These figures show a sharp change in the trend of revenues coinciding with the FRL. Revenue receipts increase from about 12.3 percent of GSDP on average prior to the FRL to 14.2 percent of GSDP post-FRL (Appendix Figure 1). Much of this increase comes from a similarly sharp change in own tax revenue (Appendix Figure 2) and central transfers (Appendix Figure 3). Expenditure on the other hand does not show a corresponding increase (Appendix Figure 5). Only capital expenditure rises sharply after the introduction of the FRL (Appendix Figure 6).

6.19 An even stronger impact from exogenous factors can be seen in our regression results, which are in line with other studies that have examined the FRL (see Chakraborty and Dash, 2013 and Simone and Topalova, 2007). Table 1 shows the change in fiscal indicators in intervals of three years after the FRL relative to their levels prior to the FRL, accounting for GSDP growth, state and time specific shocks and whether the VAT was in place. The table reveals:

Figure 9. Decomposition of Change in Deficits before and after FRL

Bars represent the difference in state-wise average of indicators between 10 year period after FRL and 11 year period prior to FRL
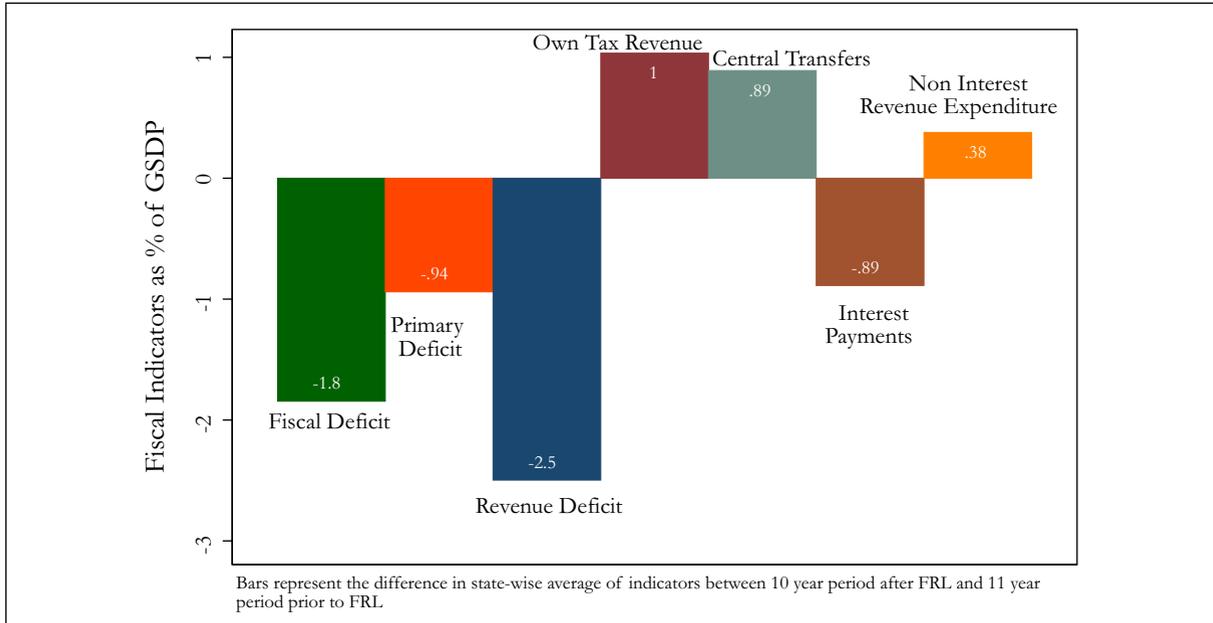
- there was a statistically significant 0.86 percentage point decrease in revenue deficit that can be attributed to the FRL in the first two years (column (1)).

- Similarly, there is a 0.7 percentage point decrease in the fiscal deficit in the first two years (column (2)).

- The primary deficit does not exhibit a significant decrease even in the first two years and in fact rises in later years (column(3)). This is consistent with the hypothesis that the major decreases in the fiscal deficit came from the reduction in interest payment – which as column (8) suggest decreased significantly in the first two years by 0.3 percentage points.

6.20 A second specification, also controls for the increase in central transfers. Appendix Table 1 excluded this as a control, since central transfers might have increased both revenue and expenditure and therefore might have had no effect on deficit. The trends in fiscal, primary and revenue deficit hold even when controlling for the increase in central transfers (see Appendix Table 2, columns (1) – (3)), although the magnitude of change

in revenue deficit attributable to the FRL is slightly smaller. There is no evidence of a significant increase in expenditure.

V. Off-budget expenditure

6.21 A crucial concern with any fiscal rule is that it would encourage governments to shift spending off budget. By their very nature, these off-budget items are difficult to measure since the instruments may vary by state, are difficult to quantify and are not centrally compiled and accounted. These expenditure channels undermine the power of fiscal rules.

6.22 Here the change in two indicators of off-budget expenditure for which there is data are examined: explicit guarantees by state government and borrowing by state PSUs. The results are encouraging. Prior to the FRL states added guarantees worth on average 0.9 percent of GSDP each year (Figure 10). But in the first three years after FRL adoption the flow of explicit guarantees actually turned negative, meaning that states actually reduced the stock of guarantees outstanding as they allowed old ones to

expire without giving commensurate new ones.

Figure 10. Flow of Guarantees (% of GSDP)
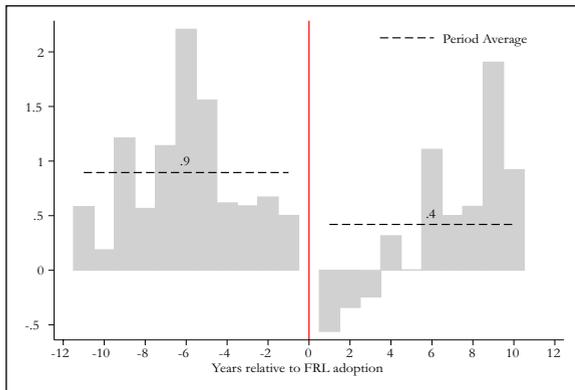
6.23 That said, once again there were signs of decay: after three years, states began to add guarantees, at about the same pace as before. It is therefore encouraging that FFC recommended the notion of "extended debt", which includes guarantees to public sector enterprises.

6.24 Borrowing by state utilities also fell after the FRL from 4.3 percent of GSDP to 3.4 percent of GSDP (Figure 11). This was particularly encouraging, since the centre had negotiated a major debt restructuring agreement in 2002/03 amounting to Rs. 28,984 crores, which restored state utilities' financial capacity to borrow.

Figure 11. Utilities Loans (% of GSDP)
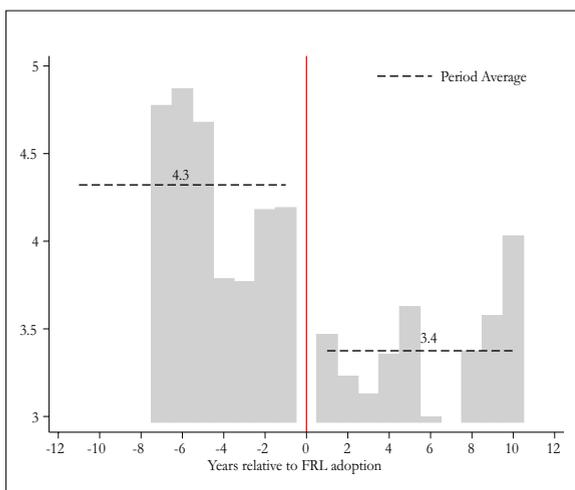
6.25 The caveat remains that these measures do not provide a complete picture as spending may have shifted to other unobserved channels – borrowing by other state PSUs, public private partnerships etc.

VI. BUDGET PROCESS

6.26 Another area of positive impact was on the states' budgeting process. If states were truly committed to their FRL, we would expect that they would try to generate accurate forecasts of revenues and expenditures, so they would not be forced to make large spending adjustments at the end of the year to meet their deficit targets. This did in fact happen.

6.27 Figure 12 compares the difference between budget estimates and actuals as a proportion of actuals before and after the FRL. In the pre-period budget estimates of own tax revenue are on average 5.9 percent higher than actual own tax revenue. This means that states were on average very optimistic when preparing their budgets.

Figure 12. Percent Difference between BE and Actual Own Tax Revenue
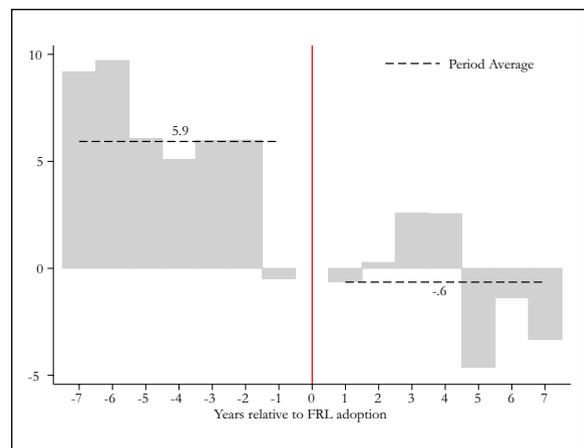
6.28 After the FRL, there is sharp drop in the magnitude of the revenue forecast errors. Strikingly, the errors actually turn negative, which means the budget projections are pessimistic – budget forecasts of own tax

revenue, for example, are on average 0.6 percent lower than the actuals after the FRL. The same caution is seen in estimates of expenditure. These are all encouraging signs that FRL actually made a difference to the way states approached their budgets.

6.29 Another sign of increasing caution is the rise in state cash balances. As states have become increasingly dependent on central transfers, which can be delayed or arrive in lumpy amounts far exceeding the immediate requirements, they have tried to smooth their expenditures by holding large cash balances. Holding of intermediate treasury bills (ITBs) have accordingly increased from 0.9 percent of GSDP to 1.3 percent of GSDP between 6 years before and 10 years after the FRL (Figure 13). On the other hand, this trend is also consistent with a mechanical decrease in expenditure by states resulting from the increases direct expenditure by the Centre through the CSS. Unspent funds are converted to ITBs. One could view this sudden increase in cash balances as a sign of poor fiscal management. States could be making use of their cash balances first before taking on additional borrowing.

Figure 13. Outstanding in Intermediate Treasury Bills (ITB) (% of GSDP)
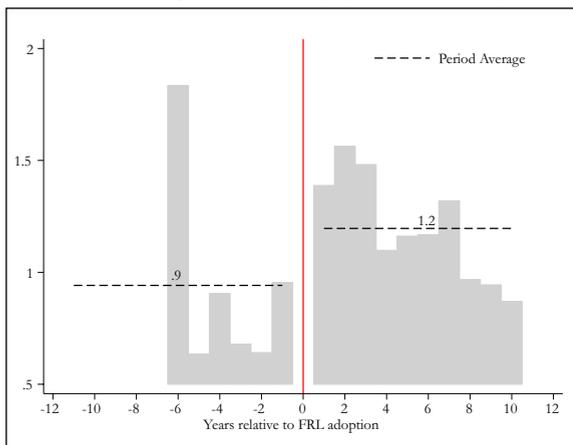
VII. Assessment

6.30 Turn now to the questions posed at the outset. To answer the first question, FRLs clearly made an important difference, both in terms of outcomes and behaviour. States kept their average fiscal deficit at 2.4 percent of GSDP in the 10 years after the FRL, well below the prescribed ceiling of 3 percent of GSDP. And there was also a striking change in behaviour: budget forecasting procedures improved, and there was a more cautious approach to guarantees, a build-up of cash balances, and a reduction in debt.

6.31 That said, much of the improvement in financial positions was possible because of exogenous factors, most notably assistance from the centre in the form of increased revenue transfers, the assumption of state debt, and the introduction of centrally sponsored schemes. As a result, the contribution of the FRL may really have been much more subtle than the headline deficit numbers suggests. Rather than encouraging states to tighten their belts, the role of the FRL may really have been to prevent them from spending all of their windfall.

6.32 In addition, the uniqueness or one-off character of the FRL experience is suggested by the relatively quick "decay." That is, a few years after the FRL, all indicators of fiscal performance—deficits, expenditures, and especially off-budget activities—started deteriorating. It is possible that the Centre has also prevented this deterioration by exercising Article 293 (3) of the Constitution. Under this clause, States must take consent of the Centre for additional borrowing since they all had borrowing outstanding throughout the post-FRL period (Figure 14).

Figure 14. States' Outstanding Loans from Centre as on March 2014 (Percent of GSDP)
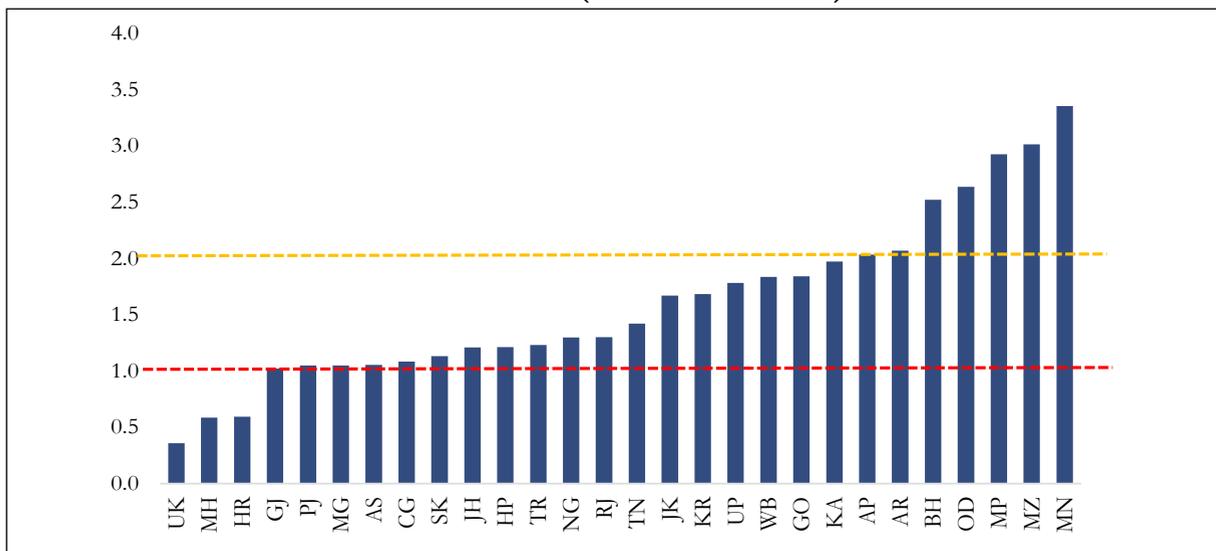
VIII. Lessons for Future Fiscal Rules

6.33 As the fiscal challenges mount for the states going forward because of the Pay Commission recommendations, slowing growth, and mounting payments from the UDAY bonds, there is need to review how fiscal performance can be kept on track. There may need to be greater reliance on incentivizing good fiscal performance not least because states are gradually repaying their obligations to the centre, removing its ability to impose a hard budget constraint on them (Figure 15).

6.34 The Fourteenth Finance Commission (FFC) attempted to shift toward incentives

Figure 15. States' Outstanding loans from Centre as on 31st March (% of GDP)
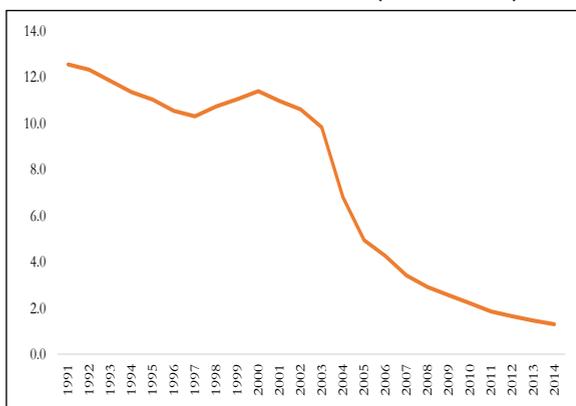
by relaxing some of the FRL limits for better-performing states. But there was an element of tension in its recommendations. On the one hand, the relaxation itself was an incentivizing mechanism; on the other, the Commission abolished entirely the other more broad-based incentive mechanism deployed by the Thirteenth Finance Commission (TFC) of allocating resources across states (the so-called "horizontal" criteria) based on states' own fiscal performance (proxied by own tax revenue collections). This criterion had a weight of 17 percent in the TFC recommendations. There may be considerable merit in going back to such an important incentive mechanism.

6.35 In addition, greater market-based discipline on state government finances is imperative. At present, this is missing, as reflected in the complete lack of correlation between the spread on state government bonds and their debt or deficit positions. Figure 16 shows the average spread between the coupon rate of State Development Loans (SDL) auctioned by the RBI over comparable government securities in a given financial year and the corresponding debt to GSDP ratio of the state in that year (covering all SDLs

auctioned between May 2009-December 2014). If markets rewarded prudent states, one would expect a positive relationship between the coupon rate and debt. Highly indebted states would have to offer a higher yield to make their bonds attractive. Instead, there is a flat relationship between the spread and the indebtedness of states – states are neither rewarded nor penalized for their debt performance (Figure 16). Similarly, there is no relationship between the coupon rate and the fiscal deficit of states (see Figure 17). This owes in part to the manner in which auctions are conducted, which will have to be reviewed if a modicum of discipline is to be introduced into the conduct of state government finances.

6.36 Above all, however, incentivizing good performance by the states will require the centre to be an exemplar of sound fiscal

Figure 16. State Development Loan (SDL) Spread and Outstanding Debt of States
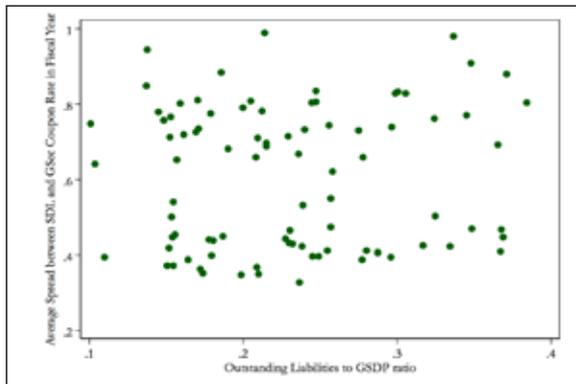
Figure 17. State Development Loans (SDL) Spread and Fiscal Deficit to GSDP Ratio
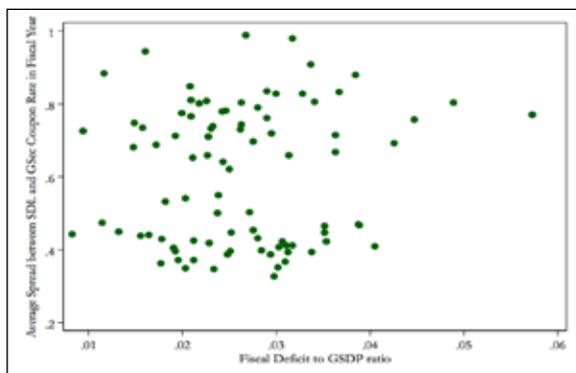
management itself. The chequered fiscal history of India of the last 15 years has been a saga of fiscal prudence on the part of the states and fiscal profligacy by the center (until the last two years). States have alleged that the centre has not only been imprudent but at the same time been the instrument of forcing prudence upon the states. This chapter suggests that that saga of state prudence has been over-stated but the underlying asymmetry has some intrinsic truth. That is why the path of fiscal prudence embarked upon by this government is critical: in itself but also as a model for the states.

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Figure 1. Revenue Receipts (% of GSDP)
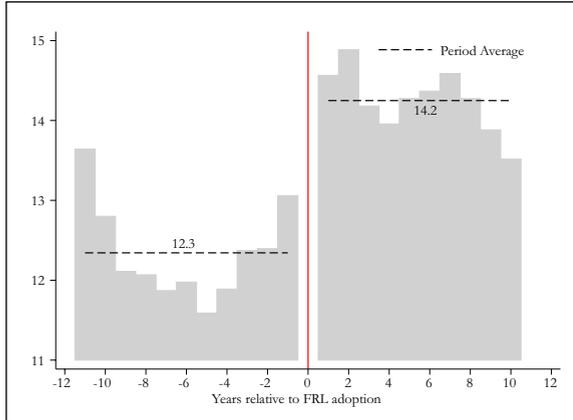
Figure 2. Own Tax Revenue (% of GSDP)
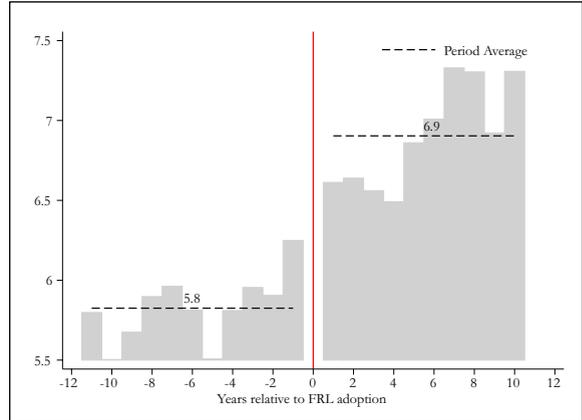
Figure 3. Central Transfers (% of GSDP)
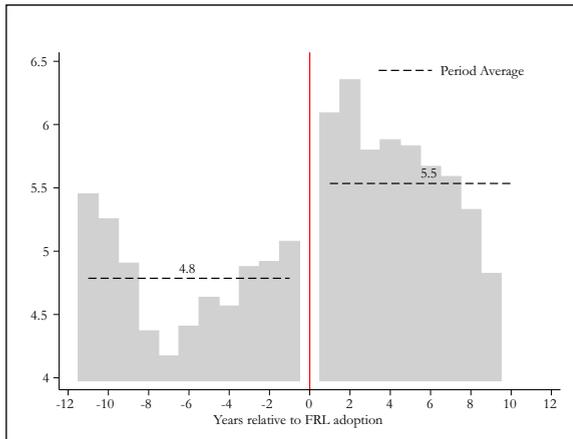
Figure 4. Interest Payments (% of GSDP)
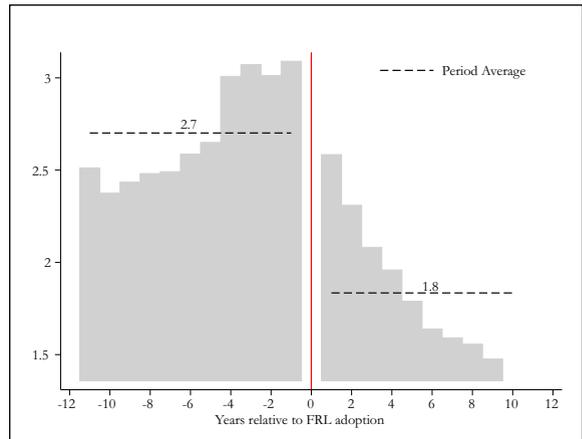
Figure 5. Non Interest Revenue Expenditure (% of GSDP)
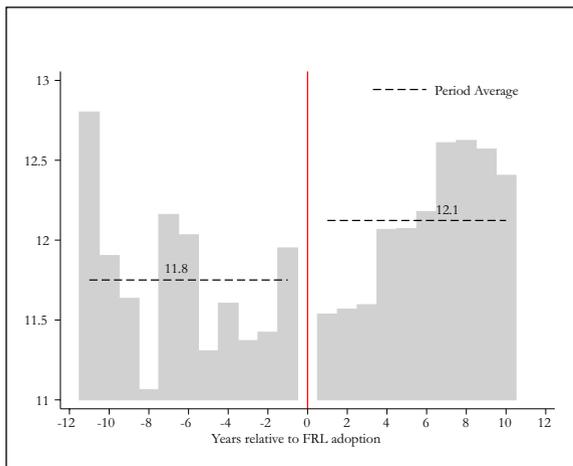
Figure 6. Capital Expenditure (% of GSDP)
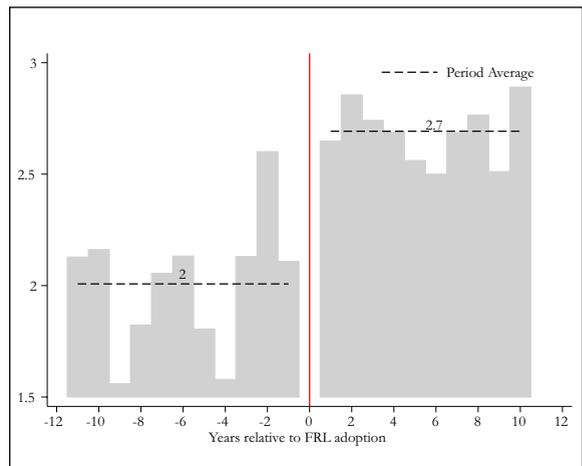
Figure 7. Change in Fiscal Deficit to GSDP Ratio (3 years prior vs 3 years post)
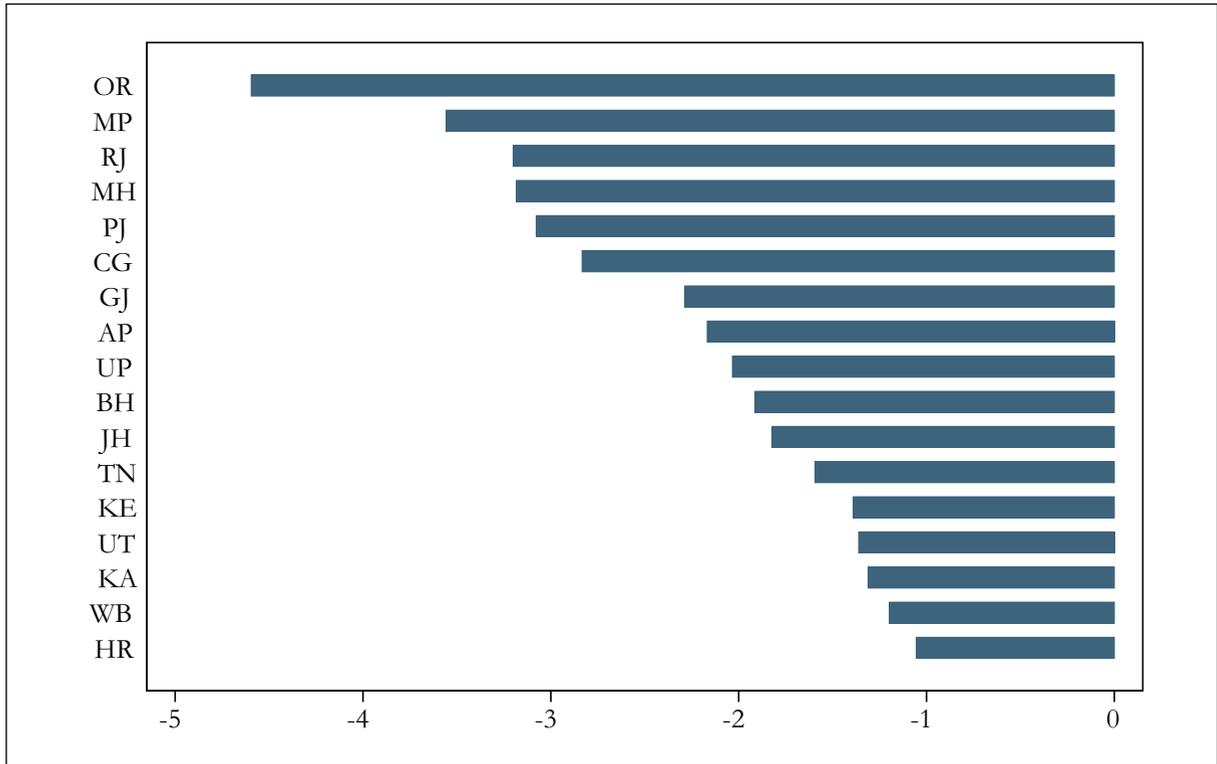
Figure 8. Change in Revenue Deficit to GSDP Ratio (3 years prior vs 3 years post)
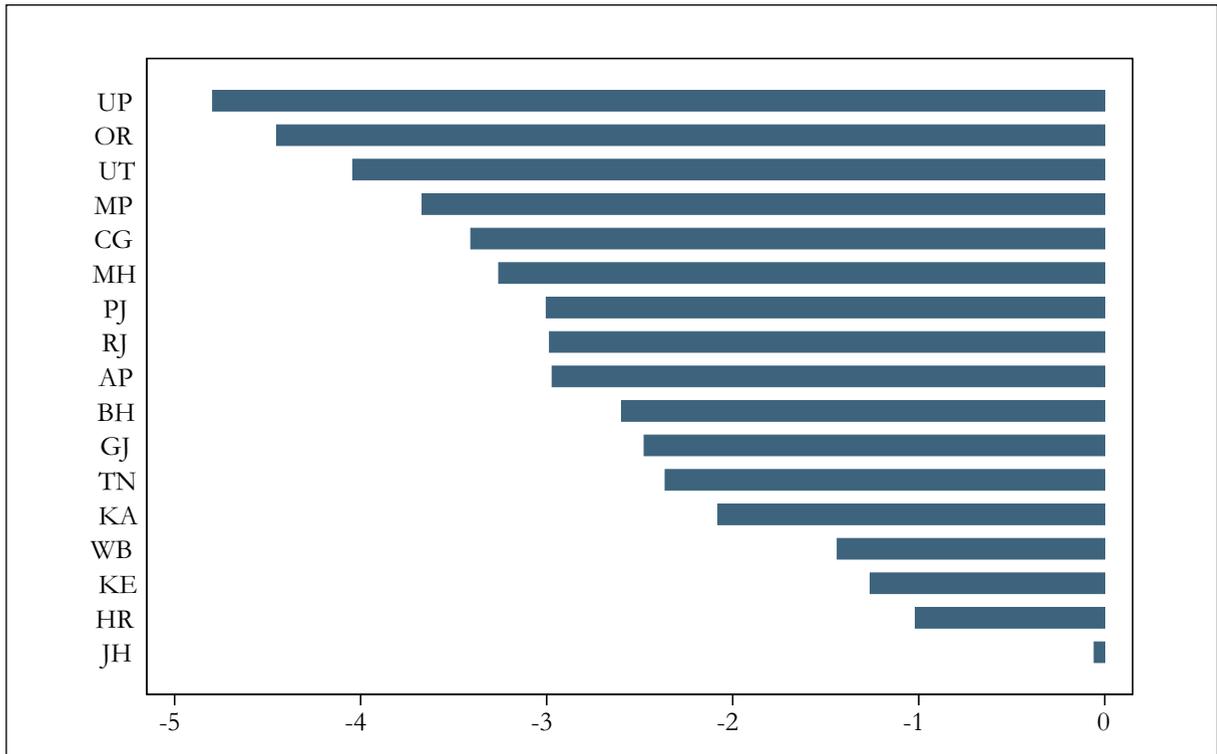
Table 1. Effect of FRL on State Finances

	Revenue Deficit	Fiscal Deficit	Primary Deficit	Revenue	Own Tax Revenue	Revenue Expenditure	Capital Expenditure	Interest Payments	Non Interest Revenue Expenditure	Flow of Guarantees
0 to 2	-0.0086**	-0.0068***	-0.0041	0.0105***	0.0044***	0.0019	0.0015	-0.0032**	0.0046	-0.0082
	[0.0038]	[0.0023]	[0.0032]	[0.0031]	[0.0013]	[0.0047]	[0.0051]	[0.0011]	[0.0042]	[0.0083]
3 to 5	-0.0082	-0.0019	0.0033	0.0087	0.0068**	0.0005	0.0048	-0.0060***	0.0057	-0.007
	[0.0097]	[0.0055]	[0.0049]	[0.0050]	[0.0027]	[0.0078]	[0.0081]	[0.0017]	[0.0065]	[0.0082]
6 to 8	-0.0089	0.0017	0.0092*	0.0078	0.0085*	-0.0011	0.0083	-0.0086**	0.0064	0.0026
	[0.0130]	[0.0060]	[0.0045]	[0.0072]	[0.0044]	[0.0091]	[0.0105]	[0.0034]	[0.0069]	[0.0064]
9+	-0.006	0.0005	0.0088	-0.0055	0.0054	-0.0116	0.0064	-0.0099	-0.0033	0.0094
	[0.0163]	[0.0104]	[0.0073]	[0.0160]	[0.0064]	[0.0148]	[0.0138]	[0.0062]	[0.0106]	[0.0120]
R-squared	0.72	0.6	0.45	0.86	0.87	0.82	0.57	0.8	0.8	0.25
N	278	278	278	278	273	278	278	279	278	245

*Standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01. Controls include state and time fixed effects, dummy for VAT and GSDP growth. Standard errors clustered at state level.*

Table 2. Effect of FRL on state finances, controlling for central transfers

	Revenue Deficit	Fiscal Deficit	Primary Deficit	Revenue	Own Tax Revenue	Revenue Expenditure	Capital Expenditure	Interest Payments	Non Interest Revenue Expenditure	Flow of Guarantees
0 to 2	-0.0071**	-0.0070**	-0.0044	0.0071	0.0038**	-0.0001	0.0004	-0.0026*	0.0025	-0.0086
	[0.0032]	[0.0024]	[0.0033]	[0.0041]	[0.0017]	[0.0063]	[0.0047]	[0.0015]	[0.0057]	[0.0083]
3 to 5	-0.0092	-0.0025	0.0024	0.0126*	0.0075**	0.0034	0.0059	-0.0049**	0.0083	-0.0087
	[0.0077]	[0.0050]	[0.0046]	[0.0060]	[0.0028]	[0.0115]	[0.0068]	[0.0020]	[0.0101]	[0.0095]
6 to 8	-0.0111	-0.0001	0.007	0.0153**	0.0100**	0.0041	0.0102	-0.0071*	0.0113	0.0128
	[0.0104]	[0.0058]	[0.0044]	[0.0055]	[0.0038]	[0.0135]	[0.0084]	[0.0038]	[0.0108]	[0.0103]
9+	-0.0084	0.0036	0.0103*	0.0065	0.0071	-0.0019	0.0113	-0.0067	0.0048	0.0341**
	[0.0131]	[0.0080]	[0.0055]	[0.0092]	[0.0053]	[0.0165]	[0.0109]	[0.0059]	[0.0114]	[0.0144]
R-squared	0.75	0.64	0.5	0.94	0.88	0.86	0.62	0.82	0.85	0.29
N	273	273	273	273	273	273	273	273	273	219

Standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01. Controls include state and time fixed effects, dummy for VAT, central transfers and GSDP growth. Standard errors clustered at state level.

Clothes and Shoes: Can India Reclaim Low Skill Manufacturing?

07

Since the industrial revolution, no country has become a major economy without becoming an industrial power.

*— **Lee Kuan Yew***

Meeting the challenge of jobs may require paying attention to labor-intensive sectors. The apparel and leather sectors meet many desirable attributes for policy attention: bang- for-buck for creating jobs, especially for women, opportunities for exports and growth. Rising labor costs means that China is gradually vacating its dominant position in these sectors, affording India an opportunity. To not cede this space to competitors such as Vietnam and Bangladesh will require easing restrictions on labor regulations, negotiating FTAs with major partners such as the EU and UK, and ensuring that the GST rationalizes current tax policy that can discriminate against dynamic sectors.

I.   INTRODUCTION

7.1 Creating jobs is India's central challenge. Generating rapid economic growth is one critical element of the policy response; nurturing an enabling environment for investment is another; and targeted action yet another. Related to the latter, India needs to generate jobs that are formal and productive, provide bang-for-buck in terms of jobs created relative to investment, have the potential for broader social transformation, and can generate exports and growth. The apparel and leather and footwear sectors meet many or all of these criteria and hence are eminently suitable candidates for targeting. Recognizing this, the government announced important steps to incentivize the production and exports of apparel (Government of India, June 2016), while corresponding policy initiatives for

leather products is a subject of discussion.

II.   WHY CLOTHES AND SHOES?

Growth and exports

7.2 Nearly every successful economic growth take-off in post-war history in East Asia has been associated with rapid expansion in clothing and footwear exports in the early stages, as Figure 1 and Table 1 show.

7.3 In the successful East Asian economies, countries where GDP growth booms averaged between 7-10 per cent, growth in the exports of these two sectors was exceptional. The average annual growth of apparel exports was over 20 per cent, with some close to 50 per cent; and that of leather and footwear averaged more than 25 per cent. In its take-off phase of growth, India has underperformed relative to the East Asian

Figure 1. Exports of Apparel and Leather & Footwear Post Take Off

Figure 1(a). Exports of Apparel Post Take Off (Initial year = 100)
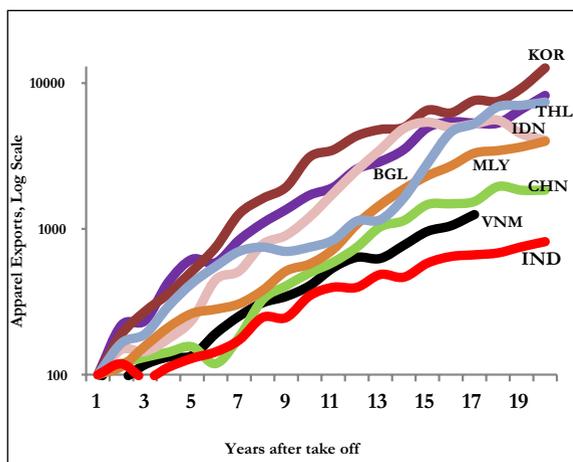
Figure 1(b). Exports of Leather & Footwear Post Take Off (Initial year = 100)
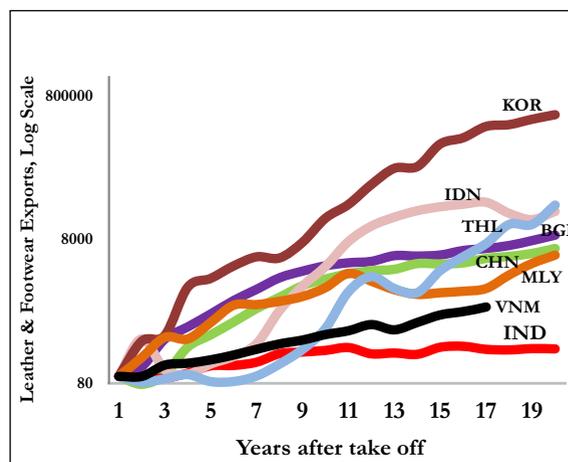
Source: **Johnson, Ostry, Subramanian(2010) and World Bank Database**

Table 1. Exports of Apparels and Leather& Footwear Post Take Off

Country	Year of take off	Annual avg export growth for 20 years post take off (per cent) of Apparel	Annual avg export growth for 20 years post take off (per cent) of Leather and Footwear	Annual avg economic growth for 20 years post take off (per cent)
KOR	1962	30.4	69.9	9.0
BGL	1985	27.9	29.8	5.2
THL	1960	53.8	44.1	7.5
IDN	1967	65.8	48.6	7.0
MLY	1970	33.4	27.5	6.9
CHN	1978	18.6	27.7	9.8
VNM	1985	17.8	16.1	6.6
IND	1980	12.7	5.4	5.6

Source: **World Bank Database**

competitors. The Indian underperformance, has been particularly marked in the leather sector.

Jobs, especially for women

7.4   Apparels and Leather sectors offer tremendous opportunities for creation of jobs, especially for women. Table 2 compares the labor-intensity, measured in terms of jobs per unit of investment, and female labor intensity for the major manufacturing sectors.

The data show that the apparel sector is the most labor-intensive, followed by footwear. Apparels are 80-fold more labor-intensive than autos and 240-fold more jobs than steel. The comparable numbers for leather goods are 33 and 100, respectively. Note that these attributes apply to the apparel not the textile sector and to leather goods and footwear not necessarily to tanning. Drawing upon the World Bank employment elasticities, we estimate that rapid export growth could

Table 2. Jobs to Investment Ratio for Select Industries

Sectors	Investment (Rs Crores)*	Jobs (Lakhs)	Jobs per lakh Investment	Female Jobs (Lakhs)	Female Jobs per lakh Investment
Apparels (NIC 14)	3156	75.4	23.9	25.9	8.2
Leather & Footwear (NIC 15)	1624.5	11.6	7.1	5.5	3.4
Of which					
Tanning and Dressing of Leather & Fur (NIC 1511)	470.8	2.2	4.6	1.1	2.4
Leather Goods (NIC 1512)	218.3	2.2	9.9	0.8	3.9
Footwear(NIC 1520)	935.4	7.2	7.7	3.6	3.8
Textiles (NIC 13)	17814.7	71.3	4	22.5	1.3
Food Processing (NIC 10)	21119	50.2	2.4	27.9	1.3
Autos (NIC 2910 & 2930)	29647.6	7.6	0.3	3	0.1
Steel (NIC 2410 & 2431)	70528.3	7.8	0.1	3.7	0.05

Source: **ASI 2012-2013, NSSO 68th round**

Note: ***Investment is Gross Fixed Capital Formation**

generate about half a million additional direct jobs every year.

7.5 The opportunity created for women implies that these sectors could be vehicles for social transformation. Women in apparel factories emphasize the agency they had gained on financial decisions. The agency also extended to husbands starting to helping with household chores. In Bangladesh, female education, total fertility rates, and women's labour force participation moved positively due to the expansion of the apparel sector.

A historic opportunity – China vacating; space filled by others and not India!

7.6 India has an opportunity to promote apparel, leather and footwear sectors because of rising wage levels in China that has resulted in China stabilizing or losing market share in these products (Figures 2 to 4).

7.7 Table 3 shows wages in China and East Asian economies and in the major Indian states. India is well positioned to take advantage of China's deteriorating competitiveness because wage costs in most Indian states are significantly lower than in China. Alas, this is not happening, or at least, not enough. The space vacated by China is fast being taken over by Bangladesh and Vietnam in case of apparels; Vietnam and Indonesia in case of leather and footwear (Figures 2(b), 3(b), 4). Indian apparel and leather firms are relocating to Bangladesh, Vietnam, Myanmar, and even Ethiopia. The window of opportunity is narrowing and India needs to act fast if it is to regain competitiveness and market share in these sectors. Hence, the urgency.

Figure 2. Share in Global Apparels Exports(per cent)(HS Code 61 & 62)

Figure 2(a). Share in Global Apparel Exports
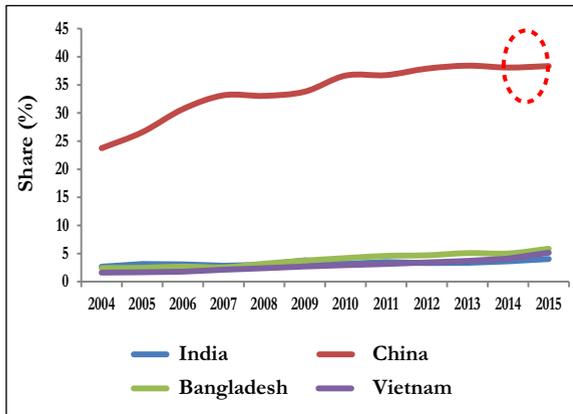
Figure 2(b). Share in Global Apparel Exports
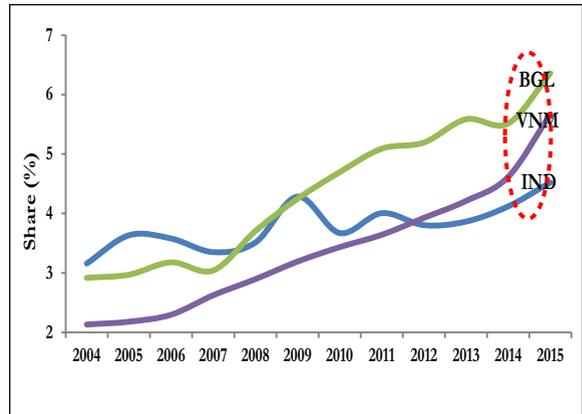
Figure 3. Share in Global Footwear Exports (per cent) (HS Code 64)

Figure 3(a). Share in Global Footwear Exports
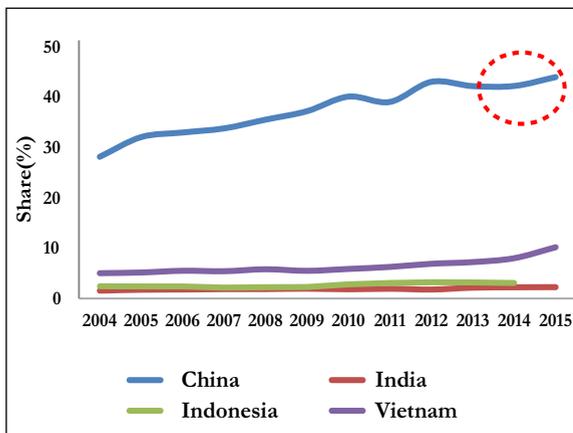
Figure 3(b). Share in Global Footwear Exports
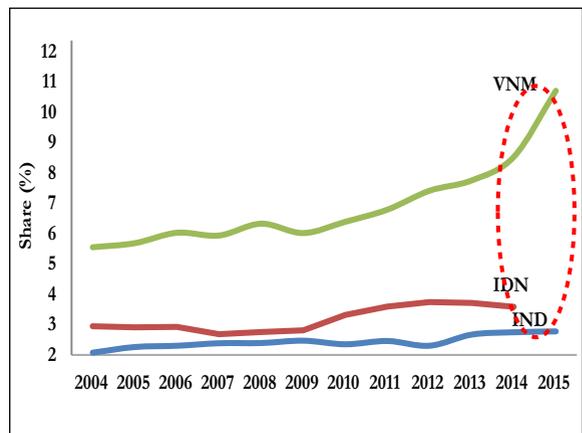
Figure 4. Share in Global Leather Exports (per cent) (HS Code 42)
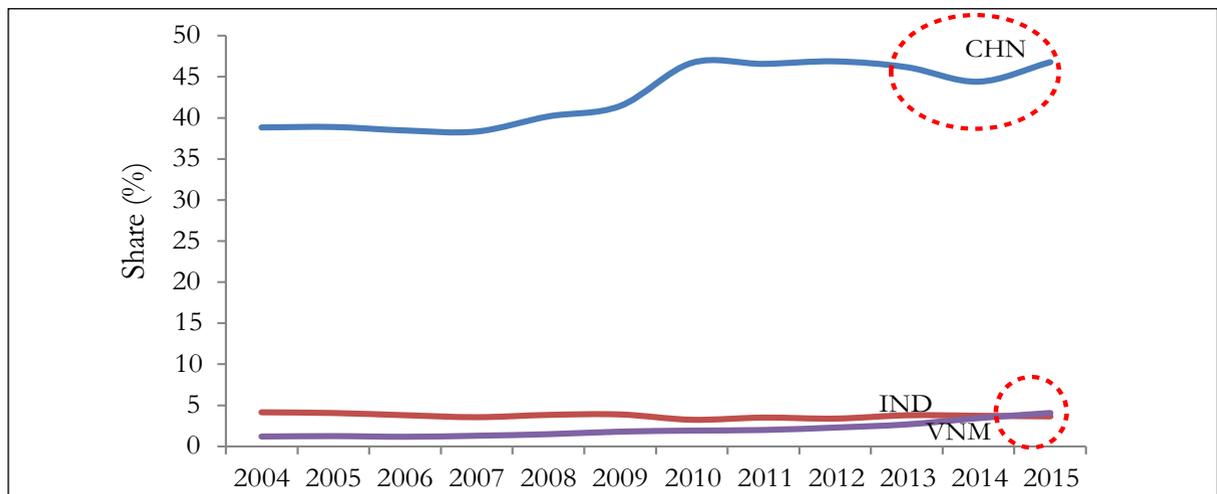
Source: **World Bank Database**

Table 3. Minimum Wages for semi-skilled workers

	Year	Monthly Wages (USD)
Andhra Pradesh	2016	81
Bihar	2016	84
Odisha	2016	86
Jharkhand	2016	90
Tamil Nadu	2016	93
Uttar Pradesh	2016	95
Karnataka	2016	105
West Bengal	2016	109
Gujarat	2016	114
Madhya Pradesh	2016	115
Maharashtra	2016	118
Haryana	2016	119
Bangladesh	2013	80-120
Vietnam	2015	180- 250
China	2013	250 - 300
Indonesia	2013	120 - 150

Source: **ILO, State Labour Departments**

III. CHALLENGES

7.8 Clearly, India still has potential comparative advantage in terms of cheaper and more abundant labour. But these are nullified by other factors that render them less competitive than their peers in competitor countries.

7.9 The Apparel and Leather sectors face a set of common challenges: logistics, labor regulations, and tax & tariff policy, and disadvantages emanating from the international trading environment compared to competitor countries. In addition, the leather and footwear sector faces the specific challenge relating to policies that prevent converting its comparative advantage— abundance of cattle—into export opportunities. These are elaborated below.

A. COMMON CHALLENGES

Logistics

7.10 On logistics, India is handicapped relative to competitors in a number of ways. The costs and time involved in getting goods from factory to destination are greater than those for other countries as may be seen in Table 4. Further, few very large capacity containers (VLCC) come to Indian ports to take cargo so that exports have to be trans-shipped through Colombo which adds to travel costs and hence reduces the flexibility for manufacturers.

Labor regulations

7.11 Labor costs, India's source of comparative advantage in this sector, also seem not to work in its favor. The problems are well-known: regulations on

Table 4. Logistics Cost

Countries	Logistics cost (US$ per km road transport)	Time taken (No. of Days) at Port and for Shipping	
		Customs/Port clearance	From Port to delivery at US east coast
India	7.0	6.0	21.0 (JNPT) ; 28.0 (Chennai/ Tuticorin)
China	2.4-2.5	1.5	14.0
Bangladesh	3.9	10.0	21.0
Vietnam	7.0	6.0	14.0
Sri Lanka	3.0	3.0	23.0

Source: **CLE & Apparel Industry sources**

minimum overtime pay, onerous mandatory contributions that become *de facto* taxes for low-paid workers in small firms that results in a 45 per cent lower disposable salary (documented in Chapter 10 of Volume 1 of the *Economic Survey* 2015-16), lack of flexibility in part-time work and high minimum wages in some cases. There are strict regulations for overtime wage payment as the Minimum Wages Act 1948 mandates payment of overtime wages at twice the rate of ordinary rates of wages of the worker.

7.12 One symptom of labour market problems is that Indian apparel and leather firms are smaller compared to firms in say China, Bangladesh and Vietnam. An estimated 78 per cent of firms in India employ less than 50 workers with 10 per cent employing more than 500. In China, the comparable numbers are about 15 per cent and 28 per cent respectively.

Tax and Tariff Policies

7.13 In both apparel and footwear sectors, tax and tariff policies create distortions that impede India gaining export competitiveness. In the case of apparels, there are two sets of policies both of which

impede competitiveness in man-made fibers and favor instead cotton-based exports. This is serious because internationally, world demand is shifting strongly towards man-made fibers and against cotton-based exports (Figure 5).

7.14 On the one hand, high tariffs on yarn and fiber increase the cost of producing clothing. India imposes a 10 percent tariff on man-made fibers vis a vis 6 percent on cotton fibres. To some extent this need not affect export competitiveness because drawback for tariffs paid on inputs is available. But drawbacks are not provided for purchases of domestically produced yarn that will reflect the high tariffs, adding to clothing costs. And in any case, domestic sales of clothing will not benefit from duty drawback which could also affect overall export competitiveness.

7.15 On the other hand, domestic taxes also favor cotton-based production rather than production based on man-made fibers with 7.5 per cent tax on the former and 8.4 per cent on the latter. A similar problem also afflicts footwear production with taxes of 20.5 per cent on leather and 27 per cent on non-leather footwear (Table 5). To this end,

Figure 5. Share of Global Exports of Cotton and Man Made Fibers, Fabrics & Apparels (per cent)
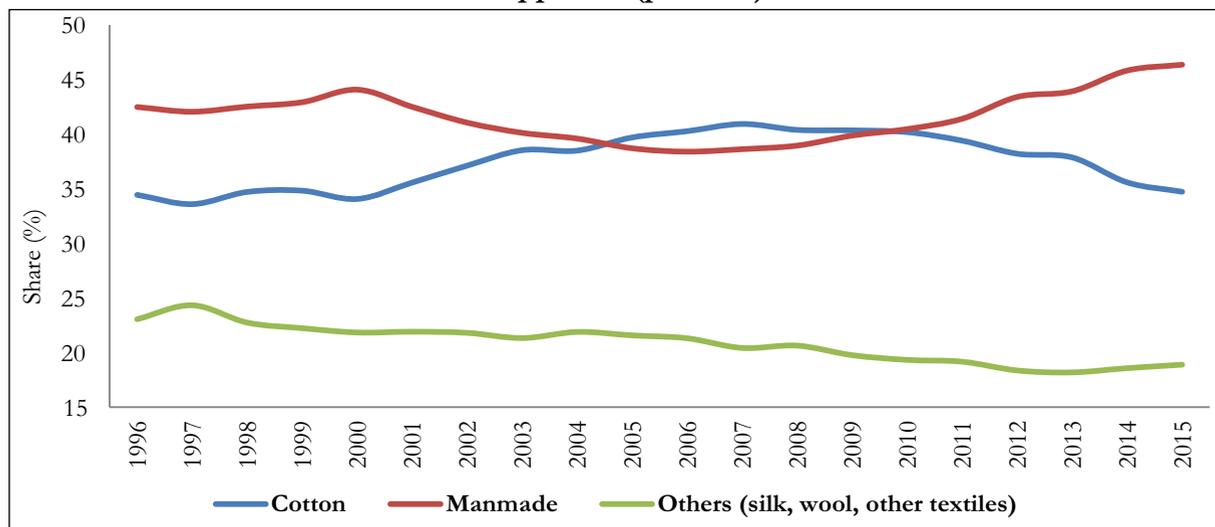
Source: **World Bank Database**

there is a need to undertake rationalization of domestic policies which are inconsistent with global demand patterns.

Table 5. Effective Rates of Taxation for Apparels and Footwear (%)

	Effective Tax Rates* (%)
Cotton Apparel	7.5
Man Made Apparel	8.4
Leather Footwear	20.5
Non Leather Footwear	27.0

Source: **Industry Estimates**

Note: ***Estimates could vary across states and across individual items because of varying input-output relationships.**

7.16 The global demand for footwear is shifting away from leather footwear and towards non leather footwear (Table 6). This shift can be attributed to a host of factors like physical comfort, aesthetics and price affordability which work in favor of non-leather shoes as opposed to leather shoes. India traditionally has been an exporter of leather footwear. Its share of leather footwear exports in the world market is more than double the share of non-leather footwear

(Figure 6). Efforts are required to promote non-leather footwear to be able to effectively capture world market share particularly in view of China's slowdown of exports.

Table 6. Share of global exports of leather & non leather footwear (per cent)

Year	Leather footwear	Non leather footwear
2004	55.0	45.0
2005	55.5	44.5
2006	55.1	44.9
2007	55.0	45.0
2008	52.6	47.4
2009	50.0	50.0
2010	47.2	52.8
2011	45.6	54.4
2012	43.2	56.8
2013	43.2	56.8
2014	42.1	57.9
2015	39.5	60.5

Source: **World Bank Database**

Discrimination in export markets

7.17 India's competitor exporting nations for apparels and leather and footwear enjoy

Figure 6. India's global share of leather and non-leather footwear exports (per cent)
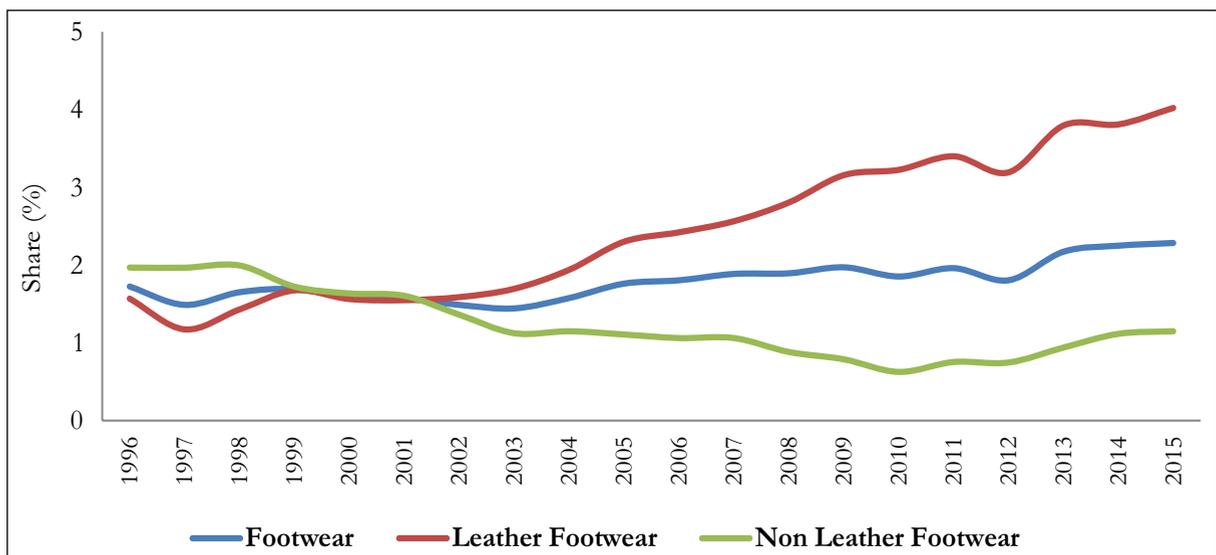
Source: **World Bank Database**

better market access by way of zero or at least lower tariffs in the two major importing markets, namely, the United States of America (USA) and European Union (EU). Tables 7 & 8 show the average tariffs faced by Indian exporters in these markets vis-à-vis our competitors. In the EU, Bangladesh exports enter mostly duty free (being a Less Developed Country (LDC)), while Indian exports of apparels face average tariffs of 9.1 per cent. Vietnam could also attract zero tariffs once the EU – Vietnam Free Trade Agreement (FTA) comes into effect. In the US, India faces tariff of 11.4 percent. Ethiopia, which is an emerging new competitor in apparels and leather, enjoys duty free access in US, EU and Canada.

Table 7. Tariff faced by Indian Apparel Exports (HS Code 61&62)

	European Union	Canada	(per cent) United States
Bangladesh	0	0	11.9
China	11.4	16.5	11.4
Ethiopia	0	0	0
India	9.1	16.5	11.4
Indonesia	9.2	16.4	11.6
Vietnam	9.2	16.2	11.6

Source: **World Bank Database**

7.18 Indian leather exports also face high tariffs in partner country markets in exports of leather goods and non-leather footwear,

with considerable added disadvantage in Japan.

7.19 An FTA with EU and UK will help. In the case of apparels, it will offset an existing disadvantage for India relative to competitors- Bangladesh, Vietnam and Ethiopia which already enjoy better market access. In the case of leather, the FTA might give India an advantage relative to competitors. In both cases, the incremental impact would be positive.

B. Sector Specific Challenge – Leather and Footwear Sector

Comparative advantage in cattle

7.20 The leather and footwear industry uses raw hides and skins of a number of animals like cattle, buffalo, goat, sheep and other smaller animals as its chief raw material. Amongst these, leather made from cattle hides has greater global demand owing to its strength, durability and superior quality. It is estimated that cattle-based global exports dominate buffalo-based exports by a factor of 8-9. However, despite having a large cattle population, India's share of global cattle population and exports of cattle hides is low and declining (Figure 7 & 8). This trend can be attributed to the limited availability of cattle for slaughter in India, thereby leading to loss of a potential comparative advantage due to underutilization of the abundantly available natural resource.

Table 8. Tariffs faced by Indian Leather and Footwear Exports (per cent)

	European Union			Japan			United States		
	Leather Goods	Leather Footwear	Non Leather footwear	Leather Goods	Leather Footwear	Non Leather footwear	Leather Goods	Leather Footwear	Non Leather footwear
Bangladesh	0	0	0	3.1	0	4.1	7.9	5.0	12.0
China	4.6	7.9	12.0	10.1	25.1	12.6	7.3	4.3	13.9
Ethiopia	0	0	0	8.8	0	-	1.0	0	0
India	1.0	4.4	7.5	5.7	24.3	13.3	5.5	4.7	12.2
Indonesia	1.0	4.4	7.5	1.7	25.0	10.0	5.8	5.0	13.4
Vietnam	1.1	4.4	7.5	3.9	25.0	11.4	7.6	4.3	12.7

Source: **World Bank Database**

Figure 7. Global Share of Indian Cattle Population (per cent)
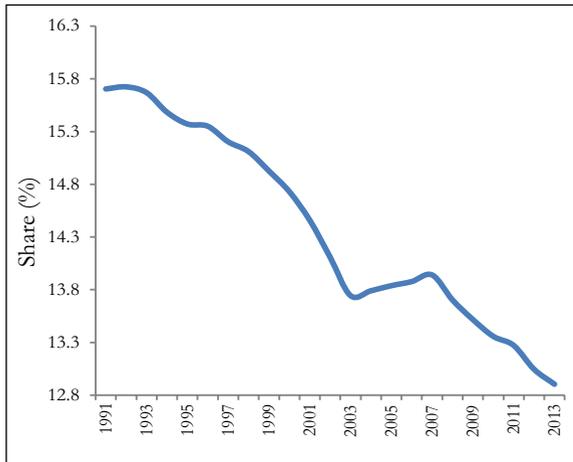
Figure 8. India's Share of Global Exports of Cattle Hides and Skins (per cent)

Source : FAO Stat
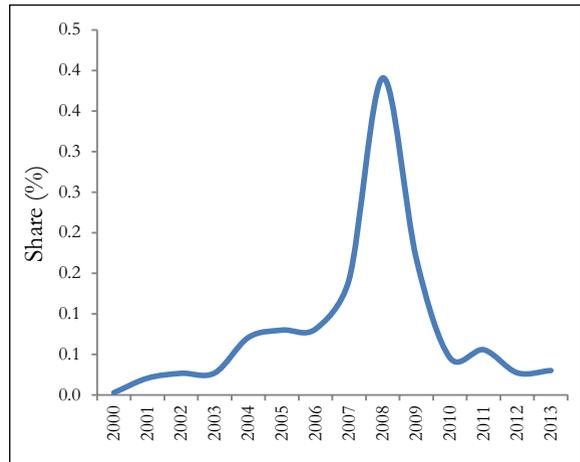
IV. POLICY RESPONSE AND CONCLUSIONS

7.21 Several measures form part of the package approved by the Government for textiles and apparels in June 2016. Their rationale is to address the challenges described above. The policies suggested do not address all the challenges highlighted above but will go a long way in strengthening India's apparel industry. Apparel exporters will be provided relief to offset the impact of state taxes embedded in exports, which could be as high as about 5 per cent of exports. Similar provisions for leather exporters would be useful. This is not a subsidy but really a drawback scheme that should be WTO-consistent because it offsets taxes on exports.

7.22 Next, textile and apparel firms will be provided a subsidy for increasing employment. This will take the form of government contributing the employers' 12 per cent contribution to the Employee Provident Fund (EPF) (the Government is already committed to contributing 8.3 per cent; so the new measure will be additional to that).

7.23 But these need to be complemented by further actions. The government is taking very seriously the impact of Indian exporters being disadvantaged in foreign markets. India will still need to carefully weigh the benefits and costs of negotiating new Free Trade Agreements, such as, with the European Union (EU) and the United Kingdom (UK). But in this calculus, the impact on export-and job-creating sectors such as apparels and maybe also leather products compared to other sectors should receive high priority. Based on recent in-house analysis in 2016, it is estimated that an FTA with the EU and UK can lead to 108029, 23156, and 14347 additional direct jobs per annum in the apparel, leather and footwear sectors respectively (Table 9). Many more indirect jobs could be added, although these are more difficult to estimate.

7.24 Second, the introduction of the Goods and Service Tax (GST) offers an excellent opportunity to rationalize domestic indirect taxes so that they do not discriminate in the case of apparels against the production of clothing that uses man-made fibers; and in the case of footwear against the production of non-leather based footwear (if there is such a discrimination).

Table 9. Potential additional jobs with India – EU/UK FTA

	Apparels		Leather Goods		Footwear	
	Incremental Exports ($Mn)	Gain in Employment (Nos.)	Incremental Exports ($Mn)	Gain in Employment (Nos.)	Incremental Exports ($Mn)	Gain in Employment (Nos.)
EU	1483.6	76853	416.9	18542	217	9966
UK	603.3	31176	103.8	4615	95.3	4381
Total	2086.9	108029	520.7	23156	312.3	14347

7.25 Third, a number of labor law reforms would overcome obstacles to employment creation in these sectors, some of which include the following:

- Low Wage Employees (people with less than Rs 20,000 salary per month) only receive 55 percent of their salary because 45 per cent goes to statutory deductions like Employee Provident Fund Organisation (EPFO), Employee Pension Scheme (EPS), Labour Welfare Fund (LWF), Employees' Deposit Linked Insurance Scheme (EDLI), and Employee State Insurance (ESI) etc.

- Low wage employees do not have a 45 per cent savings rate and therefore they may prefer to receive these contributions today than benefit from them tomorrow.

- The two largest deductions of Provident Fund and ESI may not result in the best value for money for employees. The EPFO has 40 million account with unclaimed balances and charges 3.3 per cent of contributions as fees (amongst the highest in the world). ESI only pays out about 45 per cent of contributions received as benefits (few other private or public health insurance policy in India has a claims ratio of less than 90 per cent).

7.26 Formal employment could increase by offering employees three choices when they start employment:

o decide whether they want 12 per cent employee contribution to be deducted.

o decide whether their 12 per cent employer contribution goes to EPFO or National Pension Scheme (NPS).

o decide whether their health insurance premiums go to ESI or a private health insurance of the employee's choice.

7.27 This choice should be exercised by employees – not employers– and today's status quo should continue to be available to all employees. The key point is to offer choice to employees, which will also result in competition for service providers such as the EPFO and ESI.

7.28 Thus, more FTAs, GST-induced tax rationalization, and labour law reform would add considerably to the job creation potential of the clothing and footwear sectors. All industrial policy aimed at promoting particular sectors is not without risks. But the externality generating attributes-employment, exports, social transformation – of the apparel and footwear sectors, India's potential comparative advantage in it, and the narrow window of opportunity available, make the risk worth taking. And, in any case, many of the proposed policy responses such as FTAs, tax rationalization, and labour law reform could have wider, economy-wide benefits.

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Review of Economic Developments

CHAPTER

08

The Economic Survey 2015-16 had predicted the Indian economy to register the GDP growth rate in the range of 7 to 7.75 per cent in the year 2016-17. The economy was indeed treading along that path and clocked 7.2 per cent in the first half of the current financial year, as per the estimates released by the Central Statistics Office (CSO). However, consequent upon the radical measures initiated in November 2016 in the form of demonetisation of Rs. 1000 and Rs. 500 currency notes, the Indian economy is likely to experience a slowdown in the growth rate that could be lower than the first advance estimates of CSO. The first advance estimates released in early January 2017 were arrived at mainly based on data prior to demonetisation and largely reflect the economic situation prevailing in the first seven to eight months of the financial year. Even the likely reduction in the rate of real GDP growth of 1/4 percentage points to 1/2 percentage points relative to the baseline of about 7 per cent still makes India's growth noteworthy given the weak and unsettled global economy which posted a growth rate of a little over 3 per cent in 2016. That India managed to achieve this high growth in the aftermath of demonetisation and amidst the global slowdown, along with a macro-economic environment of relatively lower inflation (unlike a generally higher inflation in the previous episodes of high growth), moderate current account deficit coupled with broadly stable rupee-dollar exchange rate and the economy treading decisively on the fiscal consolidation path, makes it quite creditable. Most external debt indicators also point towards an improvement as at end September 2016.

However, challenges abound. The investment to GDP ratio has not only been lower than the desirable levels but has been consistently declining over the last few years. This trend needs to be reversed at the earliest in order to realise higher and lasting economic growth. Similarly, the savings rate will have to be raised, so that investment can be financed without resorting to high dose of external financing. After remaining fairly stable for much of the last two years, international prices of crude oil have started to trend up. This along with rise in the prices of other commodities like coal, etc. could exert inflationary pressure and have the potential to adversely impact the trade and fiscal balances. The outlook for the next financial year suggests that growth is set to recover, as the currency in circulation returns to normal levels and taking into account the significant reform measures initiated by the government.

I.   INTRODUCTION

8.1   As per the first Advance Estimates (AE) released by the CSO, the Indian economy is estimated to register a GDP growth rate of 7.1 per cent in 2016-17. (There is a likelihood of this growth being revised downwards in the subsequent revisions carried out by the CSO). The growth in the second half of 2016-17 works out to 7.0 per cent as against 7.2 per cent in the first half (Figure 1). The first AE released by CSO in early January 2017 were arrived at based on data mainly up to October and in some cases up to November 2016 and hence largely mirror the economic situation during the first seven to eight months of the financial year.

Figure 1. Growth in GDP and GVA at constant prices (per cent)
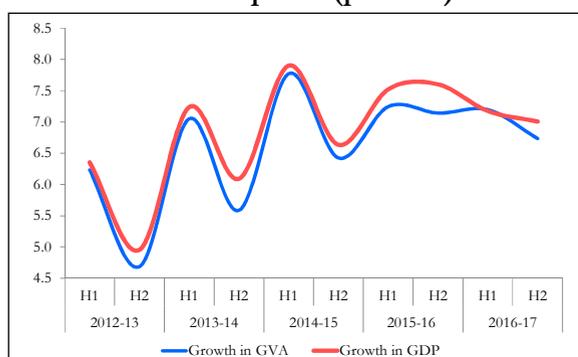
Source: **CSO**

8.2   As per the first AE, the growth rate of gross value added (GVA) at constant basic prices for 2016-17 is placed at 7.0 per cent, as against 7.2 per cent in 2015-16. The growth in the second half of 2016-17 is estimated at 6.7 per cent as against 7.2 per cent in the first half (Figure 1). The sector-wise details are presented in the Table 1.

8.3   At the sectoral level, growth of agriculture & allied sectors improved significantly in 2016-17, following the normal monsoon in the current year which was preceded by sub-par monsoon rainfall in 2014-15 and 2015-16. Higher growth in agriculture sector in 2016-17 is not surprising; rabi sowing so far and the first advance estimates of the kharif crop production for the year attest to this. After achieving a real growth of 7.4 per cent in terms of value added in 2015-16, the growth in industrial sector, comprising mining & quarrying, manufacturing, electricity, gas & water supply, and construction sectors moderated in 2016-17. This is in tandem with the moderation in manufacturing, mostly on account of a steep contraction in capital goods, and consumer non-durable segments

Table 1. Growth Rate of GVA at Basic Prices for Different Sectors (per cent)

Sector	2012-13[a]	2013-14[a]	2014-15[b]	2015-16[c]	2016-17[d]	2016-17 H1	2016-17 H2
Agriculture, forestry & fishing	**1.5**	**4.2**	**-0.2**	**1.2**	**4.1**	**2.5**	**5.2**
Industry	**3.6**	**5.0**	**5.9**	**7.4**	**5.2**	**5.6**	**4.9**
Mining & quarrying	-0.5	3.0	10.8	7.4	-1.8	-0.9	-2.6
Manufacturing	6.0	5.6	5.5	9.3	7.4	8.1	6.7
Electricity, gas, water supply, etc	2.8	4.7	8.0	6.6	6.5	6.4	6.6
Construction	0.6	4.6	4.4	3.9	2.9	2.5	3.4
Services	**8.1**	**7.8**	**10.3**	**8.9**	**8.8**	**9.2**	**8.4**
Trade, hotel, transport, storage	9.7	7.8	9.8	9.0	6.0	7.6	4.5
Financial, real estate & professional services	9.5	10.1	10.6	10.3	9.0	8.8	9.2
Public administration, defence, etc.	4.1	4.5	10.7	6.6	12.8	12.4	13.2
GVA at basic prices	**5.4**	**6.3**	**7.1**	**7.2**	**7.0**	**7.2**	**6.7**

Source: **CSO**
Note: **a=second revised estimate; b=first revised estimate c=provisional estimate; d= first advance estimate**

of Index of Industrial Production (IIP). The contraction in mining and quarrying largely reflects slowdown in the production of crude oil and natural gas. However, the performance of industrial sector in terms of value added continued to be at variance with its achievements based on IIP. As in the previous years, the service sector continued to be the dominant contributor to the overall growth of the economy, led by a significant pick-up in public administration, defence & other services, that were boosted by the payouts of the Seventh Pay Commission. Consequently, the growth in services in 2016-17 is estimated to be close to what it was in 2015-16 (Table 1).

8.4   Fixed investment (gross fixed capital formation(GFCF)) to GDP ratio (at current prices) is estimated to be 26.6 per cent in 2016-17, vis-à-vis 29.3 per cent in 2015-16. The growth in fixed investment at constant prices declined from 3.9 per cent in 2015-16 to (-) 0.2 per cent in 2016-17. Fixed investment rate has been declining since 2011-12 (Figure 2) and this trend has to be reversed for medium to long term growth prospects. Being aware of the need to boost investment and growth, Government, in co-ordination with the Reserve Bank of India and other stakeholders, has taken a number of steps to improve the ease of doing business and to improve the balance sheet positions of banks and firms.

8.5   It is the 23.8 per cent growth in government final consumption expenditure that is the major driver of GDP growth in the current year from the demand side (Table 2). Private consumption is also projected to grow at a reasonable pace during the year. With plummeting imports of gold, silver and other bullion, acquisition of valuables by households is expected to contract in the current year. Steeper contraction in imports, compared to exports, during the first half of 2016-17 led to a sharp decline in trade deficit. Despite slowing services exports, the decline in merchandise trade deficit helped improve the position of net exports of goods and non-factor services in the national accounts.

Figure 2. GFCF as percentage of GDP
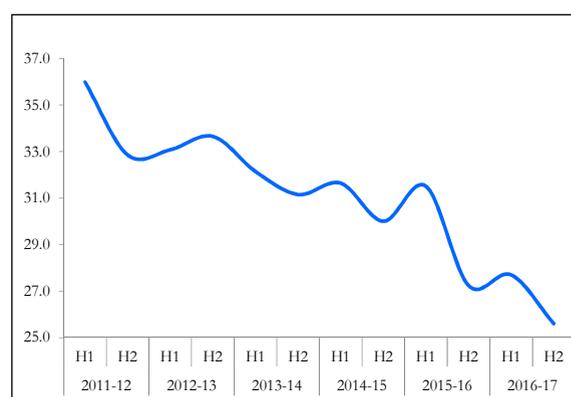
Source: **CSO**

Table 2. Growth Rate of GDP at constant Prices and its components (per cent)

Component	2012-13[a]	2013-14[a]	2014-15[b]	2015-16[c]	2016-17[d]	2016-17 H1	H2
Government final consumption	0.5	0.4	12.8	2.2	23.8	16.9	32.4
Private final consumption	5.3	6.8	6.2	7.4	6.5	7.1	6.0
Gross fixed capital formation	4.9	3.4	4.9	3.9	-0.2	-4.4	4.2
Change in stocks	-3.8	-18.6	20.3	5.5	5.2	5.9	4.6
Valuables	2.6	-42.2	15.4	0.3	-33.5	-47.9	-19.3
Exports of goods and services	6.7	7.8	1.7	-5.2	2.2	1.7	2.6
Imports of goods and services	6.0	-8.2	0.8	-2.8	-3.8	-7.5	-0.1
GDP	**5.6**	**6.6**	**7.2**	**7.6**	**7.1**	**7.2**	**7.0**

Source: **CSO**
Note: **a**=second revised estimate; **b**=first revised estimate **c**=provisional estimate; **d**= first advance estimate

II.   Fiscal developments

8.6 Budget 2016-17 reaffirmed Government's commitment to continue with fiscal consolidation and projected fiscal deficit at 3.5 per cent of GDP for the year, down from 3.9 per cent in 2015-16. Consolidation was sought to be achieved through a 11.9 per cent increase in the gross tax revenue (over 2015-16 PA) and significant strides in non-tax revenue and non-debt capital receipts, despite upside compulsions on the expenditure side necessitated primarily by higher pay-outs on account of the implementation of the recommendations of the Seventh Pay Commission.

8.7 The buoyancy of non-debt receipts of the Union Government, consisting of net tax revenue, non-tax revenue and non-debt capital receipts during April-November 2016 supported fiscal rectitude (Table 3). The growth in non-debt receipts at 25.8 per cent during April-November 2016 surpassed the budgeted growth rate of 16.4 per cent for the full year (over 2015-16 PA).

8.8 On the whole, tax collections, especially union excise duties and service tax, have been buoyant in the current year till November 2016 (Figure 3). Despite the possible short-term spill-over effects of the cancellation of the legal tender character of

Table 3. Non-debt receipts of the Union Government

	April-November (as per cent of BE)		Growth in April-November (per cent)	
	2015-16	2016-17	2015-16	2016-17
Gross tax revenue	53.0	57.2	20.8	21.5
Tax (net to Centre)	50.5	58.9	12.5	33.6
Non tax revenue	78.1	54.2	34.9	1.0
Non-debt capital receipts	25.8	48.5	180.3	57.1
Total non-debt receipts	53.9	57.4	20.0	25.8

Source: **CGA**
Note: **BE-Budget Estimates**

Figure 3. Growth in Central taxes (per cent)
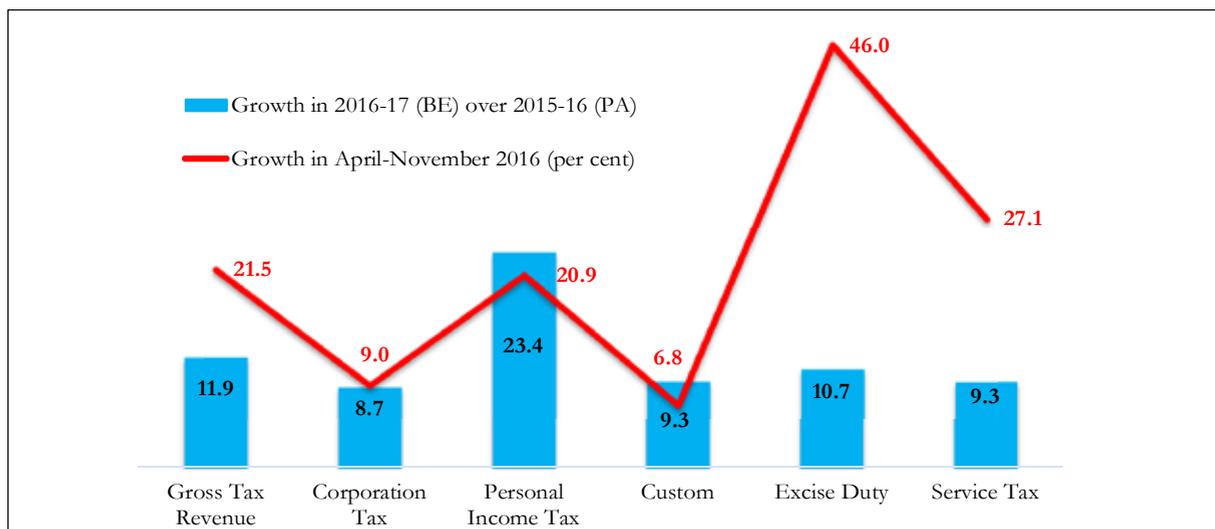
Source: **CGA**
Note: **PA: Provisional Actuals**

high value notes, indirect taxes grew by 36.4 per cent during the month of November 2016. The tax measures on additional resource mobilization have primarily helped this buoyancy thus far.

8.9   An average of about 34.5 per cent of the gross tax collections was realized during the fourth quarter during the five-year period, 2011-12 to 2015-16. This indicates that the achievement of the budget estimates of tax collections in the current year will depend significantly on the dynamics of economic activity and tax collections during the last quarter. In the last quater of the current year, the pace of economic activity can be affected by the demonetisation of the high domination currency and the response to the gradual re-monetization.

8.10   The realization of the gross tax revenue during April-November 2016 as ratio of the budget estimates for 2016-17 was much higher than the corresponding figure in the previous year (Table 3). Devolution to States and Union Territories during April-November 2016 also kept pace with the tax

collections (Figure 4). The net resources transferred, including tax devolution, non-plan grants and Central assistance during April-November 2016 was 58 per cent of the budget estimates for the full year and a notch below the corresponding accomplishments in the previous year.

8.11 The growth in revenue expenditure during April-November 2016, which prima facie seems very high (Table 4), may be viewed against the background of a few developments. Firstly, the salary component of the revenue expenditure increased by 23.2 per cent, close to the same as its budgeted growth, owing to meeting the commitments under the Seventh Pay Commission. Secondly, in contrast to 5.9 per cent decline in major subsidies budgeted for the current year, it increased by 5.0 per cent during April-November 2016, despite a decline in fertilizer and petroleum subsidy bills. This was because of a 21.6 per cent surge in food subsidy, largely because it is front-loaded this year and is likely to taper off, to a great extent, as the year progresses. The third reason for

Figure 4. Transfer to States and Union territories during April-November
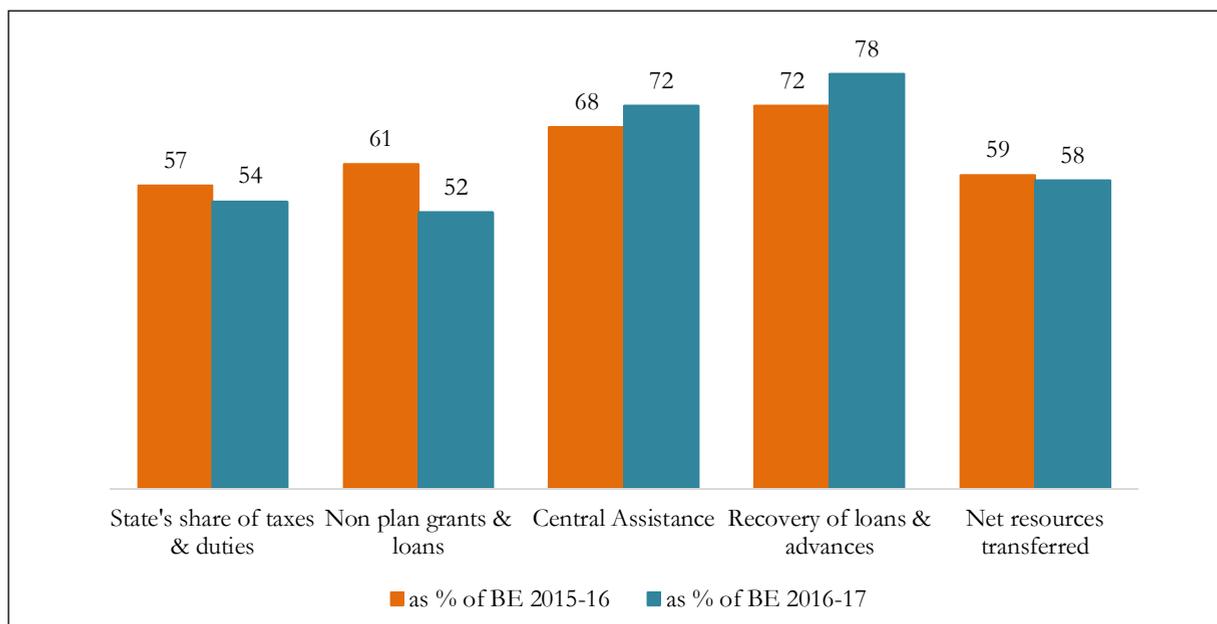
Source: **CGA**

the strong growth in revenue expenditure is an increase of 39.5 per cent in the grants for creation of capital assets (GCCA) during April-November 2016. All grants given to the State Governments and Union Territories are treated as revenue expenditure, but a part of these grants are used for creation of capital assets. The investment push that the Central Government expenditure provides to the economy can be approximated by subtracting these grants from revenue expenditure and adding it to the capital expenditure. This adjustment reduces the gap between the growth in capital and revenue expenditures (Table 4).

8.12 The total outstanding liabilities of the Central Government are composed of internal debt, other internal liabilities like provident funds, small savings, etc. and external debt. The growth in the total outstanding liabilities of the Union Government remained closely similar during 2014-15 and 2015-16, at 10.1 per cent and 10.4 per cent respectively. Yet, there was an increase in the ratio of internal debt of the Central Government to GDP in 2015-16 (Figure 5). This was not due to any adverse

change in the trajectory of debt addition, but to the nominal GDP growth declining in the year—despite an acceleration of the real GDP growth—on account of a sharp decline in inflation. The growth in total outstanding liabilities was budgeted to come down sharply to 7.9 per cent in 2016-17 from 10.4 per cent in the previous year.

Figure 5. Outstanding liabilities of the Union Government as per cent of GDP (per cent)
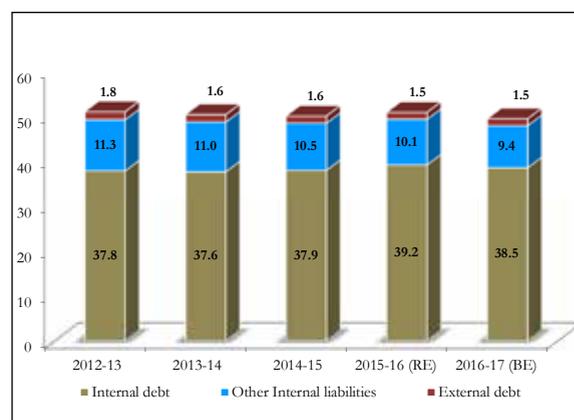
Source: CGA
Note: RE- Revised estimates

III. PRICES

8.13 The headline inflation as measured by the Consumer Price Index (CPI) remained under control for the third successive financial

Table 4. Major expenditure categories of the Union Government

	April-Nov as per cent of BE		April-November Growth (per cent)	
	2015-16	**2016-17**	**2015-16**	**2016-17**
Total Expenditure	64.3	65.0	6.3	12.6
Revenue expenditure	64.0	66.1	3.2	16.4
Interest payments	55.4	54.1	8.6	5.6
Major subsidies	82.9	85.3	-3.6	5.0
Pensions	68.3	65.7	(-)1.4	34.1
Salaries	43.6	42.4	NA	23.2
Grants for creation of capital assets	73.2	67.7	-0.8	39.5
Capital expenditure	65.8	57.6	30.8	-10.4
Adjusted revenue expenditure (*)	63.3	65.9	3.6	14.3
Adjusted capital expenditure (*)	68.1	61.7	18.1	6.4

Source: CGA

Note: (*)=Adjusted revenue and capital expenditures are arrived at by deducting 'grants for creation of capital assets' from revenue expenditure and adding it to capital expenditure

year. The average CPI inflation declined to 4.9 per cent in 2015-16 from 5.9 per cent in 2014-15. It was 4.8 per cent during April-December 2016. Inflation hardened during the first few months of 2016-17, mainly due to upward pressure on the prices of pulses and vegetables. It dipped to two-year low of 3.4 per cent in December 2016 as a result of lower prices (Figure 6), especially of food items.

8.14 The average inflation based on the wholesale price index (WPI) declined to (-) 2.5 per cent in 2015-16 from 2.0 per cent in 2014-15. The downward trend, however reversed during the current financial year partly due to impact of rise in global commodity prices and partly owing to adverse base effect. The global commodity and energy prices have increased by 18 per cent and 23 per cent respectively in the first eleven months of 2016 as per IMF price indices. The WPI inflation stood at 3.4 per cent in December 2016 (Figure 7) and the average inflation was 2.9 per cent during April- December 2016.

Figure 6. Base Effect and Price Effect in CPI (percentage points)
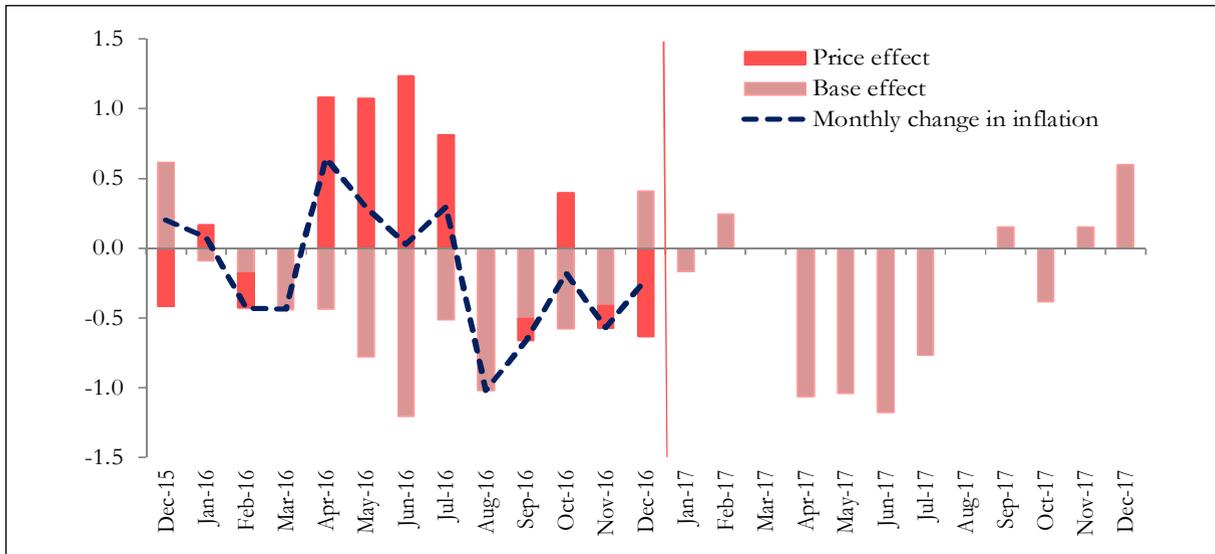
Source: **Calculated using CPI data, CSO**

Figure 7. Inflation based on WPI and CPI-Combined (per cent)
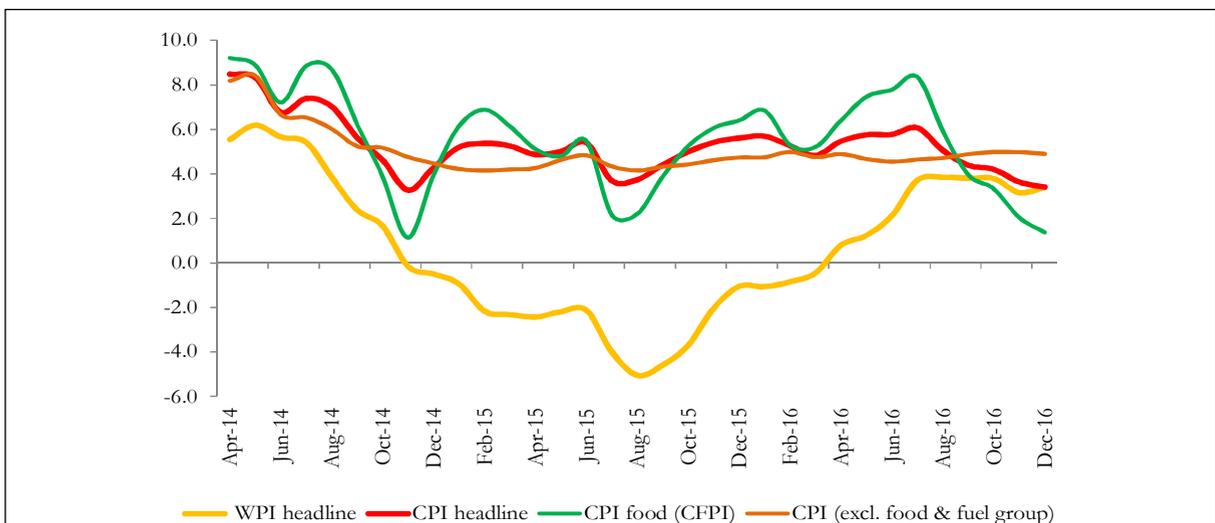
Source: **CSO& DIPP**

Food inflation

8.15 The inflation in India is repeatedly being driven by narrow group of food items. Pulses continued to be the major contributor of food inflation (Figure 8b). The prices of pulses, in particular tur and urad, remained persistently high from mid 2015 to mid 2016 due to shortfall in domestic and global supply. Since July 2016, pulses prices except gram dal prices have been declining owing to near normal monsoon, increase in the Rabi pulses sowing and buffer build up by the Government. Sugar prices also firmed up on account of lower production and hardening of price in the international market. Vegetable prices, which flared during the lean summer season, have also declined sharply as supply picked up during the post monsoon and winter season. The CPI food inflation (CFPI) has, as a result, dipped to a two-year low of 1.4 per cent in December 2016. The inflation for pulses & products dipped to negative 1.6 per cent in December 2016, and the vegetables inflation remained negative since September 2016.

Core inflation remains sticky

8.16 While the headline inflation has dropped sharply in the recent months, the CPI based core inflation (exclusive of food and fuel group) has remained sticky so far during this fiscal year (Table 5). CPI based refined core inflation (exclusive of food & fuel group, petrol & diesel) has been averaging around 5 per cent in the current fiscal year. Inflation for Pan, tobacco & intoxicants, Clothing & footwear, Housing and Education groups continued to be above 5 per cent and the major contributors of the core inflation. Inflation for the 'Transport & communication' group has been rising in recent months partly reflecting rise in global crude oil prices and its pass-through to domestic petrol and diesel prices. Price of crude oil (Indian basket) has increased from $39.9 in April 2016 to $52.7 in December 2016. Likewise, comparatively higher gold price in the international market this financial year has contributed towards sticky core inflation.

Table 5. Quarter-wise inflation in WPI and CPI (in per cent)

	Weights	2015-16				2016-17		
		Q1	Q2	Q3	Q4	Q1	Q2	Q3 (P)
WPI Headline	**100.0**	**-2.3**	**-4.6**	**-2.3**	**-0.8**	**1.4**	**3.8**	**3.4**
CPI Headline	**100.0**	**5.1**	**3.9**	**5.3**	**5.3**	**5.7**	**5.2**	**3.7**
I. Food & beverages	45.9	5.4	3.3	5.9	5.8	7.0	6.0	2.8
II. Pan, tobacco, etc.	2.4	9.5	9.5	9.4	8.7	7.7	6.8	6.6
III. Clothing & footwear	6.5	6.1	5.9	5.7	5.6	5.3	5.2	5.0
IV. Housing	10.1	4.6	4.6	5.0	5.3	5.4	5.3	5.1
V. Fuel and Light	6.8	5.8	5.5	5.3	4.5	3.0	2.8	3.2
VI. Miscellaneous	28.3	3.8	3.3	3.7	4.1	4.0	4.2	4.7
CFPI*	39.1	5.1	2.7	5.9	5.8	7.2	6.1	2.2
CPI excl. food & fuel (core)	47.3	4.6	4.3	4.6	4.8	4.7	4.7	5.0

Source: **DIPP & CSO**

Note: **P: Provisional   *CFPI: Consumer Food Price Index**

**Figure 8. Drivers of CPI-Headline, Food and Core inflation
(Contribution in percentage points)**
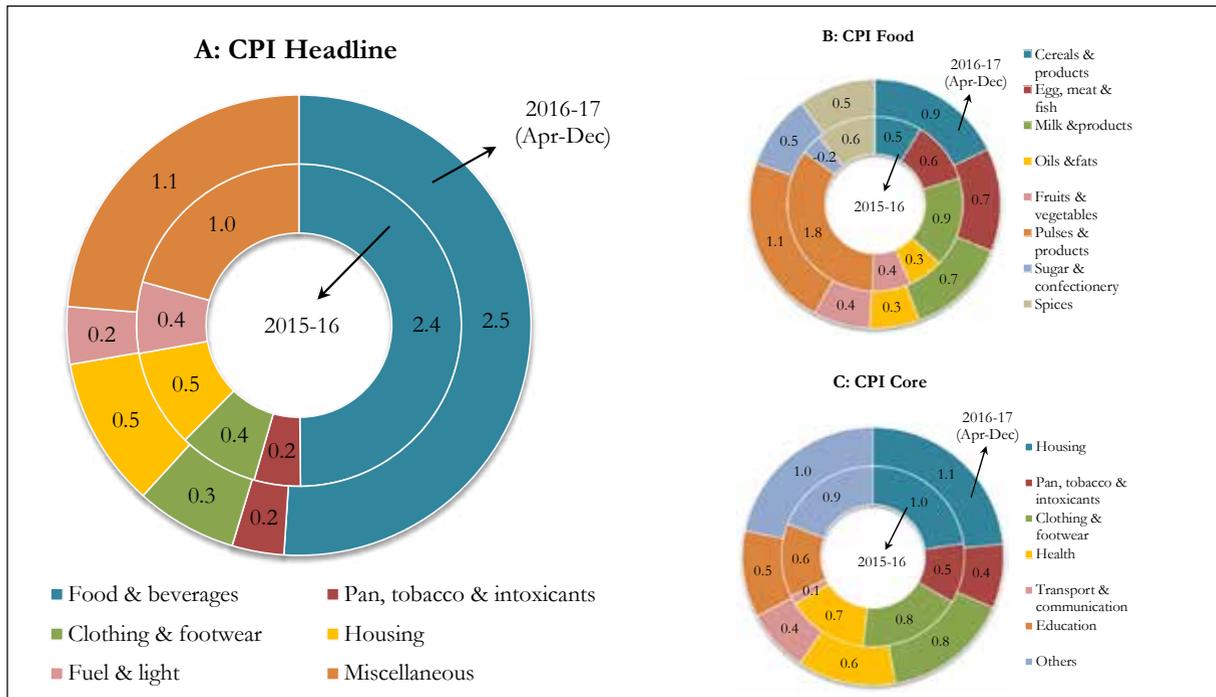
Source: **Calculated using CPI data, CSO**

Inflation outlook

8.17 In view of the deceleration in the wholesale and retail prices of key food items during the second half of the current financial year so far, the average inflation based on CPI is projected to remain below 5 per cent. For the next financial year, the recent uptick in global commodity prices, in particular crude oil prices, pose an upside risk. The food inflation is likely to remain subdued in the light of higher Rabi sowing acreage, projected increase in the production of pulses and key agri-products globally and astute food management and price monitoring by the Government.

IV. MONETARY MANAGEMENT AND FINANCIAL INTERMEDIATION

8.18 The Government amended the Reserve Bank of India Act, 1934 during the current financial year. The amended Act provides for inflation target to be set by the Government,

in consultation with the Reserve Bank, once in every five years and further provides for a statutory basis for the constitution of an empowered Monetary Policy Committee (MPC). As per the revised monetary policy framework, the Government has fixed the inflation target of 4 per cent with tolerance level of +/- 2 per cent for the period beginning from 5th August, 2016 to March 31, 2021. The Government has also notified the constitution of the MPC on 29th September 2016. So far the MPC has already held two meetings. The MPC, in its latest meeting held on December 7, 2016, while maintaining accommodative policy stance did not change the policy rate. The policy rate was reduced by 25 basis points to 6.25 per cent in its first meeting held on October 4, 2016. Hence the reverse repo rate under the Liquidity Adjustment Facility (LAF) remains 5.75 per cent, and the Marginal Standing Facility (MSF) rate is 6.75 per cent.

8.19 The Reserve Bank of India (RBI) also refined its monetary policy framework in April 2016, with the objective of meeting short-term liquidity needs through regular facilities; frictional and seasonal mismatches through fine-tuning operations and more durable liquidity by modulating net foreign assets and net domestic assets in its balance sheet. The MPC so far has gone by the script.

Liquidity situation

8.20 The RBI has been managing liquidity following its liquidity management framework (Figure 9). In order to bring ex ante liquidity conditions close to neutrality it has pumped durable liquidity through open market operations (OMOs). Post the withdrawal of specified bank notes (SBNs), RBI has conducted exceptional operations to mop the large surplus liquidity through variable reverse repo rate. To complement the RBI's efforts, the Government also increased the limit on securities under market stabilisation scheme from Rs. 30,000 crore to Rs. 6 lakh crore. Liquidity conditions were generally tight during Q1 of 2016-17. The condition eased significantly in the subsequent months barring one or two exceptional episodes. The

weighted average call money rate (WACR), on an average has been hovering around policy rate without crossing the upper and lower bounds of the corridor.

Yield on Government bills/ securities

8.21 There was a sharp fall in the 91 days t-bill rate in April 2016 owing to 25 bps cut in repo rate. Ten years government security (G-sec) yield however continued to tread high in spite of the rate cut and in fact increased marginally after the rate cut (Figure 10). However, yield on G-sec started softening since June 2016. As of 30th December 2016, 10-year G-sec yield stood at 6.63 per cent.

8.22 The transmission of the rate cuts, however, remained far from perfect. Base rate came down marginally from 9.30/9.70 in April 2016 to 9.30/9.65 as of 30th December 2016. Term deposit rates for greater than one-year maturity period declined from 7.00/7.50 to 6.50/7.00 in this period.

Banking sector

8.23 The performance of the banking sector, public sector banks (PSBs) in

Figure 9. Liquidity Condition (Rs. thousand crore)
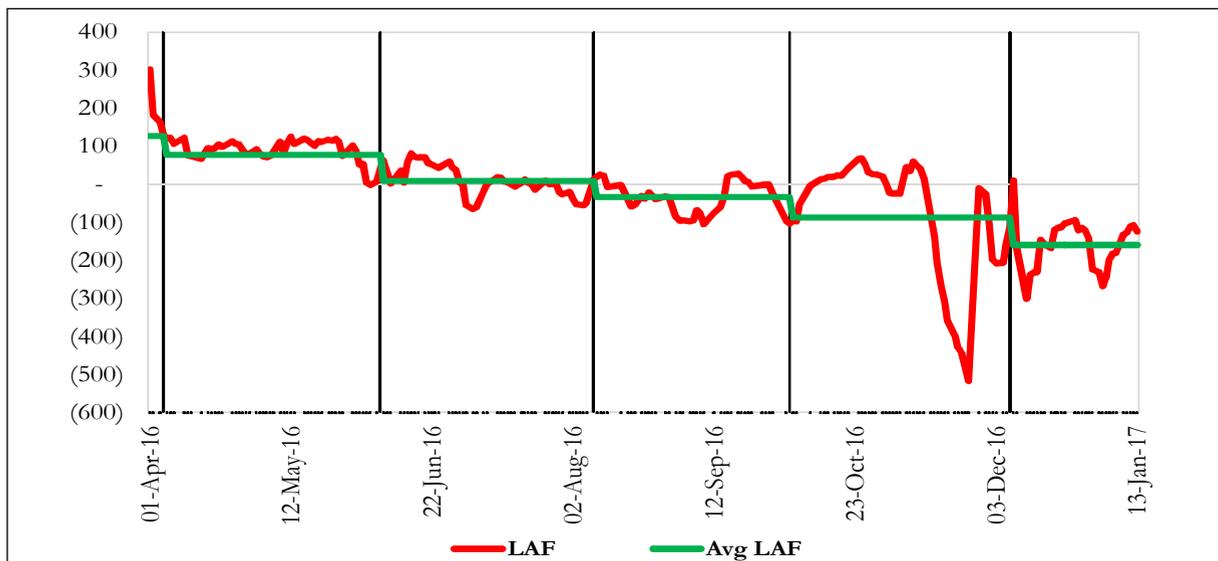
Source: **RBI**

Figure 10. Movement of Key Rates (per cent)
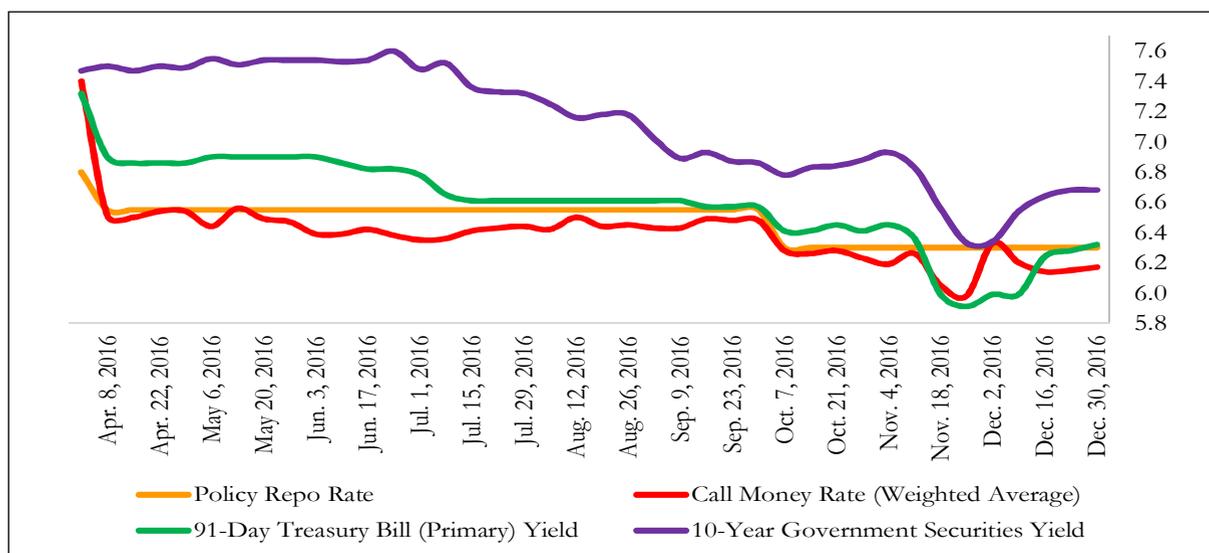
Source: **RBI**

particular, continued to be subdued in the current financial year. The asset quality of banks deteriorated further. The gross non-performing assets (GNPA) to total advances ratio of scheduled commercial banks (SCBs) increased to 9.1 per cent from 7.8 per cent between March and September 2016. Profit after tax (PAT) contracted on year-on-year basis in the first half of 2016-17 due to higher growth in risk provisions, loan write-off and decline in net interest income.

Credit growth

8.24 Non- food credit (NFC) outstanding grew at sub 10 per cent for all the months except for September 2016 (Figure 11). Credit growth to industrial sector remained persistently below 1 per cent during the current fiscal, with contraction in August, October and November. However, bank credit lending to agriculture and allied activities (A&A) and personal loans (PL) segments continue to be the major contributor to overall NFC growth.

Figure 11. Growth of NFC and its components (per cent)
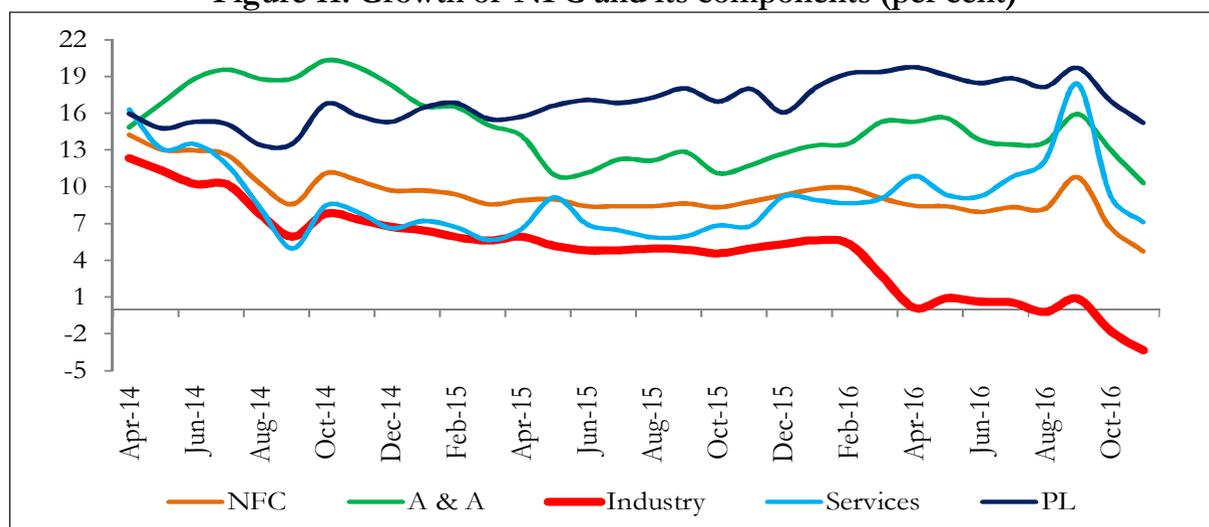
Source: **RBI**

Measures to strengthen corporate bond market

8.25 The RBI took a number of measures to strengthen the corporate bond market in India. It accepted many of the recommendations of the Khan Committee to boost investor participation and market liquidity in the corporate bond market. The new measures as announced by the RBI include: (a) Commercial banks are permitted to issue rupee-denominated bonds overseas (masala bonds) for their capital requirements and for financing infrastructure and affordable housing; (b) brokers registered with the Securities and Exchange Board of India (SEBI) and authorized as market makers in corporate bond market permitted to undertake repo / reverse repo contracts in corporate debt securities. This move will make corporate bonds fungible and thus boost turnover in the secondary market; (c) banks allowed to increase the partial credit enhancement they provide for corporate bonds to 50 per cent from 20 per cent. This move will help lower-rated corporates to access the bond market; (d) permitting primary dealers to act as market makers for

government bonds, to give further boost to government securities by making them more accessible to retail investors; and (e) to ease access to the foreign exchange market for hedging in over the counter (OTC) and exchange-traded currency derivatives, the RBI has allowed entities exposed to exchange rate risk to undertake hedge transactions with simplified procedures, up to a limit of US$30 million at any given time.

Indian markets performance

8.26 Indian markets recorded modest growth of 1.95 – 3 per cent (Sensex was up by 1.95 per cent while Nifty was higher by 3.0 per cent) for the calendar year 2016 as compared to losses registered in 2015.

8.27 The upward momentum, visible in the Indian markets peaked around September 2016, lost steam thereafter (Figure 12), particularly in the wake of foreign capital outflow from emerging markets. Global and domestic factors had a sizable impact on the performance of the Indian markets. Some of the closely watched developments were the Brexit, the US Presidential elections as well as policy announcements by the US Federal

**Figure 12. Indian Benchmark Indices: Sensex & Nifty
(Daily Movements from 1st January 2016 to 31st December 2016)**
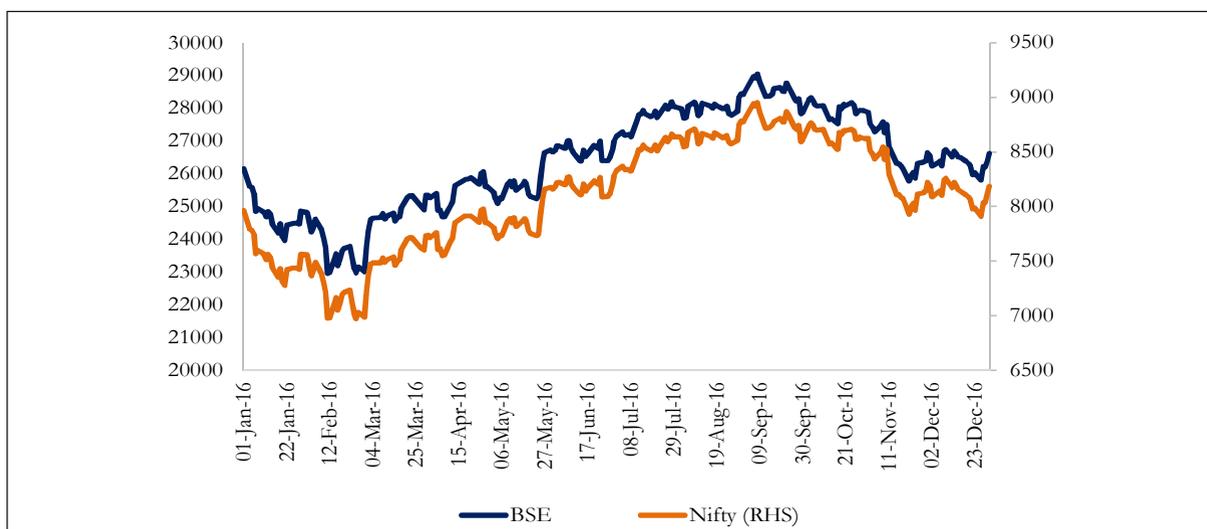
Source: **Nifty, Sensex**

Reserve and the RBI. In addition, other factors which weighed on market sentiment included the policy decisions taken by the OPEC regarding oil production and the appointment of the new governor of the RBI.

Foreign Portfolio Investments

8.28 For the first time since the meltdown of 2008, Net Foreign Portfolio Investments (FPI) have turned negative (implying that there was an outflow from the Indian markets to the tune of Rs. 23079 crore) (Table 6). The FPI outflow was not a phenomenon associated with Indian markets alone as FPIs pulled out of most EMEs in a big way due to higher returns in advanced economies.

V. India's Merchandise Trade

Exports

8.29 In line with subdued global growth and trade, India's exports declined by 1.3 per cent and 15.5 per cent in 2014-15 and 2015-16 respectively. The trend of negative growth was reversed somewhat during 2016-17 (April-December), with exports registering a growth of 0.7 per cent to US\$ 198.8 billion from US\$ 197.3 billion in 2015-16 (April-December). During 2016-17 (April-December) Petroleum, oil and lubricants (POL) exports constituting 11.1 per cent of total exports declined by 9.8 per cent to US\$ 22.0 billion over corresponding previous period, while non POL exports grew by

Table 6. Net FPI/FII Investment in India in 2010-2016 (in Rs. Crore)

Segments	2010	2011	2012	2013	2014	2015	2016
Equity	133266	-2714.3	128360	113136	97054	17808	20568
Debt	46408	42067	34988	-50849	159156	45857	-43647
Total	**179674**	**39352.9**	**163348**	**62286**	**256213**	**63663**	**-23079**

Source: **NSDL**

Table 7. Export Performance of some important sectors

	2015-16	2016 (Apr-Nov) (P)
Positive Growth	Chemicals and related* products {0.6}	Ores and minerals { 35.3 } Marine products { 20.6} Gems and Jewellery {11.6} Electronic goods {3.0 } Engineering goods {0.9}
Negative Growth	Textiles {-3.2} Gems and Jewellery {-4.8} Electronic goods {-5.3} Leather {-10.3} Marine products {-13.5} Ores and minerals {-16.4} Engineering goods {-17.0} Agriculture and allied products {-17.6} Petroleum products {-46.2}	Chemicals and related products* { -0.5 } Agriculture and allied products { -3.0} Leather { -4.8} Textiles { -5.2} Petroleum products { -9.8}

Source: **Department of Commerce**
Note: **Figures in bracket { } indicates growth rate y-o-y.   *: including plastic & plastic products.**
P: Provisional as per quick estimates

2.2 per cent to US $ 176.8 billion. A large number of export sectors have moved to positive growth territory in April-November 2016-17 as compared to 2015-16 (Table 7).

8.30 Region-wise, India's exports to Europe, Africa, America, Asia and CIS and Baltics declined in 2015-16. However, India's exports to Europe, America and Asia increased by 2.6 per cent, 2.4 per cent and 1.1 per cent respectively in 2016-17 (April-November), while exports to Africa declined by 13.5 per cent. USA followed by UAE and Hong Kong were the top export destinations.

Imports

8.31 Value of imports declined from US$ 448 billion in 2014-15 to US$ 381 billion in 2015-16, mainly on account of decline in crude oil prices resulting in lower levels of POL imports. During 2016-17 (April-December) imports declined by 7.4 per cent to US$ 275.4 billion compared to the corresponding period of previous year. POL imports declined by 10.8 per cent. Gold and silver imports declined by 35.9 per cent and non-POL and non-gold & silver imports by 2.0 per cent. Positive growth was registered in pearls and semi-precious stones (19.0 per cent) and Food and allied products (1.3 per cent). Imports of capital goods declined by 8.8 per cent.

8.32 India's imports from Europe, Africa, America, Asia and CIS & Baltics regions declined in 2015-16. However, in 2016-17 (April-November), imports from CIS & Baltics region increased by 10.3 per cent while other four regions witnessed decline. Top three import destinations of India were China followed by UAE and USA in 2016-17 (April-November).

Trade deficit

8.33 In 2015-16, India's trade deficit declined by 13.8 per cent (vis-à-vis 2014-

15) to US$ 118.7 billion. Furthermore, it declined by 23.5 per cent to US$ 76.5 billion in 2016-17 (April-December) as compared to US$ 100.1 billion in the corresponding period of previous year.

VI. BALANCE OF PAYMENTS

Current account

8.34 Despite moderation in India's exports, India's external sector position has been comfortable, with the current account deficit (CAD) progressively contracting from US$ 88.2 billion (4.8 per cent of GDP) in 2012-13 to US$ 22.2 billion (1.1 per cent of GDP) in 2015-16. The CAD further narrowed in 2016-17 (H1) to 0.3 per cent of GDP. In 2016-17 (H1), sharp contraction in trade deficit outweighed the decline in net invisible earnings. The downward spiral in international crude oil prices resulted in a decline in oil import bill by around 18 per cent which together with a sharp decline in gold imports led to a reduction in India's overall imports (on BoP basis). Net services receipts declined by 10 per cent in H1 of 2016-17 despite increase in services receipts (4.0 per cent) as growth in services payments was higher (16 per cent). However, growth of receipts of software was marginal and financial services receipts declined. Subdued income conditions in source countries, particularly in the gulf region due to downward spiral in oil prices continued to weigh down on remittances by Indians employed overseas as private transfers moderated to US$ 28.2 billion in H1 of 2016-17 from US$ 32.7 billion in H1 of 2015-16.

Capital/finance account

8.35 Despite higher net repayments on overseas borrowings and fall in banking capital (net) with building up of foreign currency assets by banks & decline in NRI deposits (net), robust inflow of foreign

direct investment (FDI) and net positive inflow of foreign portfolio investment (FPI) were sufficient to finance CAD leading to an accretion in foreign exchange reserves in H1 of 2016-17. The net FDI flows of US$ 21.3 billion recorded a growth of about 29 per cent over the corresponding period of last year. There was net inflow of portfolio investment amounting to US$ 8.2 billion in H1 of 2016-17 as against outflow of US$ 3.5 billion in H1 of 2015-16. Banking capital recorded net outflow of US$ 6.8 billion, primarily on account of acquisition of foreign currency assets by banks, while net repayment of external commercial borrowings resulted in an outflow of US$ 4.6 billion in H1 of 2016-17. With net capital flows remaining higher than the CAD, there was net accretion to India's foreign exchange reserves (on BoP Basis) (Table 8 and Appendix A1).

Foreign exchange reserves

8.36 In H1 of 2016-17, India's foreign exchange reserves increased by US$ 15.5 billion on BoP basis (*i.e.*, excluding valuation effects), while in nominal terms (*i.e.*, including valuation effect) the increase was to the tune of US$ 11.8 billion. The loss due to valuation changes of US$ 3.7 billion mainly reflects the appreciation of the US dollar against major

currencies.

Exchange rate

8.37 Inflows on account of FIIs, particularly into the equity segment, and positive sentiments generated by a narrower CAD in H1 of 2016-17 helped the rupee to move in a narrow range. The subsequent depreciation of the rupee could be attributed largely to the strengthening of the US dollar globally following the US presidential election results and tightening of monetary policy by the Federal Reserve. Nevertheless, in 2016-17 so far, the rupee has performed better than most of other emerging market economies (EMEs). During 2016-17 (April-December), on y-o-y basis, the rupee depreciated by 3.4 per cent against US dollar as compared to the depreciation of Mexican peso (14.4 per cent), South African Rand (8.6 per cent) and Chinese renminbi (6.3 per cent). The rupee depreciated in terms of nominal effective exchange rate (NEER) against a basket of 6 and 36 currencies during April-December 2016. However, the 6-currrency and 36-currency REER (Trade-based; Base year: 2004-05=100) appreciated by 6.1 per cent and 5.6 per cent, respectively as at end-December 2016 over end-March 2016.

Table 8. Summary of Balance of Payments (US $ billion)

	2013-14	2014-15	2015-16	2015-16	2016-17
	(April-March)			H1	H1
Trade balance	-147.6	-144.9	-130.1	-71.3	-49.5
Net services	73.1	76.5	69.7	35.6	32.0
Invisibles (net)	115.2	118.1	107.9	56.7	45.7
Current Account Balance	-32.4	-26.9	-22.2	-14.7	-3.7
Total Capital/ Finance A/C (Net)	47.9	88.3	40.1	25.3	19.2
Reserve Movement (- increase) and (+ decrease)	-15.5	-61.4	-17.9	-10.6	-15.5
Trade balance/GDP(per cent)	-7.9	-7.1	-6.3	-7.1	-4.6
Invisible Balance/GDP (per cent)	6.2	5.8	5.2	5.7	4.3
Current Account Balance/GDP (per cent)	-1.7	-1.3	-1.1	-1.5	-0.3
Net Capital Flows/GDP (per cent)	2.6	4.3	1.9	2.5	1.8

Source: **RBI**

VII. EXTERNAL DEBT

8.38 At end-September 2016, India's external debt stock stood at US$ 484.3 billion, recording a decline of US$ 0.8 billion over the level at end-March 2016, mainly due to a reduction in commercial borrowings and short term external debt. However, on a sequential basis, total external debt at end-September 2016 increased by US$ 4.8 billion from the end-June 2016 level.

8.39 The shares of Government (Sovereign) and non-Government debt in the total external debt were 20.1 per cent and 79.9 per cent respectively, at end-September 2016. US dollar denominated debt accounted for 55.6 per cent of India's total external debt at end-September 2016, followed by Indian rupee (30.1 per cent), SDR (5.8 per cent), Japanese Yen (4.8 per cent) Pound Sterling (0.7 per cent), Euro (2.4 per cent) and others (0.6 per cent).

8.40 The maturity pattern of India's external debt indicates dominance of long-term borrowings. At end-September 2016, long-term external debt accounted for 83.2 per cent of India's total external debt. On a residual maturity basis, short-term debt constituted 42.0 per cent of total external debt at end-September 2016 and 54.7 per cent of total foreign exchange reserves. The ratio of concessional debt to total external debt was 9.4 per cent at end-September 2016, same as at end-June 2016 and a marginal increase from the 9.0 per cent at end-March 2016. Most of the key external debt indicators showed an improvement in September 2016 (Table 9) vis-à-vis March 2016. The share of short-term debt in total external debt declined to 16.8 per cent at end-September 2016 and foreign exchange reserves provided a cover of 76.8 per cent to the total external debt stock. Other indicators also generally showed an improvement.

8.41 Cross-country comparison of external debt based on the World Bank's annual publication titled 'International Debt Statistics 2017', which contains the external debt data for the year 2015, indicates that India continues to be among the less vulnerable countries. India's key debt indicators compare well with other indebted developing countries.

Table 9. India's Key External Debt Indicators (per cent)

Year	External Debt (US$ billion)	External Debt to GDP	Debt Service Ratio	Concessional Debt to Total Debt	Foreign Exchange Reserves to Total Debt	Short-Term External Debt# to Foreign Exchange Reserves	Short-Term External Debt to Total Debt
2007-08	224.4	18.0	4.8	19.7	138.0	14.8	20.4
2013-14	446.2	23.9	5.9	10.4	68.2	30.1	20.5
2014-15	474.7	23.2	7.6	8.8	72.0	25.0	18.0
2015-16(PR)	485.0	23.4	8.8	9.0	74.3	23.1	17.2
End-Sept 2016 (QE)	484.3	*	*	9.4	76.8	21.8	16.8

Source: **India's External debt as at end-September 2016, Ministry of Finance**

Notes: **PR: Partially Revised; QE: Quick Estimates. # Short Term External Debt is based on Original Maturity. *: Not worked out for part of the year**

VIII. Outlook for the Economy for the year 2017-18

8.42 CSO in its first AE estimated the economy to grow by 7.1 per cent in the current year. However, it has stated that these numbers have been projected taking into account the information for first seven to eight months. It is therefore unlikely to have captured the impact of withdrawal of the high denomination currency. Although it is difficult to precisely pinpoint the impact on GDP, in all likelihood, the growth numbers of GDP, GVA, etc. could be revised downwards in the subsequent revisions to be carried out by the CSO. Inflation could also be lower than what comes out from the implicit GDP deflator underlying the CSO's first AE for 2016-17.

8.43 For 2017-18, it is expected that the growth would return to normal as the new currency notes in required quantities come back into circulation and as follow up actions to demonetisation are taken. Helping to maintain the momentum of such growth will be factors like possible normal monsoon, an increase in the level of exports following the projected increase in global growth and above all various reform measures taken by the Government to strengthen the economy. Some possible challenges to growth exist. For example, the prices of crude oil have started rising and are projected to increase further in the next year. Estimates suggest that oil prices could rise by as much as one-sixth over the 2016-17 level, which could have some dampening impact on the growth. Fixed investment rate in the economy has consistently declined in the past few years, more so the private investment. Raising the growth rate of the economy will to a great extent depend on quickly reversing this downward trend in the investment. The last few years have also witnessed a slowdown in global trade and investment flows. Although, India has not been particularly affected by this slowdown, lower growth in foreign portfolio investment cannot be ruled out, partly on account of the fact that the interest rates in the United States have begun to increase.

8.44 On balance, there is a strong likelihood that Indian economy may recover back to a growth of 6¾ per cent to 7½ per cent in 2017-18.

IX. Agriculture and Food Management

8.45 As per the first advance estimates of the CSO, growth rate for the agriculture and allied sectors is estimated to be 4.1 per cent for 2016-17. Details may be seen at Table 1.

Production

8.46 As per the First Advance Estimates (AE) released by Ministry of Agriculture and Farmers Welfare on 22nd September 2016, production of Kharif food-grains during 2016-17 is estimated at 135.0 million tonnes compared to 124.1 million tonnes in 2015-16 (Table 10).

Table 10. Production of Major Kharif Crops (in Million Tonnes)

Crops	2015-16 (First AE)	2016-17 (First AE)
Total Kharif food-grains	124.1	135.0
Rice	90.6	93.9
Total Coarse Cereals	27.9	32.5
Total Pulses	5.6	8.7
Total Oilseeds	19.9	23.4
Sugarcane	341.4	305.2
Cotton@	33.5	32.1

Source: **Directorate of Economics & Statistics, Department of Agriculture, Cooperation & Farmers Welfare.**

Note: **@Production in million bales of 170 kgs each.**

Acreage under kharif and rabi crops

8.47 During 2016-17, area sown upto 14th October, 2016 under all kharif crops taken

together was 1075.7 lakh hectares which was 3.5 per cent higher compared to 1039.7 lakh hectares in the corresponding period of 2015-16 (Appendix A2). Arhar registered the maximum percentage increase in acreage during the Kharif season 2016-17 compared to the previous year.

8.48 The rabi crops' sowing is in progress. The area coverage under rabi crops (total area) as on 13th January 2017 for 2016-17 at 616.21 lakh hectares is 5.9 per cent higher than that in the corresponding week of last year (Figure 13). The area coverage under wheat as on 13th January 2017 is 7.1 per cent higher than that in the corresponding week of last year. The area coverage under gram as on 13th January 2017 is 10.6 per cent higher than that in the corresponding week of last year (Figure 13 in Chapter 1).

Figure 13. Sowing of Rabi Crops (Million Hectares)
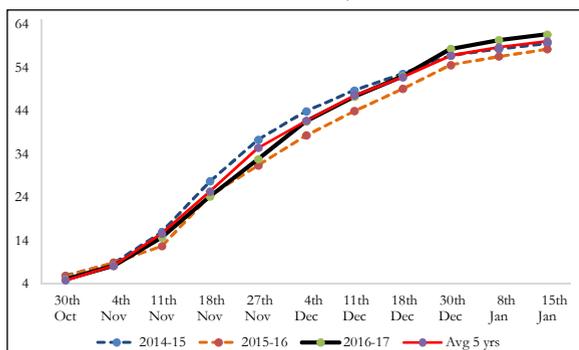
Source: **Directorate of Economics & Statistics.**

Monsoon rainfall and its distribution

8.49 During the South West Monsoon Season (June-September) of 2016 the country as a whole received rainfall which was 97 per cent of its long period average (LPA). The actual rainfall received during this period was 862.0 mm as against the LPA at 887.5 mm. Region-wise details are given in Table 11. Out of the total 36 meteorological subdivisions, 4 subdivisions received excess rainfall, 23 subdivisions received normal rainfall and the remaining 9 subdivisions received deficient rainfall.

Table 11. Long Period Average (LPA) vs. Actual South West Monsoon Season Rainfall (June to September) in 2016

Region	LPA (mm)	Rainfall (mm) (Actual)	Rainfall (% of LPA)
All India	887.5	862.0	97
Northwest India	615.1	584.2	95
Central India	975.3	1034.1	106
Northeast India	1437.8	1281.5	89
South Peninsula	715.6	661.5	92

Source: **India Meteorological Department.**

Irrigated area under principal crops

8.50 Irrigation is one of the critical inputs to improve productivity in agriculture. Wide regional and crop-wise variations can be seen in coverage of irrigated area (Figure 14).

Figure 14. State-wise per cent coverage of irrigated area under principal crops during 2013-2014
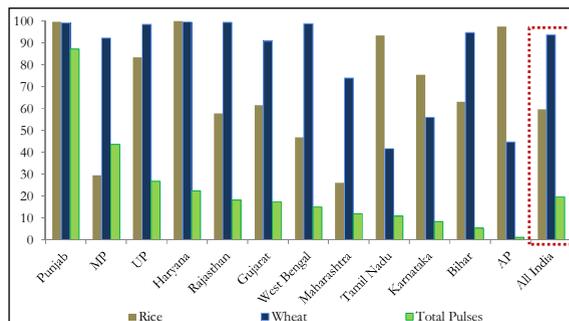
Source: **Directorate of Economics & Statistics.**

Price policy of agricultural produce

8.51 The price policy of Government for major agricultural commodities seeks to ensure remunerative prices to the farmers to encourage higher investment and production, and to safeguard the interest of consumers by making available supplies at reasonable prices. On account of the volatility of prices of pulses, a Committee on 'Incentivising Pulses Production Through Minimum Support Price (MSP) and Related Policies' was set up under the Chairmanship of Dr. Arvind Subramanian, Chief Economic Adviser, which submitted its report on 16th September, 2016. The main

recommendations are given in Annexure A3 and the report is available at *http://mof.gov.in/reports/Pulses_report_16th_sep_2016.pdf*. To increase productivity of pulses, a new extra early maturing, high yielding variety of Arhar (Pusa Arhar-16) has been developed to be made available for farmers in the next Kharif season.

8.52 The Minimum Support Prices (MSPs) of major crops during the last two years are presented in Annexure A4. During 2016-17, MSPs were raised substantially mainly for pulses to incentivize farmers to cultivate pulses (Figure 15).

Figure 15. Per cent Change in MSP (2016-17 over 2015-16) of select crops
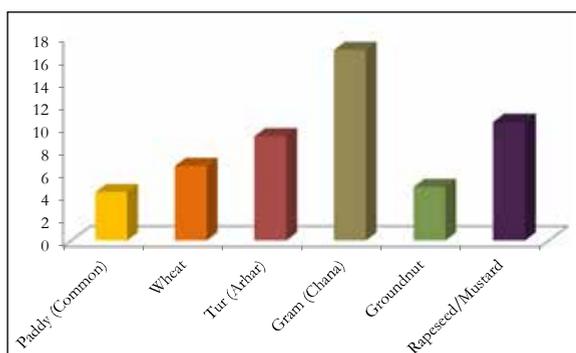
Source: **Commission for Agricultural Costs and Prices (CACP).**

Food-grain stocks and procurement in central pool

8.53 The food-grain management involves procurement of rice and wheat and following the norms for buffer stocks. The stocks of food-grains (Rice and Wheat) was 43.5 million tonnes as on 1st December, 2016 compared to 50.5 million tonnes as on 1st December, 2015 vis-à-vis the buffer stock norm of 30.77 million tonnes as on 1st October 2015 (Figure 16.A & B). Procurement of rice as on 6th January 2017 was 23.2 million tonnes during Kharif Marketing Season 2016-17 whereas procurement of wheat was 22.9 million tonnes during Rabi Marketing Season 2016-17. As part of the price policy to protect consumers, the Central Issue Prices

Figure 16 A. Wheat Stocks and Buffer Norms (in Million Tonnes)
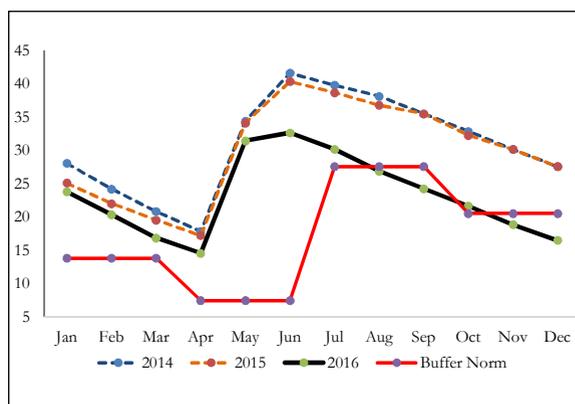
Source: **Food Corporation of India.**

Figure 16 B. Rice Stocks and Buffer Norms (in Million Tonnes)
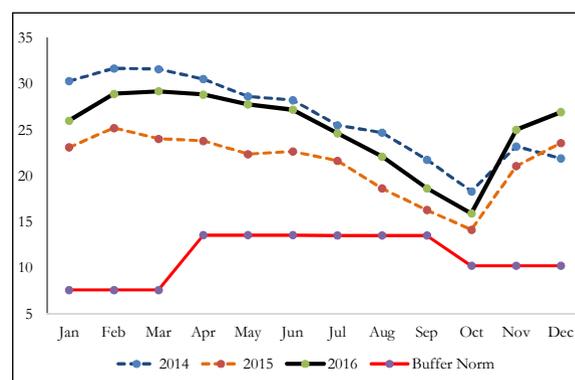
Source: **Food Corporation of India.**

of rice and wheat have remained unchanged since 1st July 2002.

Figure 17. Agriculture Credit (Rs. lakh crore)
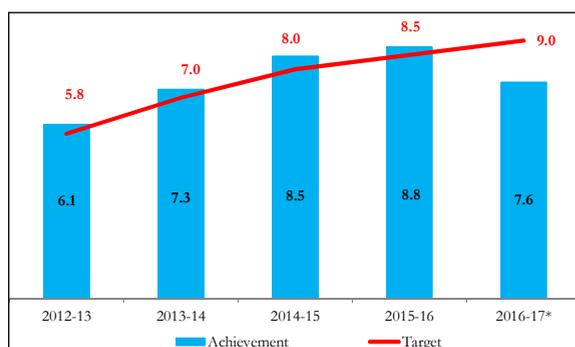
Source: **NABARD.**
Note: ***The target for 2016-17 refers to the full year while achievement is for the first half.**

Agriculture credit

8.54 Credit is an important input to improve agricultural output and productivity. To improve agricultural credit flow, the credit

target for 2016-17 has been fixed at Rs. 9 lakh crore against Rs. 8.5 lakh crore for 2015-16 (Figure 17). As against the target, the achievement for 2016-17 (upto September 2016), was 84 percent of the target, higher than the corresponding figure of 59 per cent upto September 2015.

X.   INDUSTRIAL, CORPORATE AND INFRASTRUCTURE SECTORS

8.55 As per the first advance estimates of the CSO, growth rate of the industrial sector comprising mining & quarrying, manufacturing, electricity and construction is projected to decline from 7.4 per cent in 2015-16 to 5.2 per cent in 2016-17 (See Table. 1 & para 8.3). During April-November 2016-17, a modest growth of 0.4 per cent has been observed in the Index of Industrial Production (IIP) which is a volume index with base year of 2004-05. This was the composite effect of a strong growth in electricity generation and moderation in mining and manufacturing (Table 12). In terms of use-based classification, basic goods, intermediate goods and consumer durable goods attained moderate growth. Conversely, the production of capital goods declined steeply and consumer non-durable goods sectors suffered a modest contraction during April-November 2016-17 (Table 12).

8.56   The eight core infrastructure supportive industries, viz. coal, crude oil, natural gas, refinery products, fertilizers, steel, cement and electricity that have a total weight of nearly 38 per cent in the IIP registered a cumulative growth of 4.9 per cent during April-November, 2016-17 as compared to 2.5 per cent during April-November, 2015-16. The production of refinery products, fertilizers, steel, electricity and cement increased substantially, while the production of crude oil and natural gas fell during April-

November, 2016-17. Coal production attained lower growth during the same period.

Table 12. IIP-based Growth Rates of Broad Sectors/Use-based Classification (per cent)

	2014-15	2015-16	April-Nov. 2015-16	April-Nov. 2016-17
General index	2.8	2.4	3.8	0.4
Mining	1.5	2.2	2.1	0.3
Manufacturing	2.3	2.0	3.9	-0.3
Electricity	8.4	5.7	4.6	5.0
Basic goods	7.0	3.6	3.9	4.1
Capital Goods	6.4	-2.9	4.7	-18.9
Intermediate goods	1.7	2.5	2.0	3.4
Consumer goods	-3.4	3.0	4.1	1.8
Durables	-12.6	11.3	11.8	6.9
Non-durables	2.8	-1.8	-0.5	-1.8

Source: **CSO**

8.57 Most indicators of infrastructure-related activities showed expansion during H1 2016-17. Thermal power with a growth of 6.9 per cent boosted overall power generation while hydro and nuclear power generation contracted marginally during April-September 2016 (Figure 18).

8.58 The performance of corporate sector (Reserve Bank of India, January 2017) highlighted that the growth in sales was 1.9 per cent in Q2 of 2016-17 as compared to near stagnant growth of 0.1 per cent in Q1 of 2016-17. The growth of operating profits decelerated to 5.5 per cent in Q2 of 2016-17 from 9.6 per cent in the previous quarter. The Y-o-Y growth in interest expenses remained flat in Q2 of 2016-17, as compared to 5.8 per cent in the previous quarter. Growth in net profits registered a remarkable growth of 16.0 per cent in Q2 of 2016-17, as compared to 11.2 per cent in Q1 of 2016-17.

8.59 The Government has liberalized and simplified the foreign direct investment (FDI) policy in sectors like defence, railway infrastructure, construction and

Figure 18. Growth in infrastructure-related activities during H1 2016-17 (in per cent)
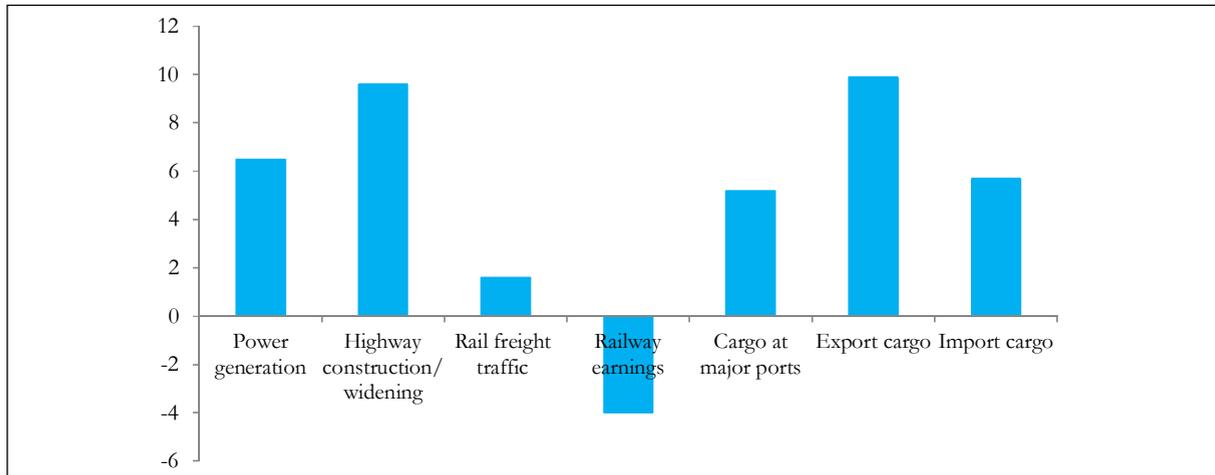
Source: **MoSPI**

pharmaceuticals, etc. During April-September 2016-17, FDI equity inflows were US$ 21.7 billion as compared to total FDI inflows of US$ 16.6 billion during April-September 2015-16 showing 30.7 per cent surge. Sectors like services sector, construction development, computer software & hardware and telecommunications have attracted highest FDI equity inflows.

8.60 Many new initiatives have been taken up by the Government to facilitate investment and ease of doing business in the country. Noteworthy among them are initiatives such as Make-in-India, Invest India, Start Up India and e-biz Mission Mode Project under the National e-Governance Plan. Measures to facilitate ease of doing business include online application for Industrial License and Industrial Entrepreneur Memorandum through the eBiz website 24x7 for entrepreneurs; simplification of application forms for Industrial Licence and Industrial Entrepreneur Memorandum; limiting documents required for export and import to three by Directorate General of Foreign Trade; and setting up of Investor Facilitation Cell under Invest India to guide, assist and handhold investors during the entire life-cycle of the business.

XI. Services Sector

8.61 As per the first advance estimates of the CSO, growth rate of the services sector is projected to grow at 8.8 per cent in 2016-17, almost the same as in 2015-16 (See Table 1 & para 8.3). As per WTO data, India's commercial services exports increased from US$ 51.9 billion in 2005 to US$ 155.3 billion in 2015. The share of India's commercial services to global services exports increased to 3.3 per cent in 2015 from 3.1 per cent in 2014 despite negative growth of 0.2 per cent in 2015 as compared to 5.0 per cent growth in 2014. This was due to the relatively greater fall in world services exports by 6.1 per cent in 2015. As per RBI's BoP data, India's services exports declined by 2.4 per cent in 2015-16 as a result of slowdown in global output and trade. However, in H1 of 2016-17, services exports increased by 4.0 per cent compared to 0.3 per cent growth in the same period of previous year. Growth of net services, which has been a major source of financing India's trade deficit in recent years, was (-) 9.0 per cent in 2015-16 and (-) 10.0 per cent in H1 of 2016-17 due to relatively higher growth in imports of services. Growth of software exports which accounted for 48.1 per cent share in services exports was 1.4 per cent in 2015-16 and 0.1 per cent in H1 of 2016-17.

Figure 19. Baltic Dry Index
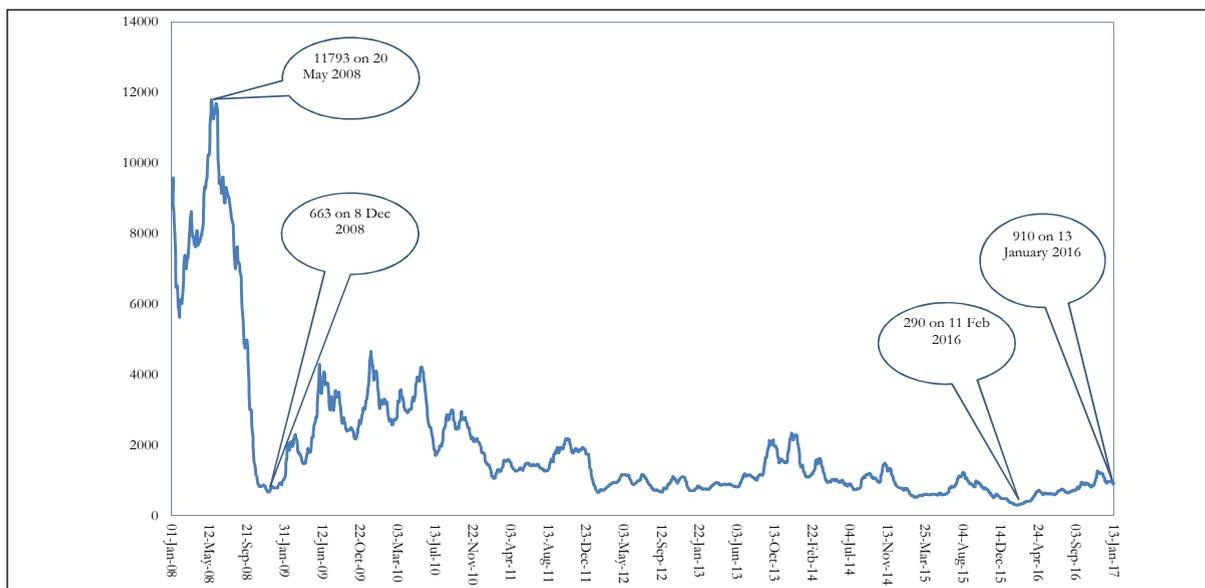
8.62 India's tourism sector witnessed a growth of 4.5 per cent in terms of foreign tourist arrivals (FTAs) with 8.2 million arrivals in 2015, and a growth of 4.1 per cent in foreign exchange earnings (FEEs) of US$ 21.1 billion. In 2016 (Jan. to Dec.), FTAs were 8.9 million with growth of 10.7 per cent and FEE (US$ terms) were at US$ 23.1 billion with a growth of 9.8 per cent.

8.63 The Nikkei/Markit Services PMI for India was at a high of 57.5 in January of 2013. It fell to 46.7 in November 2016 from 54.5 in October 2016. However, it increased marginally to 46.8 in December 2016. The Baltic dry index (BDI) an indicator of both merchandise trade and shipping services, which showed some improvement up to 18 November 2016 declined somewhat to 910 on 13 January 2017 (Figure 19).

XII. Social Infrastructure, Employment and Human Development

Trends in social sector expenditure

8.64 As per the Reserve Bank of India data, expenditure on social services by Centre and States, as a proportion of GDP was 7.0 per cent during 2016-17 (BE), with education and health sectors accounting for 2.9 per cent and 1.4 per cent respectively (Table 13). The year 2014-15 in respect of which latest actual figures are available showed a significant

Table 13. Trends in social sector expenditure

Items	2009-10	2013-14	2014-15	2015-16 RE	2016-17 BE
As percentage to GDP					
Total Expenditure	28.6	26.6	25.1	28.2	28.4
Expenditure on Social Services	6.9	6.6	5.7	6.9	7.0
of which:					
Education	3.0	3.1	2.6	2.9	2.9
Health	1.4	1.2	1.1	1.3	1.4
Others	2.5	2.3	2.0	2.7	2.7

Source: **Reserve Bank of India.**

decline from the RE level following a large decrease in actual social sector expenditure of the states from the revised estimates.

Employment scenario

8.65 The results of the quarterly quick employment surveys in select labour-intensive and export-oriented sectors by the Labour Bureau for the period December, 2015 over December, 2014 (Figure 20) show that the overall employment increased by 135 thousand. The sectors that contributed to this increase include: IT/BPOs sector, textiles including apparels and metals. Employment, however, declined in gems & jewellery sector, handloom/powerloom sector, leather, automobiles sectors and transport sector during the same period.

Figure 20. Estimated change in Employment in Eight Selected Sectors (in 000)
(December 2015 over December 2014)
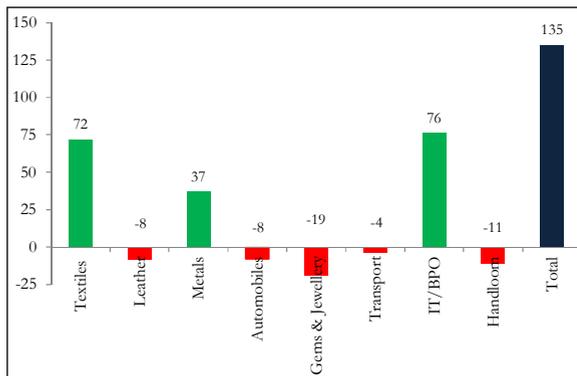
Source: **Labour Bureau.**

8.66 A broader coverage on labour employed and related statistics is provided by the Annual Employment and Unemployment Surveys (EUS) also conducted by the Labour Bureau, Ministry of Labour and Employment. The results of the latest EUS, 2015-16 are summarised in Table 14. The Labour Force Participation Rate (LFPR) at the all India level based on usual principal status approach was estimated at 50.3 per cent. The All India LFPR of females is much lower than that for males. There are wide interstate variations in the female LFPR as well. The North Eastern and Southern States, in general, display high female LFPR as compared to low levels in Northern States. As per EUS, 2015-16, the unemployment rate for females was higher than that of males across rural and urban areas (Table. 14). There are wide inter-state variations in UR as can be seen in Figure 21.

8.67 As per EUS Surveys, employment growth has been sluggish. Further, States that show low unemployment rates also generally rank high in the share of manufacturing. While States compete to seek investment offering incentives, linking incentives to the number of jobs created, sustained efforts need to be considered as a tool to increase employment.

8.68 The employment by sectors and by categories are shown in Figure 22 (A&B). There is a clear shift in employment to secondary and tertiary sectors from the primary sector. The growth in employment by category reflects increase in both casual labour and contract workers (Figure 22.B). This has adverse implications on the

Table 14. LFPR, WPR and UR based on Usual Principal Status (UPS), 2015-16

Parameter	Rural			Urban			Total		
	M	F	P	M	F	P	M	F	P
LFPR	77.3	26.7	53.0	69.1	16.2	43.5	75.0	23.7	50.3
WPR	74.1	24.6	50.4	66.8	14.3	41.4	72.1	21.7	47.8
UR	4.2	7.8	5.1	3.3	12.1	4.9	4.0	8.7	5.0

Source: **Report on 5th Annual EUS, 2015-16 (Labour Bureau).**

Note: **LFPR- Labour Force Participation Rate, WPR- Worker Population Ratio, UR- Unemployment Rate, M-Male; F-Female; P-Persons.**

Figure 21. Unemployment Rate based on UPS approach for persons of age 15 years and above in States, 2015-16 (per cent)

Figure 22 A & B. All India distribution of employed persons based on UPS approach by sectors of employment and by category of employment (per cent)

level of wages, stability of employment, social security of employees owing to the 'temporary' nature of employment. It also indicates preference by employers away from regular/formal employment to circumvent labour laws.

8.69 The multiplicity of labour laws and the difficulty in their compliance have been an impediment to the industrial development and employment generation. At present, there are 39 Central labour laws which have been broadly proposed to be grouped into four or five Labour Codes on functional basis with the enactment of special laws

for small manufacturing units. In a major initiative for bringing compliance in the system, catalysing the need of job creation and to ensure ease of doing business while ensuring safety, health and social security of every worker, the Government has put forth a set of labour reform measures.

Education sector

8.70 An important concern that is often raised in the context of school education is low learning outcomes. This has been pointed out in several studies including ASER, 2014. While there have been

improvements in access and retention, the learning outcomes for a majority of children is still a cause of serious concern. Some of the underlying causes contributing to low quality of education in the primary sector are teacher absenteeism and the shortage of professionally qualified teachers.

8.71 Though the share of teacher component in total Sarva Shiksha Abhiyan (SSA) budget has been increasing over the years from 35 per cent in 2011-12 to 59 per cent in 2014-15, teacher absenteeism and the shortage of professionally qualified teachers remain an issue to be addressed. The components of SSA Budget 2014-15 are given in Figure 23.

8.72 An option to address teacher absenteeism that can be explored is biometric attendance of all teachers in primary schools for each scheduled class/lecture/session/ distinct from the present system, where it is morning and evening to ostensibly record arrival and departures with little control on the activities during the working hours. A pilot project in one district of every State may be commenced for six months to be expanded to all districts in three years. Apart from the biometric attendance being regularly monitored by local communities and parents, it should also be put in public domain. This should be backed by adequate teaching aids, recorded lectures, etc. to fill in for absentee teachers. The scope of implementation should leave room for flexibility at the local level so the same do not end up as top driven 'Model Schools'. The pilot of biometric attendance of teachers should be accompanied with an evaluation of learning outcomes.

Health for all

8.73 India's health policy aims at an integrated approach which will provide accessible, affordable and equitable

Figure 23. Per cent share of components in SSA Budget during 2014-15
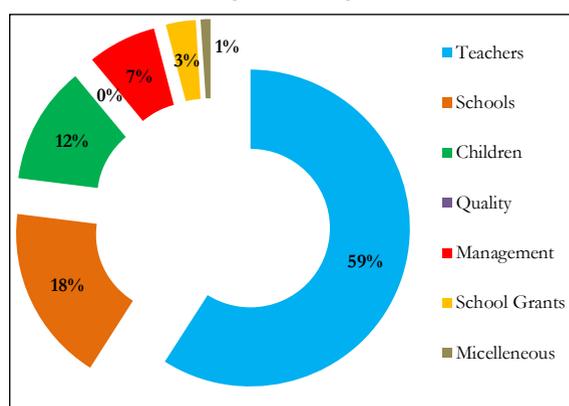
Source: SSA Portal, ASER portal.

quality health care to the marginalized and vulnerable sections. The aim of good health and well-being for all as envisaged in the Sustainable Development Goal (SDG) 3, *"Ensure healthy lives and promote well being for all at all ages"* should be synchronized with India's domestic targets to reap the benefits of the 'demographic dividend'.

8.74 Despite the challenges faced by the government in providing affordable health services to the population, there have been some notable achievements in the health sector. Life expectancy has doubled and infant mortality and crude death rates have reduced sharply. India's total fertility rate (TFR) has been steadily declining and was 2.3 (rural 2.5 & urban 1.8) during 2014. Infant Mortality Rate (IMR) has declined to 37 per 1000 live births in 2015 from 44 in 2011. The challenge lies in addressing the huge gap between IMR in rural (41 per 1000 live births) and urban (25 per 1000 live births) areas.

8.75 The Maternal Mortality Ratio (MMR) declined from 301 maternal deaths per 100,000 live births during 2001-03 to 167 maternal deaths per 100,000 live births during 2011-13. There are wide regional disparities in MMR (Figure 24), with States like Assam,

Figure 24. Maternal Mortality Ratio by States, 2011-13 (per 100000 live births)
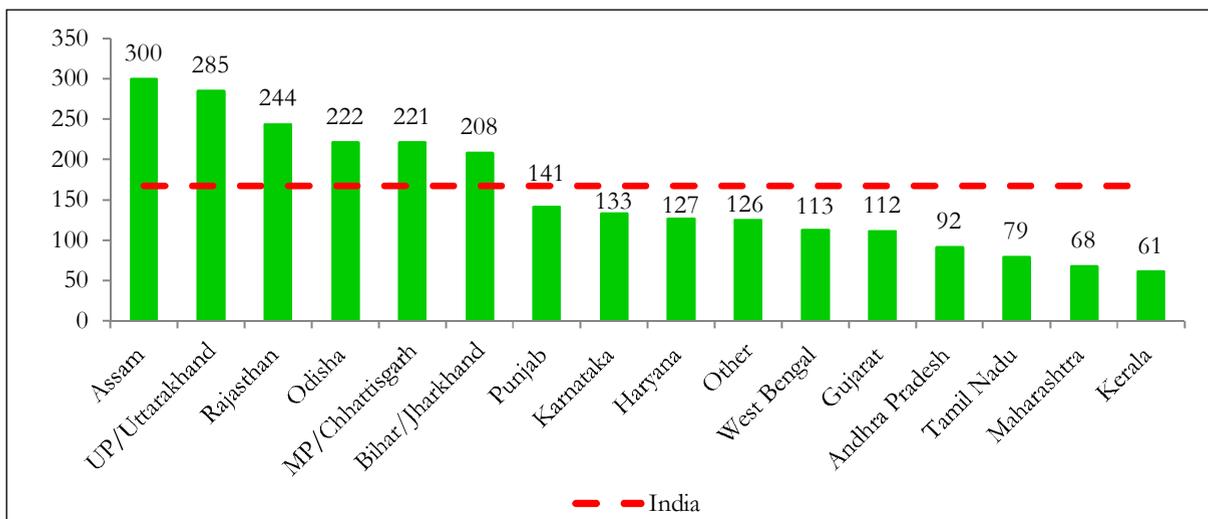
Uttar Pradesh, Rajasthan, Odisha, Madhya Pradesh and Bihar recording MMR well above the all India MMR of 167. Therefore, in addition to reducing the all India MMR in line with SDG 3 targets, by improving health and nutritional status of women, there is need to focus on States with MMR higher than the national average.

8.76 The high levels of anaemia prevalent among women in the age group 15-49 have a direct correlation with high levels of MMR. In Haryana and West Bengal more than 60 per cent of women suffer from anaemia (Figure 25). Under the National Health Mission, Government of India has programmes to address the issue of anaemia through health and nutrition education to promote dietary diversification, inclusion of iron foliate rich food as well as food items that promote iron absorption.

Figure 25. Percentage of men and women with anaemia across States
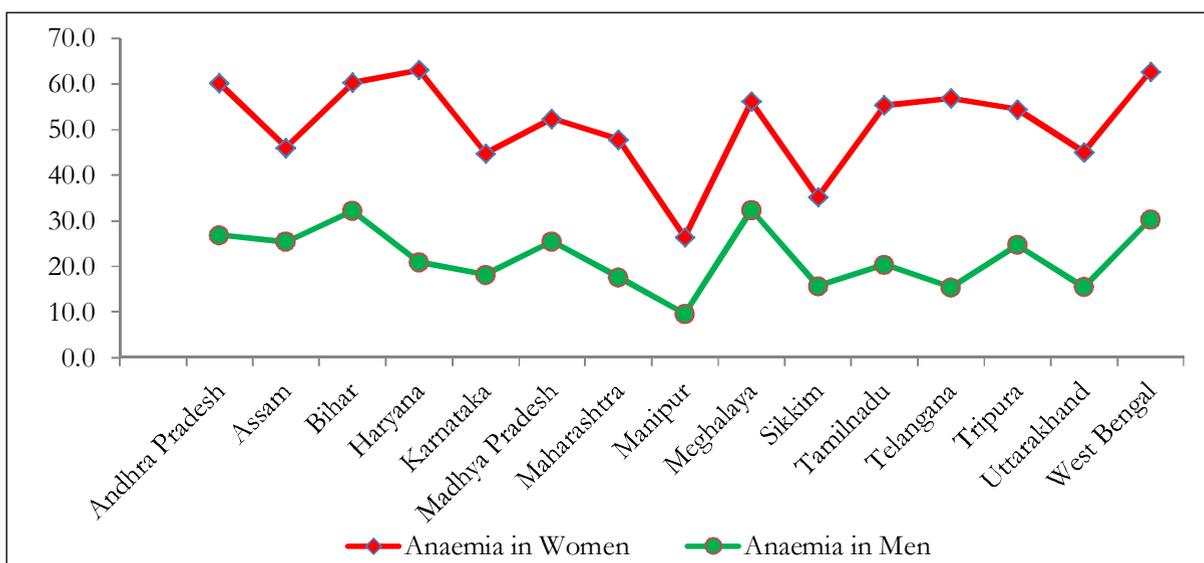
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Box 1. Experimental Health Outcome Index

An experimental Health Outcome Index (HOI) has been computed using Life Expectancy at age 1 year (LE1), IMR and MMR as indicators. LE1 figures are from the period 2010-14. IMR and MMR figures for majority of the States are for 2011-13. The Health Outcome Indices computed by standardising the above indicators for the 18 States are plotted below.

Figure B1. Health Outcome Index

Source: **Calculated by using Sample Registration System data, O/o RGI & Census of India.**

Note: Standardised LE1 = (Actual value-Minimum value)/ (Maximum value-Minimum value). Standardised IMR= (Maximum value-Actual value)/ (Maximum value-Minimum value). Standardised MMR= (Maximum value-Actual value)/ (Maximum value-Minimum value). Here Andhra Pradesh includes Telangana.

As per the data, Assam has the lowest health outcome index whereas Kerala has the highest. Out of the eighteen States, nine States have recorded a health outcome index higher than the All India index (0.6). Assam which has the lowest health outcome index has reported the highest MMR as can be seen in Figure 24.

Inclusive Policies of the Government

8.77 It is the vision of the Government to have an inclusive society in which equal opportunities are provided for the growth and development of all sections of the population including the marginalised, vulnerable and weaker sections to lead productive, safe and dignified lives. Accordingly, programmes have been initiated by the government towards attaining the objective of inclusive society like the *Accessible India Campaign* (Box 2)

8.78 The government has various schemes meant for the economic and social empowerment of people belonging to the minority communities. For social empowerment, the 'Nai roshni' scheme for leadership development of minority women, 'Padho Pardesh', a scheme of interest subsidy on educational loans for overseas studies for the students belonging to the minority communities, etc. are being implemented. For skill development and economic empowerment of minorities, schemes like 'Seekho Aur Kamao' (Learn & Earn), Upgrading Skill and Training in Traditional Arts/Crafts for Development (USTTAD) and 'Nai Manzil'- a scheme to provide education and skill training to the youth from minority communities are in operation.

XIII. CLIMATE CHANGE

Developments in international climate change negotiations:

8.79 On 12th December, 2015, 196 Parties to the United Nations Framework Convention on Climate Change (UNFCCC) adopted the historic Paris Agreement, which brings all

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Box 2. Accessible India Campaign (Sugamya Bharat Abhiyan)

As a society it is imperative to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity (UN Convention on rights of Persons with Disabilities). According to Census 2011, the number of persons with disabilities in India constituted 2.2 per cent of the population. The Department of Empowerment of Persons with Disabilities (DEPwD) launched *'Accessible India Campaign (Sugamya Bharat Abhiyan)'* as a nation-wide Campaign for achieving universal accessibility for Persons with Disabilities (PwDs) with a focus on three verticals: Built Environment, Public Transportation and Information & Communication Technologies.

The 'Inclusiveness and Accessibility Index' launched by the Government as part of the Sugamya Bharat Abhiyan helps the industries and corporates to participate in the Accessible India Campaign (AIC) by voluntarily evaluating their readiness for making the workplace accessible for PwDs. The Index is a first-of-its-kind initiative in the country and will be an ideal instrument for the integration, assimilation and inclusion of PwDs into the mainstream. The Index enables the organisations to introspect over their inclusive policies and organisational culture in aid of PwDs, employment of such workforce and adaptations to meet the needs of PwDs.

Further, the **"Rights of Persons with Disabilities Bill – 2016"** passed by the Parliament aims at securing and enhancing the rights and entitlements of PwDs. The bill has proposed to increase the reservation in vacancies in government establishments from 3 per cent to 4 per cent for those with benchmark disability and high support needs. Further details of the bill are available at *http://pib.nic.in/newsite/PrintRelease.aspx?relid=155592*.

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nations into a common cause to undertake ambitious efforts to combat climate change and unleash actions and investment towards a low carbon, resilient and sustainable future. The Paris Agreement sets the path for the post-2020 actions based on the Nationally Determined Contributions (NDCs) of the Parties. The Paris Agreement entered into force on 4th November 2016.

8.80 The 22nd Session of the Conference of Parties (COP 22) to UNFCCC was held from 7-19 November 2016 in Marrakech, Morocco. The main thrust of COP 22 was on developing rules and action framework for operationalizing the Paris Agreement and advance work on pre-2020 Actions. At COP 22, Parties agreed to a deadline of 2018 for the rule book. Detailing exercise will include accounting of the NDCs, adaptation communication, building a transparency framework, global stocktake every five years, etc.

8.81 The key decision adopted at COP 22 was "Marrakech Action Proclamation for our Climate and Sustainable Development" which captured the sense of urgency to take action on climate change. The Marrakech Action Proclamation also emphasized the need to strengthen and support efforts to eradicate poverty, ensure food security and enhance resilience of agriculture. The pre 2020 action including mobilization of USD 100 billion per year was a key element of the Proclamation.

India's green actions

8.82 India ratified the Paris Agreement on 2nd October 2016. India's comprehensive NDC target is to lower the emissions intensity of GDP by 33 to 35 per cent by 2030 from 2005 levels, to increase the share of non-fossil fuels based power generation capacity to 40 per cent of installed electric power capacity by 2030, and to create an additional (cumulative) carbon sink of 2.5–3 $GtCO_2e$ through additional forest and tree cover by 2030.

8.83 Currently, India's renewable energy sector is undergoing transformation with a target of 175 GW of renewable energy capacity to be reached by 2022. In order to achieve the target, the major programmes/ schemes on implementation of Solar Park, Solar Defence Scheme, Solar scheme for

Central Public Sector Undertakings, Solar photovoltaic (SPV) power plants on Canal Bank and Canal Tops, Solar Pump, Solar Rooftop, etc. have been launched in recent years. A capacity addition of 14.30 GW of renewable energy has been reported during the last two and half years under Grid Connected Renewable Power, which include 5.8 GW from Solar Power, 7.04 GW from Wind Power, 0.53 GW from Small Hydro Power and 0.93 GW from Bio-power. As a result of various actions in the right direction, India attained 4th position in global wind power installed capacity after China, USA and Germany. As on 31st October 2016, India achieved 46.3 GW grid-interactive power capacity; 7.5 GW of grid-connected power generation capacity in renewable energy; and small hydro power capacity of 4.3 GW. In addition, 92305 Solar Pumps were installed and Rs.38,000 crore worth of Green Energy Corridor is being set up to ensure evacuation of renewable energy.

8.84 In January 2016, Government has amended the National Tariff Policy for electricity. The Tariff Policy amendment has a focus on the environmental aspect with provisions such as 1) Renewable Purchase Obligation in which 8 per cent of electricity consumption excluding hydro power shall come from solar energy by March 2022; 2) Renewable Generation Obligation in which new coal/lignite based thermal plants after specified date to also establish/procure/purchase renewable capacity; 3) bundling of renewable power with power from plants whose Power Purchase Agreements have expired or completed their useful life; 4) no inter-state transmission charges for solar and wind power; 5) procurement of 100 per cent power produced from waste-to-energy plants; 6) ancillary services to support grid operation for expansion of renewable energy, etc.

8.85 With India's initiative, International Solar Alliance (ISA) was launched, which is envisaged as a coalition of solar resource-rich countries to address their special energy needs and will provide a platform to collaborate on addressing the identified gaps through a common, agreed approach. 24 countries have signed the Framework Agreement of ISA after it was opened for signature on November 15, 2016. ISA is expected to become inter-governmental treaty-based organization that will be registered under Article 102 of the UN charter after 15 countries ratify the Agreement. With legal framework in place, ISA will be a major international body headquartered in India.

8.86 Government of India has established the National Adaptation Fund for Climate Change to assist States and Union Territories to undertake projects and actions for adaptation to climate change. Rs. 182.3 crore has been released for 18 projects for sectors including agriculture and animal husbandry, water resources, coastal areas, biodiversity and ecosystem services.

8.87 India is also one of the few countries in the world to impose a tax on coal. This coal cess which has been renamed as "Clean Environment Cess" in the Union Budget 2016-17 funds the National Clean Environment Fund (NCEF). The Clean Environment Cess has been doubled in the 2016-17 budget from Rs. 200 per tonne to Rs. 400 per tonne. The proceeds of the NCEF are being used to finance projects under Green Energy Corridor for boosting up the transmission sector, Namami Gange, Green India Mission, Jawaharlal Nehru National Solar Mission, installation of SPV lights and small capacity lights, installation of SPV water pumping systems, SPV Power Plants and Grid Connected Rooftop SPV Power Plants.

A1. Summary of Balance of Payments (US $ billion)

	2012-13	2013-14	2014-15	2015-16	2015-16	2016-17
	(April-March)				H1	H1
Exports, f.o.b	306.6	318.6	316.5	266.4	135.6	134.0
Imports, c.i.f	502.2	466.2	461.5	396.4	206.9	183.5
Trade balance	-195.7	-147.6	-144.9	-130.1	-71.3	-49.5
Services exports	145.7	151.8	158.1	154.3	77.0	80.1
Services imports	80.8	78.7	81.6	84.6	41.4	48.0
Net services	64.9	73.1	76.5	69.7	35.6	32.0
Income (net)	-21.5	-23.0	-24.1	-24.4	-11.3	-14.1
Pvt. transfers (net)	64.3	65.5	66.3	63.1	32.7	28.2
Official transfers (net)	-0.3	-0.2	-0.6	-0.5	-0.3	-0.4
Invisibles (net)	107.5	115.2	118.1	107.9	56.7	45.7
Current Account Balance	-88.2	-32.4	-26.9	-22.2	-14.7	-3.7
Capital Account						
External Assistance (net)	1.0	1.0	1.7	1.5	0.2	0.5
Commercial Borrowings (net)	8.5	11.8	1.6	-4.5	-1.3	-4.6
Foreign Investment (net)	46.7	26.4	73.5	31.9	13.0	29.4
FDI (net)	19.8	21.6	31.3	36.0	16.5	21.3
Inflows	39.8	43.6	51.8	59.9	26.8	38.3
Outflows	20.0	22.0	20.5	23.9	10.3	17.0
Portfolio (net)	26.9	4.8	42.2	-4.1	-3.5	8.2
FII (net)	27.6	5.0	40.9	-4.0	-3.8	7.9
Non-Resident Deposits (net)	14.8	38.9	14.1	16.1	10.1	3.5
Rupee Debt Service	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Other capital flows (net)	21.0	-30.1	-2.5	-4.8	3.3	-9.5
Short-Term Credits (net)	21.7	-5.0	-0.1	-1.6	-2.5	-0.5
Banking Capital (net)	16.6	25.4	11.6	10.6	18.3	-6.8
Errors & Omissions	2.7	-1.0	-1.0	-1.1	-1.5	-0.6
Others (net)	-19.9	-49.7	-13.0	-12.7	-11.0	-1.6
Total Capital/ Finance A/C (Net)	92.0	47.9	88.3	40.1	25.3	19.2
Reserve Movement (- increase) and (+ decrease)	-3.8	-15.5	-61.4	-17.9	-10.6	-15.5
Trade balance/GDP(per cent)	-10.7	-7.9	-7.1	-6.3	-7.1	-4.6
Invisible Balance/GDP (per cent)	5.9	6.2	5.8	5.2	5.7	4.3
Current Account Balance/GDP (per cent)	-4.8	-1.7	-1.3	-1.1	-1.5	-0.3
Net Capital Flows/GDP (per cent)	5.0	2.6	4.3	1.9	2.5	1.8

Source: **RBI**

A2. Area coverage under select Kharif crops as on 14th October 2016

S.No	Crops	Area Sown (in lakh hectares)		% change over last year
		2016-17	**2015-16**	**2015-16**
1.	Rice	391.24	381.09	2.66
2.	Pulses	146.24	113.21	29.18
	a. Arhar	52.81	37.66	40.24
	b. Uradbean	35.68	28.51	25.15
	c. Moongbean	34.11	25.63	33.08
3.	Coarse cereals	190.50	185.83	2.52
	a. Jowar	19.59	19.88	-1.48
	b. Bajra	70.43	70.50	-0.10
	c. Ragi	10.40	11.69	-11.01
	d. Kharif Maize	84.43	77.91	8.37
4.	Oilseeds	190.31	185.19	2.77
	a. Groundnut	47.07	36.79	27.95
	b. Soyabean	114.78	116.29	-1.29
	c. Sunflower	1.69	1.50	12.41
5.	Sugarcane	46.13	49.61	-7.01
6.	Jute & Mesta	7.59	7.73	-1.86
7.	Cotton	103.69	117.09	-11.44
	Total	**1075.71**	**1039.74**	**3.46**

Source: **Directorate of Economics & Statistics, Department of Agriculture, Cooperation & Farmers Welfare.**

A3. Incentivizing Pulses Production: Summary of Recommendations

Policy	Timing
1. MSP and Procurement	
a. Government procurement machinery should be on high gear to ensure the procurement of 29 Kharif pulses at this season's announced MSP	Immediate
b. To ensure effective procurement, a High Level Committee comprising Ministers of Finance, Agriculture, and Consumer Affairs and Principal Secretary to PM should be constituted. There should be weekly reporting by procurement agencies on the ground with physical verification of procurement	Immediate
c. Build up 2 million tons of pulses stock with targets for individual pulses, especially tur (3.5 lakh tonnes) and urad (2 lakh tonnes). These should be built up gradually but opportunistically, buying when prices are low.	Immediate
d. MSP to be increased to Rs. 70/kg in 2018 when short duration Kharif tur is ready for commercialization. Efforts to be made to give production subsidies to farmers for growing pulses in irrigated areas of about Rs. 10-15 per kg to be given via DBT.	Kharif 2018 but planning to begin soon
e. Instruct CACP to comprehensively review its MSP-setting framework to incorporate risk and social externalities along the lines done in this report	Immediate
2. Other Price Management Policies	
a. Eliminate export ban on pulses and stock limits; at the very least limits on wholesalers should be eliminated. The greater the limits on procurement by the government, the greater the urgency to take these actions to ensure that market prices stabilize above the MSP. The worst case scenario for farmers is weak procurement and stock limits which force farmers to sell most of their output at market prices that are well below MSP. More generally, the use of trade policy to control domestic prices, which induces policy volatility, should be avoided.	Immediate
b. Encourage states to delist pulses from their APMCs	Immediate
c. Review Essential Commodities Act, 1955 and futures trading of agricultural commodities with a view to preserving objectives but finding more effective and less costly instruments for achieving them	As appropriate
3. Institutions for procurement-stocking-disposal	
a. Create a new institution as a Public Private Partnership (PPP) to compete with and complement existing institutions to procure stock and dispose pulses.	Preparation to start immediately with aim of implementation by rabi 2016. Cabinet note to be ready within 4 weeks.
b. Announce clear rules for disposal of stocks.	
4. Minimizing Adverse Impacts	
a. Encourage development of GM technologies. Grant expeditious approval to indigenously developed new varieties of pulses	As appropriate

A4. Minimum Support Prices (Crop Year) of Major Crops (Rs./Quintal)

Commodity	2015-16	2016-17
Kharif Crops		
Paddy (Common)	1410	1470
Paddy (Grade 'A')	1450	1510
Jowar (Hybrid)	1570	1625
Jowar (Maldandi)	1590	1650
Bajra	1275	1330
Ragi	1650	1725
Maize	1325	1365
Tur (Arhar)	4625^	5050*
Moong	4850^	5225*
Urad	4625^	5000*
Groundnut	4030	4220$
Sunflower Seed	3800	3950$
Soyabean (Yellow)	2600	2775$
Sesamum	4700	5000#
Nigerseed	3650	3825$
Cotton		
(Medium Staple)	3800	3860
Cotton		
(Long Staple)	4100	4160
Rabi Crops		
Wheat	1525	1625
Barley	1225	1325
Gram	3425^^	4000**
Lentil (Masur)	3325^^	3950##
Rapeseed/Mustard	3350	3700**

Source: **Commission for Agricultural Costs and Prices (CACP).**

Notes: Figures in brackets indicate percentage increase. ^ : Included Bonus Rs. 200 per quintal, * : Including Bonus Rs. 425 per quintal, $: Including Bonus Rs. 100 per quintal, # : Including Bonus Rs. 200 per quintal, ^^ : Additional bonus Rs. 75 per quintal, ** : Including bonus of Rs. 200 per quintal, ## : Including bonus of Rs. 100 per quintal.

Universal Basic Income: A Conversation With and Within the Mahatma

"I will give you a talisman. Whenever you are in doubt, or when the self becomes too much with you, apply the following test. Recall the face of the poorest and the weakest man [woman] whom you may have seen, and ask yourself, if the step you contemplate is going to be of any use to him [her]. Will he [she] gain anything by it? Will it restore him [her] to a control over his [her] own life and destiny? In other words, will it lead to swaraj [freedom] for the hungry and spiritually starving millions? Then you will find your doubts and your self melt away."

— Mahatma Gandhi

"My ahimsa would not tolerate the idea of giving a free meal to a healthy person who has not worked for it in some honest way, and if I had the power I would stop every Sadavarta where free meals are given. It has degraded the nation and it has encouraged laziness, idleness, hypocrisy and even crime. Such misplaced charity adds nothing to the wealth of the country, whether material or spiritual, and gives a false sense of meritoriousness to the donor. How nice and wise it would be if the donor were to open institutions where they would give meals under healthy, clean surroundings to men and women who would work for them…only the rule should be: no labour, no meal."

— Mahatma Gandhi

"Wiping every tear from every eye" based on the principles of universality, unconditionality, and agency—the hallmarks of a Universal Basic Income (UBI)—is a conceptually appealing idea. A number of implementation challenges lie ahead, especially the risk that UBI would become an add-on to, rather than a replacement of, current anti-poverty and social programs, which would make it fiscally unaffordable. But given their multiplicity, costs, and questionable effectiveness, and the real opportunities afforded by the rapidly improving "JAM" infrastructure, UBI holds the prospects of improving upon the status quo. This chapter provides some illustrative costs for a UBI (varying between 4 percent and 5 percent of GDP), and outlines a number of ideas to take UBI forward, highlighting the practical difficulties. UBI's appeal to both ends of the political spectrum makes it an idea whose time has come perhaps not for immediate implementation but at least for serious public deliberation. The Mahatma would have been conflicted by the idea but, on balance, might have endorsed it.

I. INTRODUCTION

9.1 Despite making remarkable progress in bringing down poverty from about 70 percent at independence to about 22 percent in 2011-12 (Tendulkar Committee), it can safely be said that "wiping every tear from every eye" is about a lot more than being able to imbibe a few calories. And the Mahatma understood that better, deeper, and earlier than all the Marxists, market messiahs, materialists and behaviouralists. He intuited that it is also about dignity, invulnerability, self-control and freedom, and mental and psychological unburdening. From that perspective, Nehru's exhortation that "so long as there are tears and suffering, so long our work will not be over" is very much true nearly 70 years after independence.

9.2 Today, a radical option to realise Gandhiji's objective presents itself and has entered the policy consciousness in India and around the world: Universal Basic Income, UBI for short. UBI has three components: universality, unconditionality, and agency (by providing support in the form of cash transfers to respect, not dictate, recipients' choices). As the above two quotes suggest Gandhiji would have been conflicted by it. This chapter examines UBI in the form of a conversation with the Mahatma, and indeed a conversation that the Mahatma would have had with himself had such a proposal been put to him.

II. THE CONCEPTUAL/PHILOSOPHICAL CASE FOR UBI

9.3 Universal Basic Income is a radical and compelling paradigm shift in thinking about both social justice and a productive economy. It could be to the twenty first century what civil and political rights were to the twentieth. It is premised on the idea that a just society needs to guarantee to each individual a minimum income which they can count on, and which provides the necessary material foundation for a life with access to basic goods and a life of dignity. A universal basic income is, like many rights, unconditional and universal: it requires that every person should have a right to a basic income to cover their needs, just by virtue of being citizens. The time has come to think of UBI for a number of reasons:

Social Justice: UBI is, first and foremost, a test of a just and non-exploitative society. From Tom Paine to John Rawls, nearly every theory of justice has argued that a society that fails to guarantee a decent minimum income to all citizens will fail the test of justice. It should be evident to anyone that no society can be just or stable if it does not give all members of the society a stake.

A Universal Basic Income promotes many of the basic values of a society which respects all individuals as free and equal. It promotes liberty because it is anti-paternalistic, opens up the possibility of flexibility in labour markets. It promotes equality by reducing poverty. It promotes efficiency by reducing waste in government transfers. And it could, under some circumstances, even promote greater productivity. It is not an accident that Universal Basic Income has been embraced both by thinkers of the Left and of the Right.

Poverty Reduction: Conditional on the presence of a well-functioning financial system, a Universal Basic Income may simply be the fastest way of reducing poverty. UBI is also, paradoxically, more feasible in a country like India, where it can be pegged at relatively low levels of income but still yield immense welfare gains.

Agency: The poor in India have been treated as objects of government policy. Our current welfare system, even when well intentioned, inflicts an indignity upon the poor by assuming that they cannot take economic decisions relevant to their lives. An unconditional cash transfer treats them as agents, not

subjects. A UBI is also practically useful. The circumstances that keep individuals trapped in poverty are varied; the risks they face and the shocks they face also vary. The state is not in the best position to determine which risks should be mitigated and how priorities are to be set. UBI liberates citizens from paternalistic and clientelistic relationships with the state. By taking the individual and not the household as the unit of beneficiary, UBI can also enhance agency, especially of women within households.

Employment: UBI is an acknowledgement that society's obligation to guarantee a minimum living standard is even more urgent in an era of uncertain employment generation[1]. Moreover, UBI could also open up new possibilities for labour markets. It creates flexibility by allowing for individuals to have partial or calibrated engagements with the labour market without fear of losing benefits. They allow for more non-exploitative bargaining since individuals will no longer be forced to accept any working conditions, just so that they can subsist.

Administrative Efficiency: In India in particular, the case for UBI has been enhanced because of the weakness of existing welfare schemes which are riddled with misallocation, leakages and exclusion of the poor. When the trinity of Jan-Dhan, Aadhaar and Mobile (popularly referred to as JAM) is fully adopted the time would be ripe for a mode of delivery that is administratively more efficient. The administrative argument however has to be made with some care. While Aadhar is designed to solve the identification problem, it cannot, on its own, solve the targeting problem. It is important to recognise that universal basic income will not diminish the need to build state capacity: the state will still have to enhance its capacities to provide a whole range of public goods. UBI is not a substitute for state capacity: it is a way of ensuring that state welfare transfers are more efficient so that the state can concentrate on other public goods.

III.   THE CONCEPTUAL CASE AGAINST UBI

9.4   From an economic point of view there are three principal and related objections to a universal basic income. The first is whether UBI reduces the incentive to work – a worldview encapsulated in the quote by Gandhiji above; critics conjure up images of potential workers frittering away their productivity. This argument is vastly exaggerated (more evidence in Section I). For one thing, the levels at which universal basic income are likely to be pegged are going to be minimal guarantees at best; they are unlikely to crowd incentives to work. One school of thought would argue that it truly is a diminution of human dignity to suppose that the only motivation for which people work is necessity; take away the yoke of necessity and they will be lazy. The same kinds of arguments used to be made against high wages: that if wages rise beyond a certain level workers will choose leisure over work. There is very little evidence to sustain that proposition[2].

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[1]   Traditionally income and employment have been aligned in most societies; even welfare benefits were stop gap arrangements on pathways to employment. A few aberrations apart, unemployment is no longer a consequence of lack of individual effort. All societies must aim for full employment. But in an era where collective arrangements are not able to guarantee the availability of jobs, it is imperative that the alignment of income and employment be loosened somewhat. In the twenty first century it may no longer be possible to guarantee social security or minimum support by linking it to employment.

[2]   Moreover, it could be argued that, the incentive to productive work is liberated only when individuals are not hostage to necessity. One could imagine a more genuinely productive and creative society if work was not associated with the exploitation that comes with necessity.

9.5   The second concern is this: Should income be detached from employment? The honest economic answer to this concern is that society already does this, but largely for the rich and privileged. Any society where any form of inheritance or accepting non-work related income is allowed, already detaches income from employment. So, receiving a small unearned income as it were, from the state should be economically and morally less problematic than the panoply of "unearned" income our societies allow.

9.6   The third is a concern out of reciprocity. If society is indeed a "scheme of social cooperation", should income be unconditional, with no regard to people's contribution to society? The short answer is that individuals as a matter of fact will in most cases contribute to society, as stated above. In fact, UBI can also be a way of acknowledging non-wage work related contributions to society[3]. In the current social structure, for example, homemaking contributions of women are largely unacknowledged economically, since they do not take the form of wage or contract employment. It is important that UBI is not framed as a transfer payment from the rich to the poor. Its basis is rather different. UBI gives concrete expression to the idea that we have a right to a minimum income, merely by virtue of being citizens. It is the acknowledgment of the economy as a common project. This right requires that the basic economic structure be configured in a way that every individual gets basic income.

9.7   All these arguments require that UBI be indeed universal[4], unconditional, and involve direct transfers.

9.8   Table 1 lays out succinctly the arguments – conceptual and practical – in favour of and against UBI. In what follows, evidence will be presented on some—not all—of the arguments mentioned above. One begins with the most compelling evidence for universalization, by furnishing numbers on the effectiveness of targeting of current programs. A discussion on the implication for financial inclusion follows. Subsequently, illustrative costs of a UBI are calculated. The chapter concludes by providing potential ideas for taking the idea forward, keeping in mind the two big challenges of costs and a political economy that impedes the phasing down of existing programs.

IV.   Why Universalize?

9.9   The starting point for any UBI must be the status quo. How are existing programs faring in helping the poorest?

Table 1. Arguments in Favour and Against UBI

Favor	Against
Poverty and vulnerability reduction	**Conspicuous spending**
Poverty and vulnerability will be reduced in one fell swoop.	Households, especially male members, may spend this additional income on wasteful activities.
Choice	**Moral hazard (reduction in labour supply)**
A UBI treats beneficiaries as agents and entrusts citizens with the responsibility of using welfare spending as they see best; this may not be the case with in-kind transfers.	A minimum guaranteed income might make people lazy and opt out of the labour market.

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[3]   The Former Greek Finance Minister Yannis Varoufakis argues that since wealth in society is always produced collectively, a UBI must be financed not from taxation but as a share of society's capital (Project Syndicate, 2016).

[4]   Or, as we argue later, at the very least – quasi-universal, covering most households.

Better targeting of poor	**Gender disparity induced by cash**
As all individuals are targeted, exclusion error (poor being left out) is zero though inclusion error (rich gaining access to the scheme) is 60 percent[5].	Gender norms may regulate the sharing of UBI within a household – men are likely to exercise control over spending of the UBI. This may not always be the case with other in-kind transfers.
Insurance against shocks	**Implementation**
This income floor will provide a safety net against health, income and other shocks.	Given the current status of financial access among the poor, a UBI may put too much stress on the banking system.
Improvement in financial inclusion	**Fiscal cost given political economy of exit**
Payment – transfers will encourage greater usage of bank accounts, leading to higher profits for banking correspondents (BC) and an endogenous improvement in financial inclusion. Credit – increased income will release the constraints on access to credit for those with low income levels.	Once introduced, it may become difficult for the government to wind up a UBI in case of failure.
Psychological benefits	**Political economy of universality – ideas for self-exclusion**
A guaranteed income will reduce the pressures of finding a basic living on a daily basis.	Opposition may arise from the provision of the transfer to rich individuals as it might seem to trump the idea of equity and state welfare for the poor.
Administrative efficiency	**Exposure to market risks (cash vs. food)**
A UBI in place of a plethora of separate government schemes will reduce the administrative burden on the state.	Unlike food subsidies that are not subject to fluctuating market prices, a cash transfer's purchasing power may severely be curtailed by market fluctuations.

Figure 1. Centrally Sponsored and Central Sector Sub-schemes by Budget Allocation, 5.2% of GDP (2016-17)
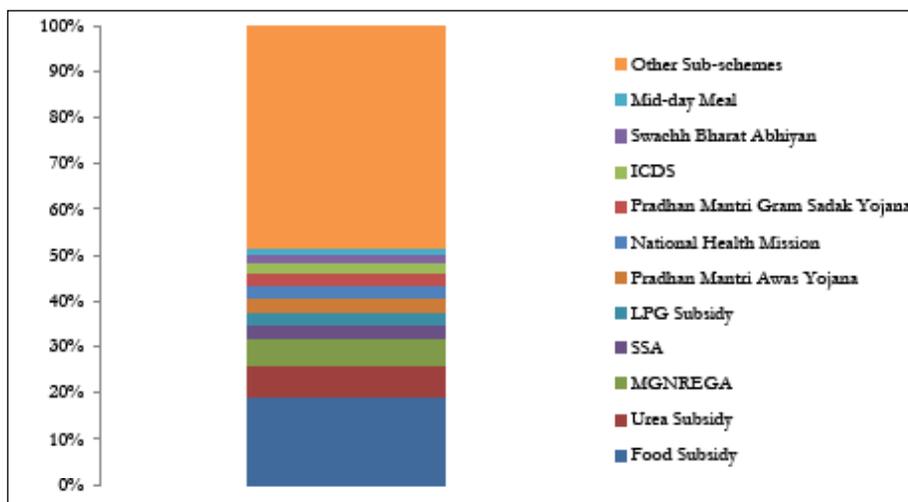
Source: **Budget 2016-17**

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[5]   Later in the chapter, we define the poor as constituting the bottom 40 percent (in terms of consumption expenditure) of the population. Since a UBI is universal, the top 60 percent of the population will also gain access to the UBI, which, in turn, makes the inclusion error at 60 percent.

9.10 The first striking fact is the sheer number of schemes and programs run by the government. The Budget for 2016-17 indicates that there are about 950 central sector and centrally sponsored sub-schemes in India accounting for about 5 percent of the GDP by budget allocation (Figure 1). A large majority of these are small in terms of allocation with the top 11 schemes accounting for about 50 percent of total budgetary allocation. As is seen in Figure 1, Food Subsidy or Public Distribution System (PDS) is the largest programme followed by Urea Subsidy and the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). The other programs include Crop Insurance, Student Scholarships, National Handloom Development Programme etc. One must acknowledge though that many of these schemes have diverse benefits beyond immediate poverty reduction – for instance, student scholarships have inter-generational consequences for individuals.

9.11 If the states were included, the number of schemes would be orders of magnitude larger. Moreover, schemes persist. Last year's Survey documented that most of the central sector schemes were ongoing for at least 15 years and 50 percent of them were over 25 years old.[6]

9.12 Even leaving aside their effectiveness, considerable gains could be achieved in terms of bureaucratic costs and time by replacing many of these schemes with a UBI.

9.13 But the most important question relates to the effectiveness of existing programme in helping the poorest. Here, this chapter provides some new evidence.

9.14 Consider the largest 7 central welfare schemes, PDS – food & kerosene, MGNREGS,

the Sarva Shiksha Abhiyaan (SSA), the Mid Day Meal (MDM) scheme, the Pradhan Mantri Gram Sadak Yojana (PMGSY), the Pradhan Mantri Awas Yojana (PMAY) and the Swachh Bharat Mission (SBM). Using program administrative data (2015-16) and data available from household level surveys (National Sample Survey, NSS and India Human Development Survey, IHDS) for 2005-06 and 2011-12, estimates of the targeting efficiency of programmes are provided.

A   Misallocation of resources across districts

9.15 Consider the evidence on misallocation of the government's resources. Misallocation captures the fact that the poorest areas of the country often obtain a lower share of government resources when compared to their richer counterparts.

9.16 The two graphs below provide new evidence on the extent of misallocation across districts for the six top welfare programs - the PMAY, SSA, MDM, PMGSY, MGNREGS and SBM. Figure 2a is a heat map that conveys the share of the overall poor living in each district for 2011-12: the darker the shade of red, the greater the number of poor in the district. Figure 2b plots, for each district, the shortfall between the share of the overall spending on the top six schemes (2015-16 data) and the share of the overall poor (i.e. Difference = Share of overall spending – share of overall poor). The difference is a measure of misallocation: ideally, the difference should be zero – a district with 20 per cent of the overall poor should have 20 per cent of the total spending (yellow-coloured districts in the figure 2b). A positive difference (indicated in green) indicates that a district receives a greater share of resources than its

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[6]   There is scheme that is 96 years old called 'Livestock Health & Disease Control' under the Department of Animal Husbandry, Dairying and Fisheries. In the Union Budget 2015-16, it was allocated INR 251 crores.

Figure 2a. Share of Poor across districts
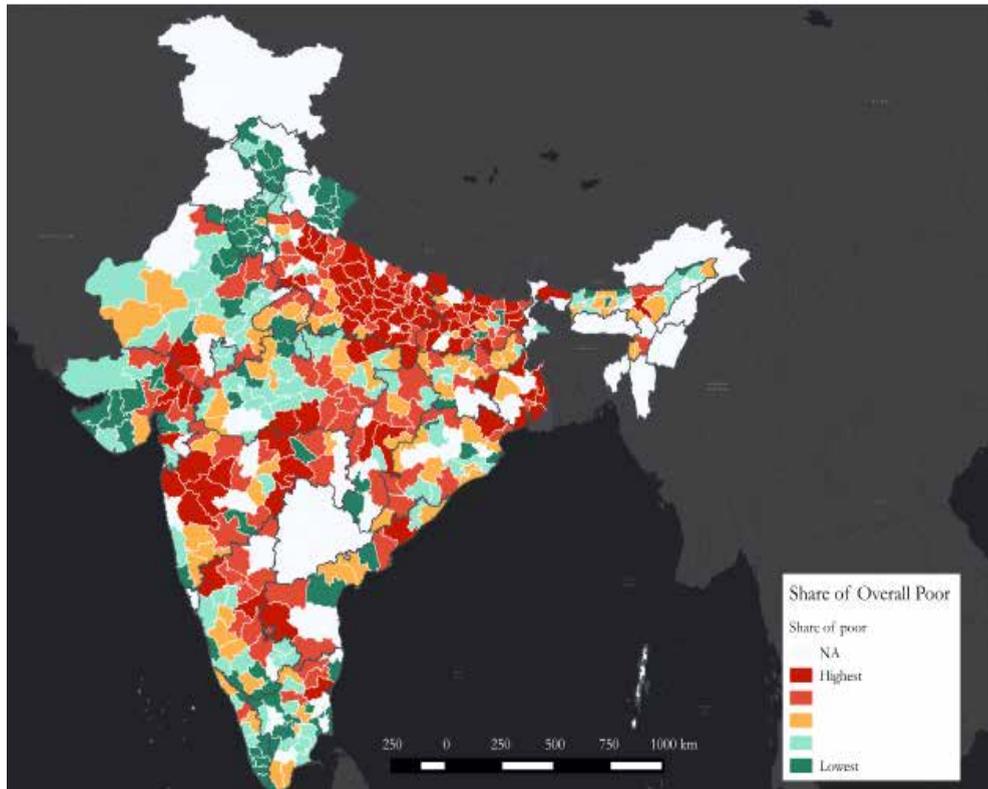
Figure 2b. Misallocation - Shortfall in Allocation to Poor
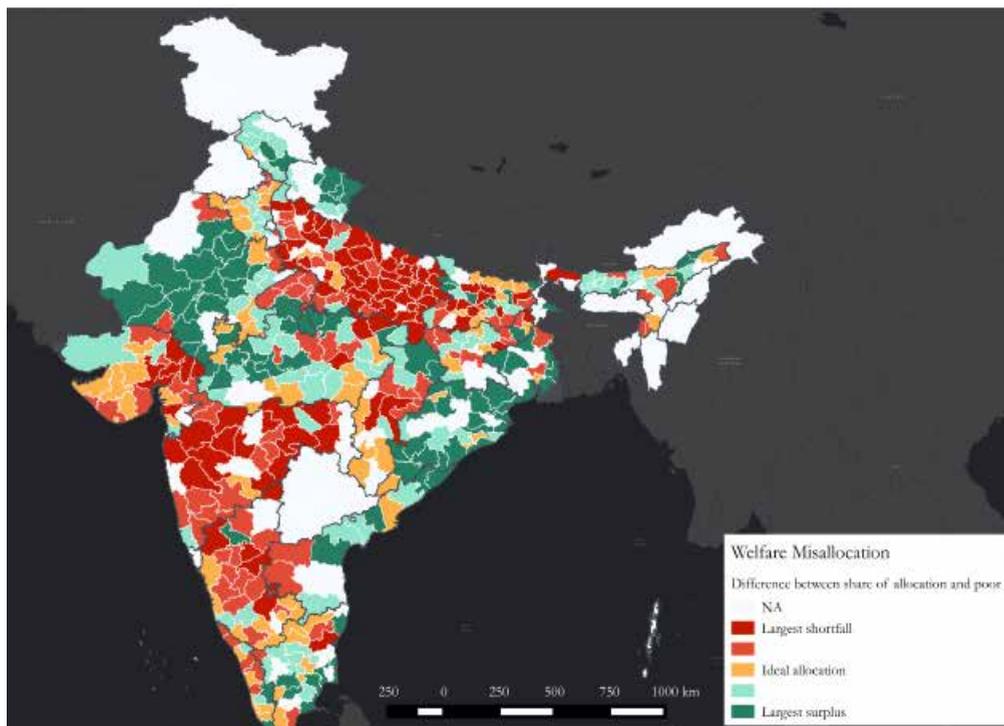
Figure 2c. Share of Budget Allocation of Backward Districts accounting for 40 percent of Total Poor (2015-16)
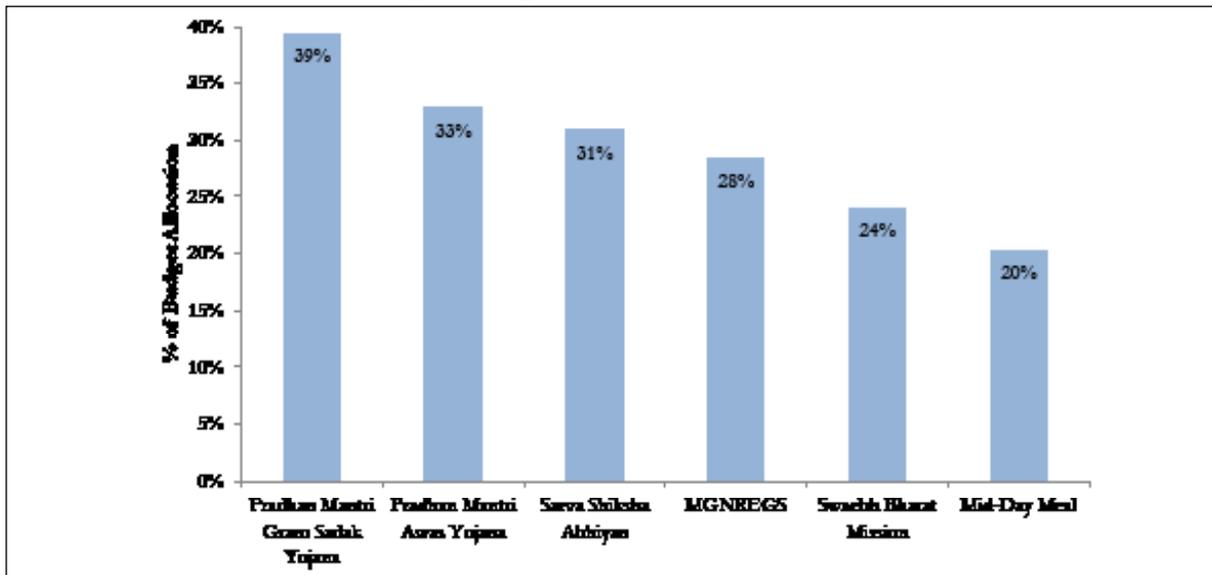
Source: **Program Administrative data,** *Survey* **Calculations**

actual share of poor. A negative difference, on the other hand, implies inadequate spending on the poor in districts. Again, the darker the shade of red, the more negative is this difference. What is striking about the two figures is that, in many cases, the poorest districts are the ones grappling with inadequate funds – this is evidence of acute misallocation. Many districts in Uttar Pradesh, Bihar, Chhattisgarh, parts of Jharkhand, eastern Maharashtra, Madhya Pradesh and Karnataka, among others, account for a large share of the poor and receive a less-than-equal share of resources (across the two maps, these districts are consistently red). Some parts of Orissa and Rajasthan, on the other hand, comprise a large share of the poor, but receive more-than-proportional share of the spending on top six schemes.[7]

9.17 To quantify the intuition on misallocation provided above, we define a metric of misallocation which is the proportion of state's funds allocated to the backward districts–these are districts that have the highest proportion of poor and which together account for 40 percent of the poor. Figure 2c charts the allocation of funds in 2015-16 to the backward districts under the same set of schemes. As can be seen, the allocations are regressive: under no scheme do these poorest districts receive 40 percent of the total resources – in fact, for the MDM and SBM, the share is under 25 percent (Appendix 1 charts a pair of heat-maps that further emphasise this point: it contrasts head-count-ratios and spending per poor across districts; it also provides detailed charts on misallocation across individual schemes).

9.18 One major explanation for misallocation is state capacity – resources

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[7]   The colours map ordinal rankings (quantiles) of the share of poor and the difference between the share of allocation and the share of poor. The share of each district's poor in overall poor is calculated using NSS 2011-12. The NSS is not representative at the district level, but it is felt that while the absolute magnitudes of district-level consumption may be different from the true means, the ordinal rankings may not be that different from a representative dataset. The heat-map comprises 434 districts – the data for the remaining districts was unavailable.

Box 1. A BRIEF HISTORY OF TARGETING
An immediate and intuitively appealing solution to the fiscal costs of UBI is to make it a targeted basic income scheme, attempting to guarantee a basic income to only the poor and the deserving. However, India's record of targeting welfare programmes to the poor has been suspect. Targeting commenced with the drawing up of lists of poor based on self-reported income in 1992 with subsequent survey rounds done with different – and more multi-dimensional – identification criteria in 1997 and 2002. Even the 2002 list of criteria for identifying BPL households, considered to be more rigorous than either of the previous rounds of surveys came under criticism from many sides. Studies – and government audits – showed data manipulation and corruption, with the crowding out of the poor and the truly deserving from BPL card ownership and leakages to the rich. Targeting was both inefficient and inequitable, a license to fraud that spawned an entire ecosystem of middlemen and petty abuse. Recognizing this, the government of the day attempted to measure poverty using an easily identifiable list of criteria and a simple scoring methodology through the Socio-Economic Caste Census (2011). Simultaneously, acknowledging the inherent problems with targeting, individual states- like Tamil Nadu and Chhattisgarh - universalized access to the PDS and a few other government schemes. The National Food Security Act (2013), in a clear break away from targeting to a minority of the population, mandated access to the PDS to nearly 70 percent of all households, choosing to exclude only the identifiably well-off. This gradual move towards greater inclusion error in order to avoid exclusion issues is directly in line with Gandhiji's talisman – the poorest are the ones who benefit the most from such a move. There is some empirical evidence to back this: Himanshu and Sen (2013) document a negative relationship between quantum of leakages and PDS coverage – in other words, the higher the coverage, the lower the leakages.

allocated to districts are often a function of the district's ability to spend them; richer districts have better administrative capacities to effectively implement schemes.

9.19   There have been some improvements in district-wise allocation for schemes in the recent past, perhaps reflecting improvements in state capacity. The share of budget allocation to the poorest districts has increased from 32 percent to 33 percent (3.1 percent increase) for the PMAY. Similar increases may have occured in other schemes.

B.   Consequences of Misallocation: Exclusion of genuine beneficiaries

9.20   Misallocation has repercussions for targeting of resources to the poor. A natural consequence of misallocation is what has been described in the literature as "exclusion error"– genuine poor find themselves unable to access programme benefits. If a state or a district with more poor is allocated very little resources, then it is almost certain that some deserving households would be excluded[9]. For instance, consider the states of Bihar, Madhya Pradesh, Rajasthan, Orissa and Uttar Pradesh: despite accounting for over half the poor in the country, these states access only a third of the resources spent on the MGNREGS[10] in 2015-16. This almost certainly implies that some deserving individuals are left out. An estimate of the exclusion error from 2011-12 suggests that 40 percent of the bottom 40 percent of the population are excluded from the PDS[11]. The corresponding figure for 2011-12 for MGNREGS was 65 percent (see Appendix 2 for detailed calculations of leakages for PDS and MGNREGS for 2011-12).

9.21   While substantial improvements in targeting efficiency are required from the 2011-12 levels, it may be useful here to

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[9]   Alternatively, this could imply that the per capita benefits is lower in these districts than other districts.

[10]   Technically speaking, there is no exclusion error under the MGNREGS, since it is universal. It is a self-targeted programme: at least on paper, the scheme is demand-driven and anybody willing to work on the scheme for the wage prescribed is, as per law, allowed to avail themselves of up to 100 days of work.

[11]   This is the weighted average of the exclusion errors for rice, wheat and kerosene.

Box 2. Improvements in MGNREGS since 2014-15

The MGNREGS program has evolved over the last two years to increase its focus on creation of durable assets, diversification of livelihood opportunities, selection of public works in congruence with other infrastructure programs such as PMGSY and PMAY-Grameen and a greater thrust on natural resource management and agriculture & allied activities. This is expected to improve farmers' income and enlarge their wage opportunities.

The programme is self-targeted. Often those who belong to deprived households and depend on casual labour are beneficiaries. The program also provides a higher number of days of employment (150 days instead of 100 days) in drought affected areas.

Technological and programmatic improvements have been made in the last two years:

- MGNREGS job cards for 10.9 crore active workers was digitalized, of which 8.7 crore workers had their job-cards seeded with Aadhaar

- 4 crore workers were brought into the Aadhaar payment bridge

- Nearly 39 lakh MGNREGS assets were geotagged since September 2016. These were provided publicly to improve accountability and transparency

- 95 percent of MGNREGS wages were paid into beneficiary accounts, thereby, reducing scope for out-of-system leakage of wage payments

- About 68 percent of active job cards were also verified and updated

As a result, the number of completed works has increased from 25-30 lakhs (yearly average since inception) to 48 lakhs in the current year. 70 percent of these works is in Agriculture & Allied activities (an increase from 50 percent in 2013-14). Additionally participation of women in MGNREGS increased from 40 percent in 2006-2007 to 56 percent in 2016-17.

acknowledge the improvements made in tackling exclusion errors in two of India's largest social sector schemes, the PDS and MGNREGS. Box 1 summarizes evidence on the problems with targeting and the move towards expanding the PDS across states in the country. This is likely to have reduced exclusion error and even out of system leakages. Himanshu and Sen (2013) estimate that leakages in the PDS has reduced from 54 percent to 34.6 percent - a drop of nearly 20 percentage points in seven years (from 2004 to 2011). Linearly extrapolating to 2016, out of system leakage for the PDS overall could have reduced further to 20.8 percent[12]. Even this figure may be an underestimate since it does not account for improvements in

technology and expansion of coverage that have occurred in the past five years. Some surveys show that the share of PDS subsidy received by the bottom 40 percent may have increased significantly since 2011-12. A 3600 household survey across six states[13] in India estimated the average percentage of PDS foodgrains received by beneficiaries (as a percentage of entitlements) at 92 percent for 2016[14].

9.22 Similarly, the MGNREGS has changed considerably in the recent past. Box 2 summarizes the improvements in monitoring technology, asset creation and job provision that has occurred in the scheme over the past 2 years.

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[12] This figure somewhat resembles the leakages estimate from a survey done across 10 states (20 %) in 2013 (PEEP survey, 2013).

[13] (Chattisgarh, Odisha, Bihar, Jharkhand, Madhya Pradesh and West Bengal)

[14] Dreze et al (2016).

V. How Can A UBI overcome These Issues?

9.23 *Misallocation to districts with less poor:* The UBI, by design, should effectively tackle issues related to misallocation. As envisaged in this chapter, a UBI will simply amount to a transfer of resources from above[15] and need not be "accessed" by beneficiaries[16]. The simplicity of the process cannot be overstated: beneficiaries are simply required to withdraw money from their accounts as and when they please, without having to jump through bureaucratic hoops. The simplicity of the process also implies that the success of a UBI hinges much less on local bureaucratic ability than do other schemes. In addition, by focusing on universality, UBI reduces the burden on the administration further by doing away with the tedious task of separating the poor from the non-poor.

9.24 *Out of system leakage:* Conceptually, a UBI reduces out of system leakage because transfers are directed straight to the beneficiaries' bank accounts. The scope for diversion is reduced considerably, since discretionary powers of authorities are eliminated almost wholly[17]. Furthermore, UBI's expanded coverage will likely impact out of system leakage since the state is answerable to a larger section of its citizens. Finally, given the fewer avenues for leakages, monitoring a UBI would be easier than many other schemes.

9.25 Last mile concerns remain, however. Beneficiaries still need to access their bank accounts, either at local bank or post office branches or through BCs. Section VII describes the last mile issues in detail. Eventually, the JAM system could be used to provide funds to each individual directly into his or her account (see Section X D for current penetration of Jan Dhan and Aadhaar seeded accounts).

9.26 *Exclusion error:* Given the link between misallocation and exclusion errors, a UBI that improves allocation of resources should mechanically bring down exclusion error. Furthermore, by virtue of being universal, exclusion errors under the UBI should be lower than existing targeted schemes (for reasons listed previously – see Box 1)[18].

VI. Insurance Against Risk And Psychological Benefits

9.27 Poor households (in fact even many of those above poverty) are often faced with idiosyncratic shocks such as bad health and job loss, and covariate or aggregate shocks such as natural disasters and political risk. A study finds that the poverty component of vulnerability (risk of sudden income/ consumption shortfalls) dominates the idiosyncratic and aggregate components (Swain and Floro 2008), contributing as much as 80 percent to total vulnerability. Jha, Nagarajan and Pradhan (2012) show that slightly more than 50 percent of rural households across India face one or more forms of shock, with the most prominent being aggregate shocks (crop loss, water borne diseases, loss of property, cyclones, drought, etc.). In their data, about 60 percent of individuals use personal savings to cope

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[15] More details on fiscal space and Center-State negotiations in Section X D

[16] A functional JAM system will provide direct benefits into the bank accounts of beneficiaries.

[17] There is some recent evidence showing the impact of direct transfers on reduced corruption in government schemes in India. See Banerjee et al (2016), Niehaus et al (2016).

[18] A UBI could result in a different set of causes for exclusion related to errors in authentication of individuals – see sectionIX.d for current status of Aadhaar authentication.

with these shocks. Government assistance comes a distant second with only close to 10 percent of individuals accessing it. The third most prominent option, at 6 percent, is borrowing from friends. In the face of such prominence of shocks, a guaranteed basic income can provide a basic form of insurance.

9.28 Additionally, there are potential psychological benefits to be made from having a UBI. The World Development Report (2015) argues that individuals living in poverty have (a) a preoccupation with daily hassles and this results in a depletion of cognitive resources required for important decisions; (b) low self-image that tends to blunt aspirations; (c) norms that may require investments in social capital to the detriment of private opportunities.

9.29 There is evidence for all of the above: Mani and others (2013) showed that pre-harvest cash-strapped sugarcane farmers in Tamil Nadu performed worse in a series of cognitive tests (including 10 points lower on an IQ test) than they did after harvest, when they were likely to have very little loans and were cash-rich. This finding is replicated in diverse settings by various authors.

9.30 A natural consequence of lower cognitive bandwidth is bad decision-making in the face of poverty, begetting more poverty. In fact, Haushofer and Shapiro (2015) study an unconditional cash transfer programme in Kenya and find that there is a significant increase in the psychological wellbeing of recipients measured in terms of happiness, life satisfaction and stress. An assured income could relieve mental space that was used to meet basic daily consumption needs to be used for other activities such as skill

acquisition, search for better jobs etc.

VII. IMPROVED FINANCIAL INCLUSION

A More profitable for Banks[19]

9.31 Calculations suggest that A UBI of INR 12000 per adult per yearis expected to reduce the average distance from the nearest business correspondents to 2.5 km from 4.5 km at about half the UBI amount. This effect is even larger since a UBI is targeted at all individuals, not only adults.

Figure 3. Distance to nearest banking access point
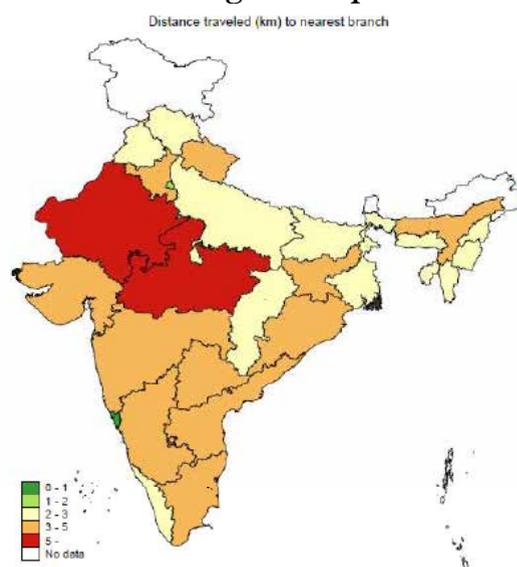
Source: **Financial Inclusion Insights 2015**

9.32 Financial inclusion in India has progressed substantially since the PradhanMantri Jan DhanYojana (PMJDY). According to Financial Inclusion Insights (FII – 2015),while ownership of bank accounts has increased to about 2/3rd of all adults in India, active use[20] has increased to about 40 percent. Geographically, most of the country has over 50 percent of adults owning banking accounts with Madhya

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[19] Based on inputs from the Gates Foundation.

[20] At least one transaction completed in the last 90 days

Pradesh, Chhattisgarh, Bihar and some Northeast states doing less well. In terms of active use, though, most states perform less well with a majority of them having less than 50 percent active accounts. Digging a little deeper, active use is higher amongst males, in urban areas and for those above the poverty line. We look at two constraints to active use: one, physical distance separating people from these bank branches; two, number of persons per bank.

Figure 4. Number of persons per bank (2016)
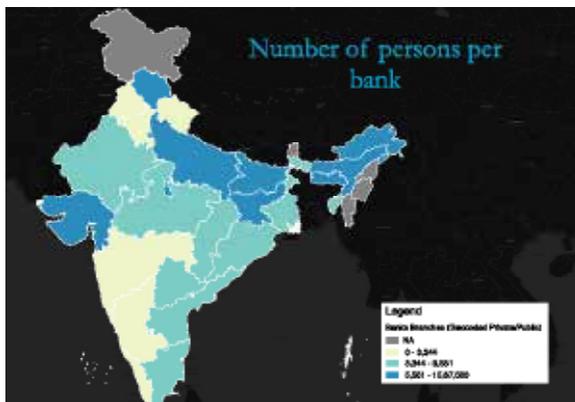
Source: **GOI**

9.33 Distance: Figure 3 shows that for 2015 in a majority of states people are 3-5 km away from any form of access point (bank branches, ATMs and BCs). Madhya Pradesh and Rajasthan have persons traveling over 5 km to access formal financial services. Surprisingly, the relatively poor states of UP and Bihar (in addition to Chhattisgarh) seem to be doing better than average – with people living closer to the banks. This could merely be a function of high population density, as the next paragraph explains.

9.34 Persons per bank: Figure 4 plots the number of persons per bank aggregated at the state level for the current year. The higher this number, the more the burden on the banking system – in other words, this number serves as an indicator of the size of the average bank's "catchment population".

Here, Madhya Pradesh, Assam, Arunachal Pradesh, Meghalaya, Himachal Pradesh, Andhra Pradesh, along with the densely populated states of UP and Bihar do worse than average.

Figure 5. Financial Inclusion, Transfer size and BC commission per capita
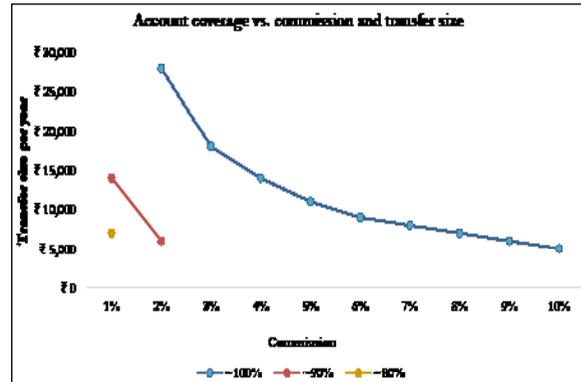
Source: **Gates Foundation Calculations**

9.35 Taken together, the two graphs point to the fact that despite tremendous improvements in banking coverage, there is still some way to go before financial access to all poor is achieved.

9.36 On the payments side, improving financial inclusion is both a demand and supply side challenge. While on the demand side, there is a need for behavioral change on the part of account holders so that they use their accounts more often, on the supply side, banks need to find it profitable to provide access to banking services. Increasingly, banks have been making use of BCs to provide last mile access to banking. A Taskforce on an Aadhaar-Enabled Unified Payment Infrastructure recommended increasing commissions to BCs in order to make them profitable. This profitability is highly dependent on the volume of transactions per BC, and one can model scenarios where a UBI can lead to increased financial inclusion through an increased number of transactions. A very plausible hypothesis is that as a UBI is provided to individuals, there will be an endogenous

increase in the volume of transactions and revenue from government transfers along with a corresponding decrease in per unit fixed costs, thereby increasing the profitability of BCs and expanding their coverage.

9.37 Figure 5 visually represents these scenarios: it can be seen that to achieve universal financial inclusion (access to a BC), transfers can be as low as INR 4800 per capita per year though commissions need to be high at 10 percent. A higher UBI would in turn require a lower commission. Equivalently, at 90 percent financial inclusion, an increase in transfer from INR 4800 per capita per yearto INR 12000 per capita per year can lead to a reduction in the distance between an account holder and the nearest BC from 4.5 km to 2.5 km. As can be seen, even at a commission level of 1 percent a higher UBI can dramatically improve financial inclusion.

B   Access to Formal Credit

9.38 A UBI can potentially also unlock credit constraints in the form of a higher income. Using recently released data for farmers from the Debt and Investment Survey (2013), it is evident that as one moves along the consumption spectrum, the proportion of farmers taking informal loans falls and formal loans take over (Figure 6). While the trend in proportion of farmers as well as average loan sizes is smooth across percentiles, the trend in median loan amounts shows a discontinuity at the 78th percentile – from median loans being zero till this level, there is sudden increase in median amounts for formal loans(Figure 7). Such a discontinuity implies that if everybody's consumptions could be increased to this level, there might be significant jump in access to formal credit.

9.39 Figure 8 builds a scenario chart of UBI amounts and probability that anybody below the 78th percentile (INR 90000 per household per year) will cross this threshold as a result of UBI. It shows that as the UBI amount increases the probability of

Figure 6. Rise of Formal Banking with Expenditure
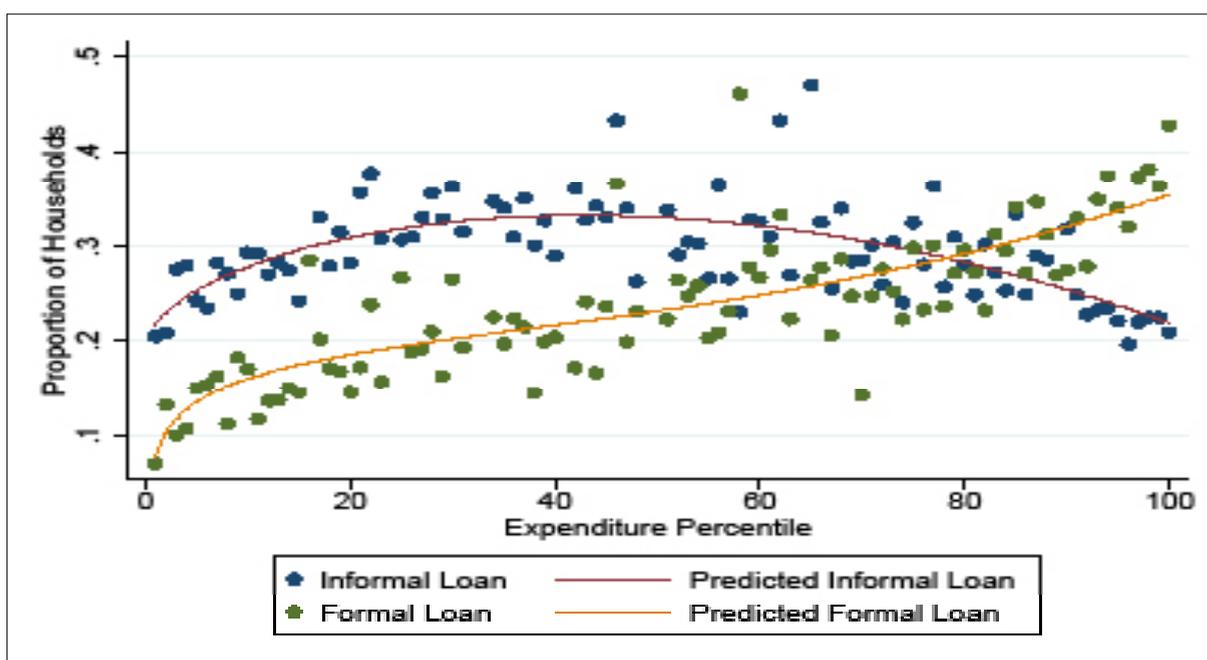
Source: **Debt and Investment Survey, NSS 2012-13,** *Survey* **Calculations**

Figure 7. Median loan amount by expenditure percentiles
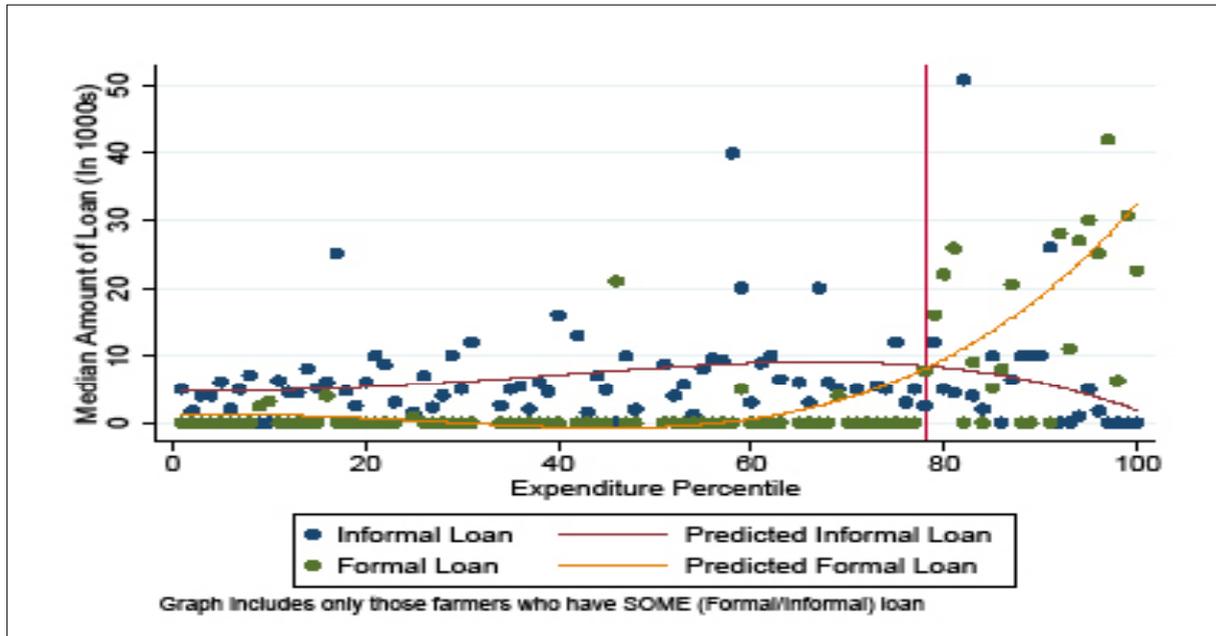
Source: **Debt and Investment Survey, NSS 2012-13,** *Survey* **Calculations**

releasing the credit constraint imposed by consumption expenditure falls[21]. A caveat to this finding though is that this income threshold (78th percentile) itself might get pushed up as a UBI is universal in nature, dampening the effect of UBI on releasing credit constraints.

Figure 8. Probability of releasing credit constraints and UBI

Source: Survey **Calculations**

VIII.   TEMPTATION GOODS: WOULD A UBI PROMOTE VICE?

Figure 9. Temptation Goods vs Consumption Expenditure
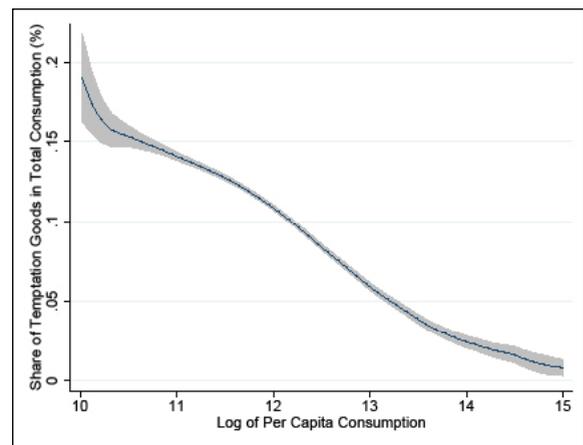
Source: **NSS 2011-12,** *Survey* **Calculations**

9.40   Detractors of UBI argue that, as a cash transfer programme, this policy will promote conspicuous spending or spending on social evils such as alcohol, tobacco etc. Literature

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[21]   This is a descriptive statement, not a causal one: it could very well be the fact that people who are above the 78th percentile are there because they have different financial habits (including savings and borrowing), so moving people up to that level may not result in this jump.

shows that there is a general perception that cash transfers get spent on these 'temptation goods' (Moore 2009, Ikiara 2009 and Devereux 2002). This is indeed a crucial point especially if UBI is expected to replace other in-kind programs such as PDS. The NSS 2011-12 data is employed to explore this argument. One can define consumption on alcohol, tobacco and paan as consumption on 'temptation goods'. The main finding is that these goods form a smaller share of overall budget/consumption as overall consumption increases (Figure 9). This provides an indication that an increase in income from UBI alone will not necessarily lead to an increase in temptation goods consumption. This is in line with Evans and Popova (2016) who undertake a meta-analysis of 30 studies that evaluate the impact of transfers on the consumption of temptation goods. Appendix 3 provides some evidence for the same in the Indian context.

IX. Moral Hazard: Would A UBI reduce Labour Supply?

9.41 Another argument against UBI is the moral hazard one propounded by Gandhiji against charity - free money makes people lazy and they drop out of the labour market. The simplest explanation is that unlike in-kind programmes, cash transfers (conditional and unconditional) raise the income of households for each unit of labour it already supplies and so can afford to reduce labour without necessarily affecting the household's income. As plausible as this might seem on paper, things do not seem to play out in this manner in reality.

9.42 Banerjee, Hanna, Kreindler and Olken (2015) conduct a meta-analysis of 7 randomized controlled trials of government cash transfer programs in 6 developing countries (Honduras, Morocco, Mexico, Philippines, Indonesia and Nicaragua).

Appendix 4 provides a summary of these studies from the paper. Most of these are conditional cash transfer type of programs and form between 4 percent (Honduras) and 20 percent (Morocco) of household consumption. They find no significant reduction in labour supply (inside and outside the household) for men or women from the provision of cash transfers. This finding is also in line with that of Alzua, Cruces and Ripani (2010) where they find non-significant, small and negative effects of three Latin American programs on adult employment.

9.43 Within the Indian context Appendix 3 provides evidence on a similar non-impact of UBI onlabour supply from a modified randomized control trial conducted in a few villages in Madhya Pradesh, India.

X. The Way Forward

9.44 The irresistible force of even as powerful an idea as UBI will run into the immovable object of a resistant, pesky reality. So, what is the way forward, always remembering that the yardstick for assessment is not whether UBI can be perfect or faultless but only whether it can improve substantially upon the status quo?

A Poverty reduction and illustrative fiscal cost calculations:

9.45 What would a UBI potentially cost? This is not an easy calculation because it depends on a number of objectives and assumptions. This is described carefully in the following manner.

9.46 Based on the 2011-12 distribution of poverty it seems clear that going from a certain very low level of poverty to eliminating it will be prohibitively high (in Figure A4 in Appendix 5, the cumulative probability distribution of consumption is flat from about 0 percent of poverty to 0.45 percent). So, a target poverty level of

Figure 10. Implications of the UBI and its effect on poverty and vulnerability
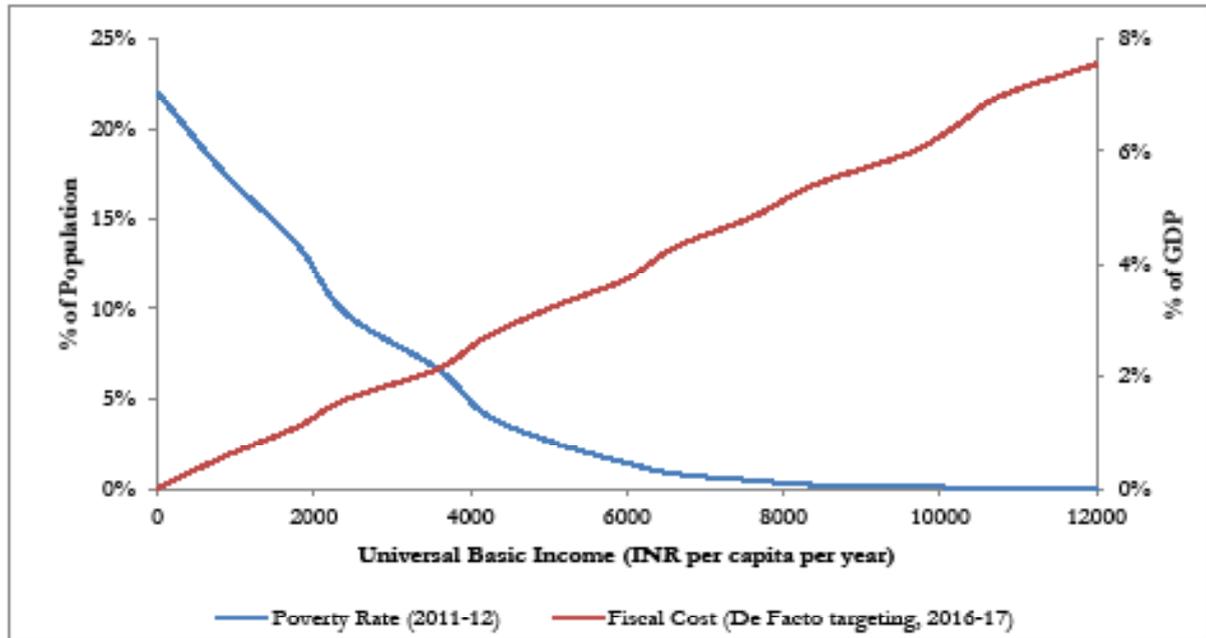
0.45 percent is chosen. Then the 2011-12 consumption level is computed for the person who is at that threshold. The next calculation is the income needed to take her above INR 893[22] per month[23], which is the poverty line in 2011-12. This comes to INR 5400 per year. Subsequently, that number is scaled up for inflation between 2011-12 and 2016-17: this yields INR 7620 per year. This is the UBI for 2016-17. For reasons explained later, the survey assumes that in practice any program cannot strive for strict universality, so a target quasi-universality rate of 75 percent is set (this is later referred to as de facto UBI). The economy-wide cost is then the UBI number multiplied by 75 percent. This yields a figure of 4.9 percent of GDP.[24]

9.47 One important point to note.This UBI calculation does not require any assumption about the poverty headcount rate. It only requires consumption data on the marginal poor (the person at the 0.45 percent threshold) and the poverty line. Figure 10 shows UBI for various target poverty levels and corresponding fiscal costs.

9.48 The calculation assumes that private consumption has not changed at all implying that real income of the poor at the threshold poverty level of 0.45 percent in 2016-17 has not increased in real terms since 2011-12. This is unlikely to be true. Thus, the actual cost of a UBI to the government could be lower. If, for example, the real income of that marginal poor grew at the same rate

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[22] This is the population weighted average of the state-wise rural and urban Tendulkar poverty lines for 2011-12.

[23] The Tendulkar poverty line is calculated based on NSS 2011-12 consumption data – it must be said that the line is somewhat notional and one must be careful before making a value judgement on the adequacy of the line to measure well-being.

[24] In Appendix 5, an alternative way of costing the UBI based on the marginal benefits of poverty and vulnerability reduction is discussed.

[25] There is already some evidence of centre-state bargaining for DBT in the PDS. See, here: http://www.financialexpress. com/market/commodities/puducherry-asks-for-increase-in-rice-subsidy-to-dbt-beneficiaries/399995/

as overall GDP per capita (which would be about 2 percent per year), the UBI amount will decline to INR 6540 per capita per year, costing 4.2 percent of GDP.

9.49 Since these calculations are based on 2011-12 consumption data projected forward, the implicit assumption is that UBI will be additional to the poor's existing consumption which includes consumption from public programs (PDS, MNREGA, etc.). Is this reasonable or plausible?

9.50 On the one hand, a case could be made that if current programs are prone to exclusion error, which is likely to affect the poorest amongst the poor to a greater extent, then this methodology is not unreasonable.

9.51 However, there will be cases where PDS or fertilizer subsidies do reach most beneficiaries which will then have be taken into account if a measure of UBI as a replacement program is to be calculated. This is a complicated task because there will be a number of general equilibrium effects which will need to be considered. For example, replacing the PDS will increase market prices of cereals the poor face. Similarly, phasing down MGNREGS might reduce market wages for rural casual labour. Calculating these effects and hence the exact magnitude of subsidies will help refine any costing of the UBI.

9.52 However, as discussed earlier the UBI is likely to be more effective than existing programs in reducing misallocation, leakage and exclusion errors. In that case, the prior would be that not accounting for replacement would still not seriously affect the costing of UBI. After all, replacing one rupee of the fertilizer subsidy should require a compensating UBI of less than one rupee.

9.53 The process of determining a UBI amount is not a one-time exercise: as the UBI is a cash transfer, its 'real' value tends to be determined by inflation in the economy. Over time, the same amount of cash transfer may not buy the same amount of goods. It is, therefore, important to index it to prices such that the amount gets revised periodically. Politics can play a huge role in determining the exact amount each time it is up for revision[25] and so it is important to set up a sufficiently politically neutral mechanism to do so. Ray (2016) proposes setting UBI as a constant share of the GDP to overcome this complication.

B Where is the fiscal space to finance a UBI?

9.54 Table 2 below presents the costs to the centre of running various welfare programmes and provision of services. Any government will have to decide on what programmes/expenditures to prioritize in order to finance a UBI. The lowest rungs of the table are presented for completeness, and it may not be advisable to replace these. In other words, while a UBI may certainly bethe shortest path to eliminating poverty, it should not become the Trojan horse that usurps the fiscal space for a well-functioning state.

9.55 The first few rows of Table 2 are the subsidies for the non-poor/middle class households, equivalent to about 1 percent of GDP[26]. Next listed are the government subsidies that account for 2.07 of the GDP (2014-15 actual)[27]. The corresponding figure for the states in 2011-12 is 6.9 percent (Sudipto and Sikdar 2017). Among these, as table 2 shows, the subsidies for fertilizer, petroleum and food constitute the largest amounts. Previously, the chapter argues that

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[26] These numbers are an update on the calculations made in Economic Survey 2015-16 (Chapter 6).

[27] There exists some double counting here – since, some proportion of the urea subsidy given to the middle class is accounted for in the rows above.

the government runs a plethora of schemes– the top ten centrally sponsored or central sector schemes (not including subsidies) cost the state about 1.4 percent of GDP (2014-15 actuals). The remaining 940-odd sub-schemes account for 2.3 per cent of the GDP. Further below in the table, we list the other government expenditure: spending on education, health, pensions, police, defence and interest payments[28].

9.56 Here, it is clear that the magnitude of middle-class subsidies would be roughly

Table 2. Fiscal cost of existing Central Government programmes (2015-16)

Implicit Middle Class "Subsidies"[29] (percent of GDP)[30]	Total
LPG	**0.21**
Railways-1 (only A/C)	**0.01**
Railways-2 (Sleeper Class)	**0.07**
Aviation turbine fuel	**0.01**
Fertilizer (Urea)	**0.04**
Personal Income-tax Exemptions	**0.44**
Interest Subvention Scheme for farmers	**0.1**
Mudra (Interest Subsidy)	**0.11**
Gold	**0.08**
SUB-TOTAL	**1.05**
Existing Social Sector Programmes/ Schemes (2014-15, percent of GDP)[31]	
Total Subsidy	2.07
-Fertilizer	0.57
-Petroleum	0.48
-Food	0.94
Schemes (Central Sector and Centrally Sponsored)	3.7
-Top ten Schemes[32]	1.38
Education	0.49
Medical, Public Health, Sanitation	0.1
Family Welfare	0.13
Grants to State and UTs	0.62
Pensions	0.75
Police	0.38
Defence	1.10
Interest Payments	3.22

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[28] Here, again, there is some double-counting. This is a key reason we do not provide any aggregate figure. For instance, some of the expenditure under the head "education" is also considered in the spending of the top-ten central sector schemes. Similarly, for other heads like health and family welfare.

[29] See Appendix 8 for details on the way in we have calculated these subsidies, which incorporate the notion of tax revenue foregone.

[30] Some of the components of the tax revenue foregone are not included as: (1) corporate tax exemptions are going to be phased out gradually; (2) tax exemptions on import duties are not really reclaimable because many of these are related to India's Free Trade Agreements which can not be repudiated ; (3) some of the current exemptions will be replaced under GST regime; and (4) moreover, it is possible that some of the current indirect tax exemptions benefit the poor.

[31] There may be double counting. For e.g. implicit middle class LPG subsidy will also be included in total subsidy. Similarly, expenditure on education is also covered in centre's expenditure on top ten schemes.

[32] Budget estimate 2014-15

equal to the cost of a UBI of INR 3240 per capita per year provided to all females. This will cost a little over 1 percent of the GDP – or, a little more than the cost of all the middle-class subsidies. However, taking away subsidies to the middle-class is politically difficult for any government. It is clear that while the fiscal space exists to start a de facto UBI, political and administrative considerations make it difficult to do this without a clearer understanding of its larger economy-wide implications.

C   Guiding Principles for Setting up a UBI

9.57 Conceptually, a well-functioning UBI can be designed. How should one go about attempting to implement the same in a country as vast and complex as India? There exist, when translating the idea into reality, tensions that tug in opposing directions: there is the pull of universality, the need to contain fiscal costs, the difficulty of exit from existing programmes and the need to introduce a system that is not beyond the admittedly constrained ability of the Indian state to implement things at scale.

9.58 Below are three principles that could help guide thinking in this direction.

i.   De jure universality, de facto quasi-universality

9.59 If universality has powerful appeal, it will also elicit powerful resistance. The popular reaction to demonetization reveals a deep sense that the well-off gain from and game the current system to their advantage. In that light and keeping in mind fiscal costs, the notion of transferring even some money to the well-off may be difficult.

9.60 It is, therefore, important to consider ideas that could exclude the obviously rich i.e., approaching targeting from an exclusion of the non-deserving perspective than the current inclusion of the deserving perspective[33]. And there are a number of possibilities here. Below, is a list of four:

1. Define the non-deserving based on ownership of key assets such as automobiles or air-conditioners[34] or bank balances exceeding a certain size.

2. Adopt a 'give it up' scheme wherein those who are non-deserving chose to opt out of the programme just as in the case of LPG and are given credit for doing so.

3. Introduce a system where the list of UBI beneficiaries is publicly displayed; this would "name and shame" the rich who choose to avail themselves of a UBI[35].

4. Self-targeting: Develop a system where beneficiaries regularly verify themselves in order to avail themselves of their UBI – the assumption here is that the rich, whose opportunity cost of time is higher, would not find it worth their while to go through this process and the poor would self-target into the scheme. The issue with an approach of this sort is that it conflicts with the essence of JAM, whose appeal lies in its direct, costless transfer of the state's welfare subsidies to beneficiaries' accounts.

ii.   Gradualism

9.61 A guiding principle is gradualism: the UBI must be embraced in a deliberate, phased manner. A key advantage of phasing would be that it allows reform to occur incrementally – weighing the costs and benefits at every step. Yet, even gradualism

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[33] This is not unlike the "exclusion criteria" envisioned in the National Food Security Bill (2013).

[34] One source of asset ownership is the Socio-Economic Caste Census data for rural households.

[35] This would, of course, have the additional benefit of ensuring that the poor can check if they are receiving benefits.

requires a roadmap. Here, below are different approaches of gradually adopting a UBI. The eventual goal of each approach is to inform the path towards a de facto UBI.

Choice to persuade and to establish the principle of replacement, not additionality

9.62 Rather than provide a UBI in addition to current schemes, it may be useful to start off by offering UBI as a choice to beneficiaries of existing programs. In other words, beneficiaries are allowed to choose the UBI in place of existing entitlements. This strategy has many advantages, beyond simply containing costs. It gives people agency, not only in that they have greater choice, but importantly because they have greater power in negotiating with the administrators who are currently supposed to be giving them benefits. This threat, expressed or latent, will then provide incentives to the administrators of existing programs to improve their performance. In the case of a fertilizer outlet, for example, the dealer knows that if he diverts the rice for his own purposes, he faces the threat of exit – beneficiaries will switch to a UBI. This, in turn, will reduce the quota of fertilizers allocated to his outlet.

9.63 Designed   in   this   way,   UBI could   consequently   not   only   improve living   standards;   it   could   also   improve administration (and cut the leakage costs) of existing programs.

9.64 However,   there   are   at   least   two concerns with the process listed above: one, by allowing the UBI as a choice over current entitlements, it reinforces all the current problems with targeting. This also ensures continuity of the misallocation problem[36]

with richer districts having a greater access to   welfare   benefits;   furthermore,   those excluded from the system will be unable to give anything up to avail themselves of the UBI; those well-off who are currently (wrongly) included will continue to have the right to be included

9.65 Another problem is that this would be administratively cumber some. Although arguably a one-time event, who, for instance, in the case of fertilizer subsidies identifies and compiles the lists of persons who have given up access? This would likely be another opportunity for corrupt actors.

UBI for women

9.66 Women face worse prospects in almost every aspect of their daily lives – employment opportunities, education, health or financial inclusion. Simultaneously, there exists plenty of   evidence   on   both,   the   higher   social benefits and the multi-generational impact of improved development outcomes for women. A UBI for women can, therefore, not only reduce the fiscal cost of providing a UBI (to about half) but have large multiplier effects on the household. Giving money to women also improves   the   bargaining   power   of   women within   households   and   reduces   concerns of   money   being   splurged   on   conspicuous goods. The UBI could also factor in children in a household to provide a higher amount to women. This addition, though, has three potential   problems   –   one,   it   may   not   be easy to identify the number of children in a household; two, it may encourage households to   have   a   greater   number   of   children;   and three, phasing out boys from beneficiary list once they reach a certain age (say 18 years) may not be easy to monitor and undertake.

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[36] Another administrative question, specific to the PDS is the following: will it be financially viable for Fair Price Shop (FPS) dealers to run the PDS when volumes reduce because of the availability of choice?

[37] Indeed, the National Food Security Act mandates that all pregnant women receive INR 6000 during their pregnancy. The central government spending on pensions is INR 200 per month, and has not been updated in ten years.

[38] These states the special category states of J & K, Assam, Manipur, Mizoram, Nagaland, Arunachal Pradesh, Tripura, Sikkim, Himachal Pradesh, Uttarakhand.

Universalize across groups

9.67   Another approach is to phase in a UBI for certain vulnerable groups – widows, pregnant mothers, the old and the infirm – first. This would serve as a means for the state to make good of its promise – sometimes mandated by law – to support the most vulnerable[37]. Furthermore, these are easily identifiable groups of individuals. Previous studies show that leakages in pensions are already low (Murgai et al 2010) and while the maternity benefits pilots suffer from implementation problems (Sinha et al (2016)), there is some evidence to show that they have helped smooth over medical costs for the poor.

9.68   However, as things stand today, there exist exclusion errors in both these schemes. These groups of persons are less likely to have access to bank accounts and are further away from the JAM frontier.

UBI and redistributive resource transfers to states

9.69   As Chapter 13 documents, a number of state governments[38] receive large amounts of transfers that may not prima facie increase growth or consumption. The UBI offers a possible way-around: a part of the redistributive resource transfers may be transferred by the centre directly into beneficiaries' accounts in the form of a pilot UBI programme.

9.70   However, aid receiving states may be harsh testing grounds for a UBI. These states also often comprise the poorest and the most backward districts, saddled with limited state capacity. That being said, as Figures 11 and 12 show, these states have made significant progress in providing both Jan Dhan and Aadhaar seeded accounts.

UBI *in urban areas*

9.71   The discussion above may give credence to the idea of a UBI for urban areas first, as these areas are less likely to suffer from poor banking infrastructure and lack of individuals with bank accounts. The urban areas have an additional benefit – in rural areas, the poor often depend on the state for sustenance, a condition that makes introducing a disruption like the UBI in these areas tricky.

9.72   The pilot exercises of direct beneficiary transfer (DBT) in lieu of PDS – not exactly a UBI – in Chandigarh and Pondicherry offer a cautionary tale. DBT was introduced and rolled back[39] within two months in Pondicherry, only to be reintroduced. Despite some evidence on reduced leakages, independent evaluations emphasize the need for an improved digital financial infrastructure (MicroSave, 2016), even in these relatively urban settings[40].

9.73   Appendix 6 summarizes the previous discussion and offers ways of interpreting successes and failures of each of the gradualist ideas documented above.

D   Prerequisites

i.   JAM

9.74   Crucial to the success of the UBI is effective financial inclusion. Nearly a third

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[37]   Indeed, the National Food Security Act mandates that all pregnant women receive INR 6000 during their pregnancy. Similarly, the central government spending on pensions is INR 200 per month, a figure that has not been updated in over a decade.

[38]   These states the special category states of J & K, Assam, Manipur, Mizoram, Nagaland, Arunachal Pradesh, Tripura, Sikkim, Himachal Pradesh, Uttarakhand.

[39]   Yadav (2015), scroll.in.

[40]   For a discussion of issues with Chandigarh's DBT, see Singh (2016).

of adults in India still do not have a bank account and are likely to be left behind. These are also likely to belong to the poorest social groups – women, SCs, STs, the ageing and the infirm – who benefit most from state-funded subsidies.

9.75   Currently, as per official records, there are 26.5 crore Jan Dhan accounts (21 percent of the population) across the country. The per capita density of these accounts is relatively high in many of the poorer states (see Figure 11) and Chhattisgarh has the highest penetration. Of the 26.5 crore Jan Dhan accounts, 57 percent are Aadhaar seeded (see Figure 12 for Aadhaar seeded accounts per capita). Some states in the North-East and Jammu and Kashmir lag behind. In terms of JAM preparedness, considerable ground has been covered rapidly, but there is quite some way to go.

9.76 While Aadhaar coverage speed has been exemplary, with over a billion Aadhaar cards being distributed, some states report authentication failures: estimates include 49 percent failure rates for Jharkhand, 6 percent for Gujarat, 5 percent for Krishna District in Andhra Pradesh and 37 percent

for Rajasthan[41]. Failure to identify genuine beneficiaries results in exclusion errors.

9.77   Another problem is leakages – while there exists, in the Indian context, rigorous evidence supporting universalization of in-kind transfers to reduce leakages, it is not clear if a universal cash transfer will necessarily result in lower leakages. Given the amount of cash that will flow through the system under the UBI and the fungible nature of money, one could imagine a perverse equilibrium where the UBI results in greater capture by corrupt actors. Indeed, it is an open question if a UBI today will necessarily work better than simply universalizing other in-kind transfers it replaces. This, once again, reiterates the role of a transparent and safe financial architecture that is accessible to all – the success of the UBI hinges on the success of JAM[42].

ii.   Centre-State Negotiations

9.78   The UBI amount will be a crucial factor in ensuring the success of such a programme. A key federal question will be the centre-state share in funding of the UBI.

Figure 11. Per capita Jan Dhan accounts
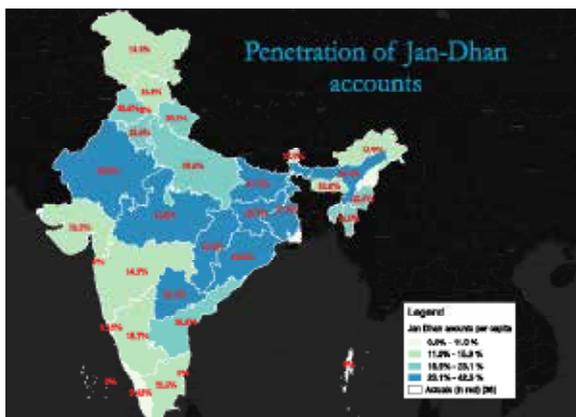
Source: GOI, *Survey* Calculations

Figure 12. Per capita Aadhaar Seeded accounts
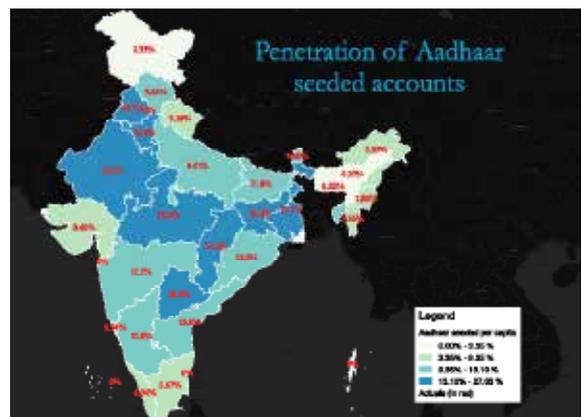
Source: GOI, *Survey* Calculations

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[41] Yadav (2016), scroll.in.

[42] A UBI will, of course, not be routed only through Jan Dhan accounts. Anyone with an Aadhaar-seeded bank account would be eligible for the UBI. The focus on Jan Dhan in this chapter reflects the importance of these accounts for the poorest.

This would, like the GST, involve complex negotiations between federal stakeholders. Initially, a minimum UBI can be funded wholly by the centre. The centre can then adopt a matching grant system wherein for every rupee spent in providing a UBI by the state, the centre matches it.

XI. Conclusions

9.79 If, as appears to be the case, that thinkers on both the extreme left and right have all become its votaries, then UBI is a powerful idea whose time even if not ripe for implementation is ripe for serious discussion. One can easily imagine the Mahatma as fair mediator, deliberating and examining both sides of the argument carefully. The Mahatma as the embodiment of universal moral conscience would have seen the possibility of UBI in achieving the outcomes he so deeply cared about and fought for all his life. But the Mahatma as moralist would have had doubts because of seeing uncompensated rewards as harming responsibility and effort. As a fiscal conservative he would permit UBI only if convinced that macro-economic stability would not be jeopardized. Recognizing the difficulty of exit, the Mahatma as astute political observer would have anxieties about UBI as being just another add-on government programme. But on balance he may have given the go-ahead to the UBI.

9.80 Or so one might tentatively infer.

APPENDIX 1. RESOURCE MISALLOCATION CALCULATION BY PROGRAMME

Here misallocation across districts is given for each of the 6 programs by its relevant intended beneficiaries[43] . Y-axis in each chart is share of districts in total programme allocation

Figure A1. Misallocation calculated across different programs
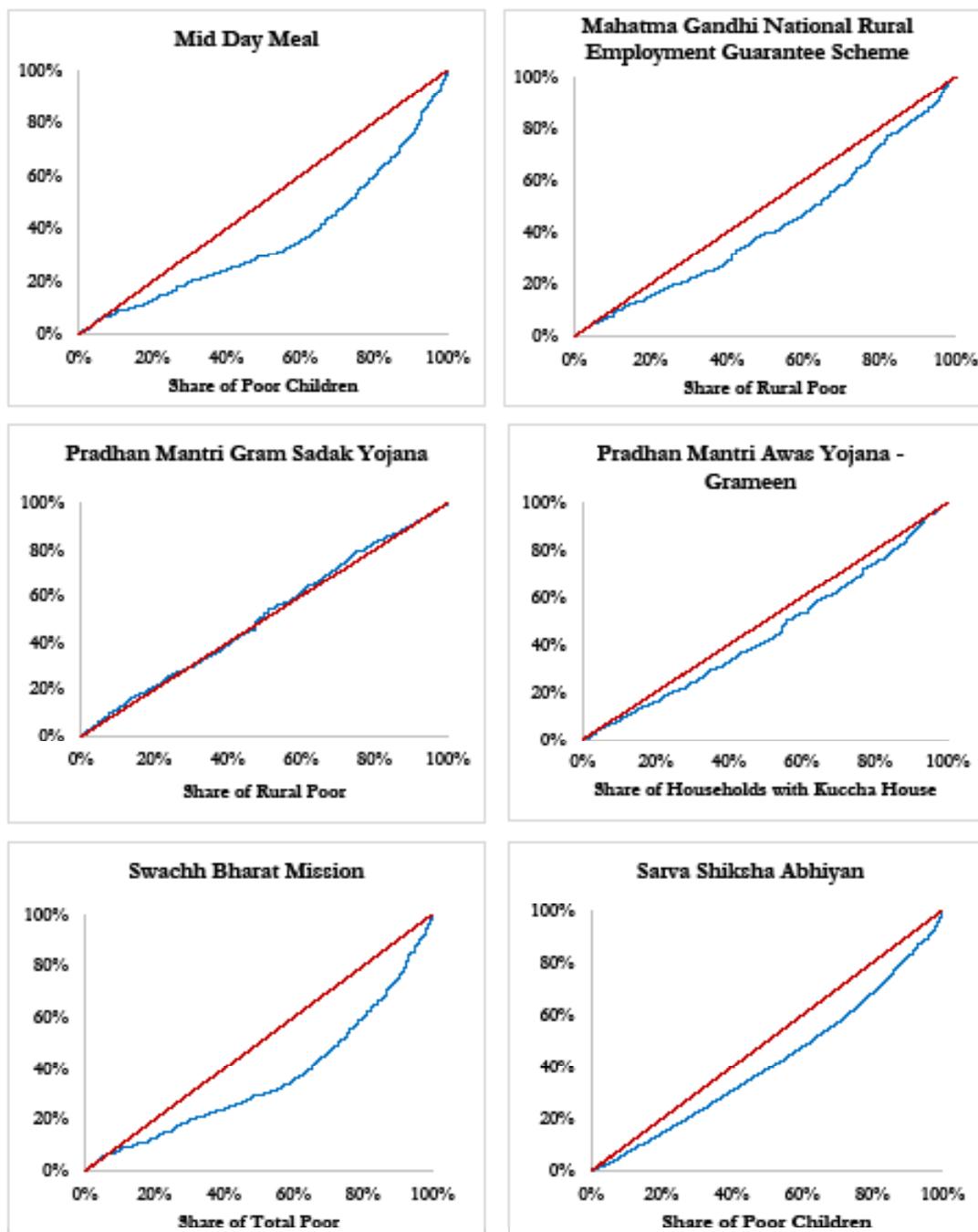
Source: **Administrative data for each programme, NSS 2011-12, SECC 2011,** *Survey* **Calculations**

[43]   As the graphs show, we calculate misallocation by intended beneficiaries where the scheme targets certain groups. Otherwise, we calculate misallocation by share of poor.

Figure A2: A Graphical Representation of Misallocation

To explore misallocation further, a GINI coefficient is constructed to measure the degree of misallocation across districts for the above schemes. Here the X-axis represents the districts' cumulative share in rural poor from the poorest to the least poor districts, and the Y-axis represents the cumulative share of these districts in total allocation across each of these programs. Reading off the graph, we see that the poorest set of districts accounting for 20 percent of the poor access only 15 percent of the resources, 40 percent of the poor only 29percent of the resources and 50 percent of the poor about 38 percent of the resources from the scheme. The overall GINI coefficient for misallocation is 17 percent – the gap between the red and the blue lines in the figure – with significant variation across programs.

The two graphs below emphasize the extent of misallocation across districts for the six top welfare programs - the PMAY, SSA, MDM, PMGSY, MGNREGS and SBM. Figure A3 is a heat map of the headcount ratios of all districts for 2011-12 whereas Figure A4 shows the same for total welfare allocation (six programs) per poor in the same districts. There is a sharp mismatch in the poverty levels and the welfare spending per poor, reflected in the contrasting colours of many districts. This is especially visible in Uttar Pradesh, parts of Bihar and Madhya Pradesh. In other words, the poorer districts are starved of welfare funds.

Figure A3. Headcount Ratio by districts (2011-12)
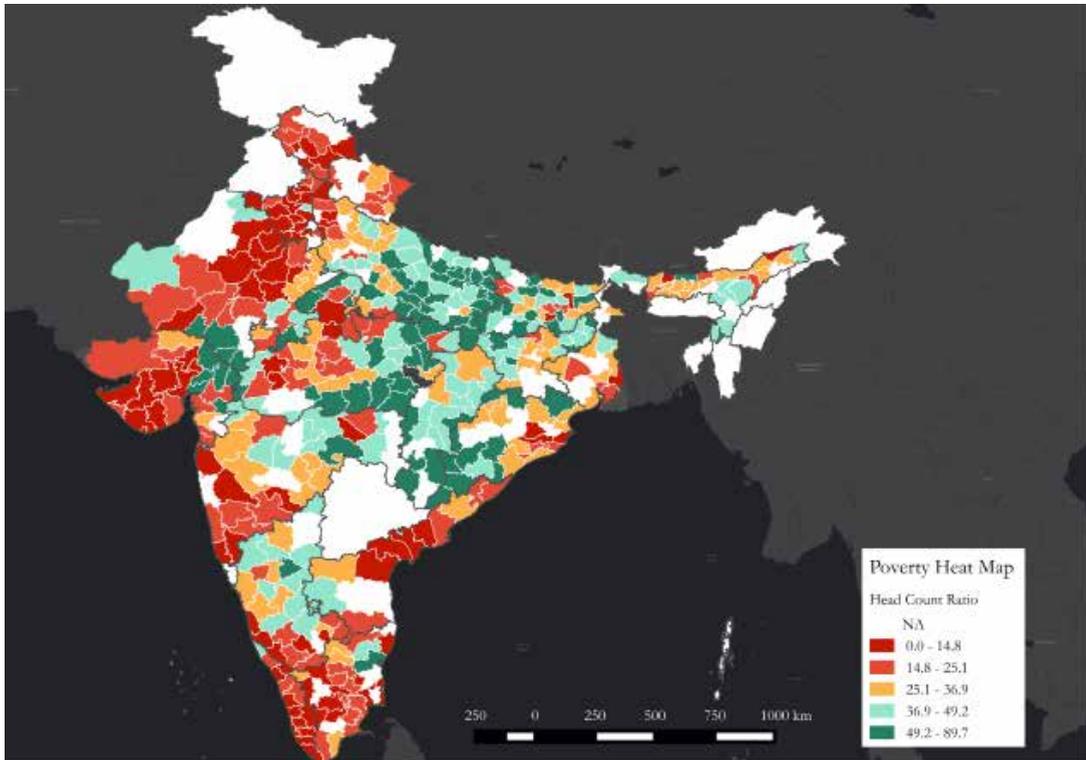
Source: **NSS 2011-12,** *Survey* **Calculations**

Figure A4. Welfare spending per poor across districts
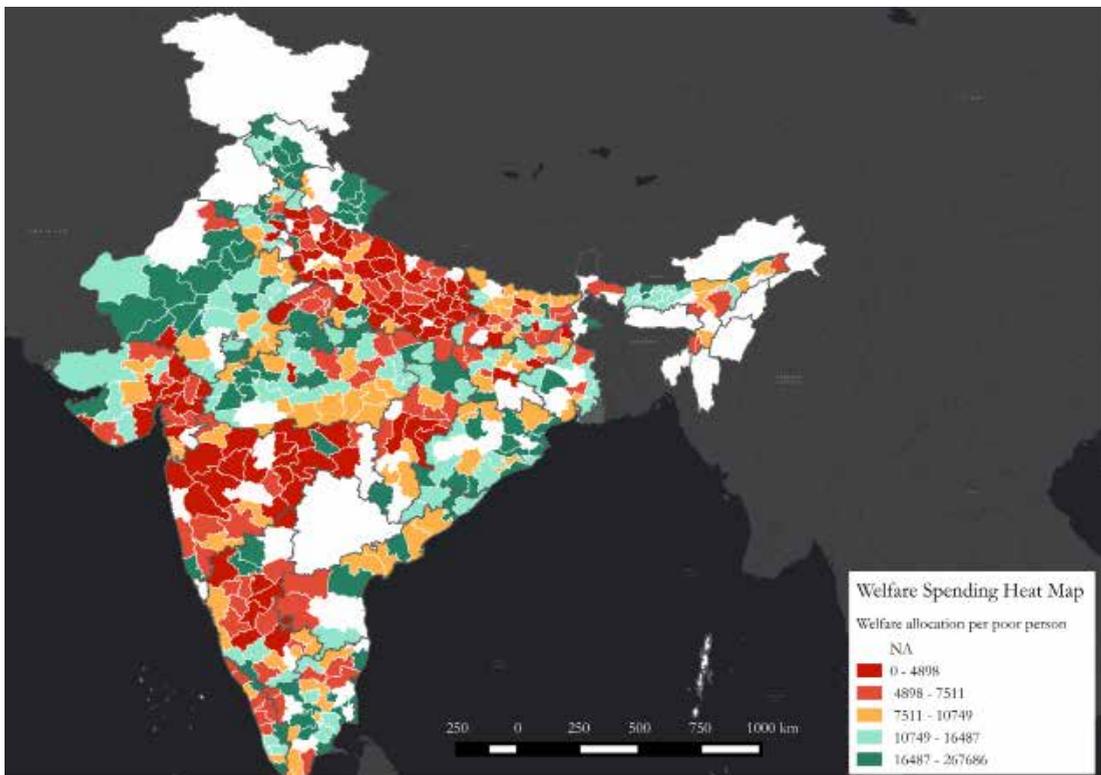
Source: **Programme administrative data and NSS 2011-12,** *Survey* **Calculations**

APPENDIX 2. TARGETING OF CURRENT CENTRAL SECTOR AND CENTRALLY SPONSORED SCHEMES

Methodology:

The targeting efficiency analysis incorporates four forms of targeting errors – leakage out of the system, misallocation of resources across districts, benefits to non-poor and exclusion of poor. The poor are defined as the poorest 40 percent of the population, or individuals belonging to the bottom 40 percent of income distribution. Figure A3 shows the targeting efficiency of PDS and MGNREGS for 2011-12, calculated based on methodology presented below (non-poor in chart refers to bottom 40 percent).

Targeting Error	PDS (for each of Rice, Wheat and Kerosene)	MGNREGA
Out of system leakage	Actual allocation minus Total quantity of PDS received by all beneficiaries Source: Economic Survey of India 2015-16	Imbert and Papp (2014)
Incidence (top 60%)	Incidence of total volume of PDS for each of rice, wheat and kerosene on top 60% in the survey Source: IHDS 2011-12	Share of MGNREGA income received by the top 60 %in the survey Source: IHDS 2011-12
Exclusion error	Proportion of those in bottom 40% in the survey who do not receive PDS item Source: IHDS 2011-12	Proportion of those in bottom 40% in the survey who do not have a MGNREGA Card Source: NSS 2011

Figure A5. PDS and MGNREGS Targeting (2011-12)

PDS Targeting (2011-12)

MGNREGS Targeting (2011-12)

<div align="center">
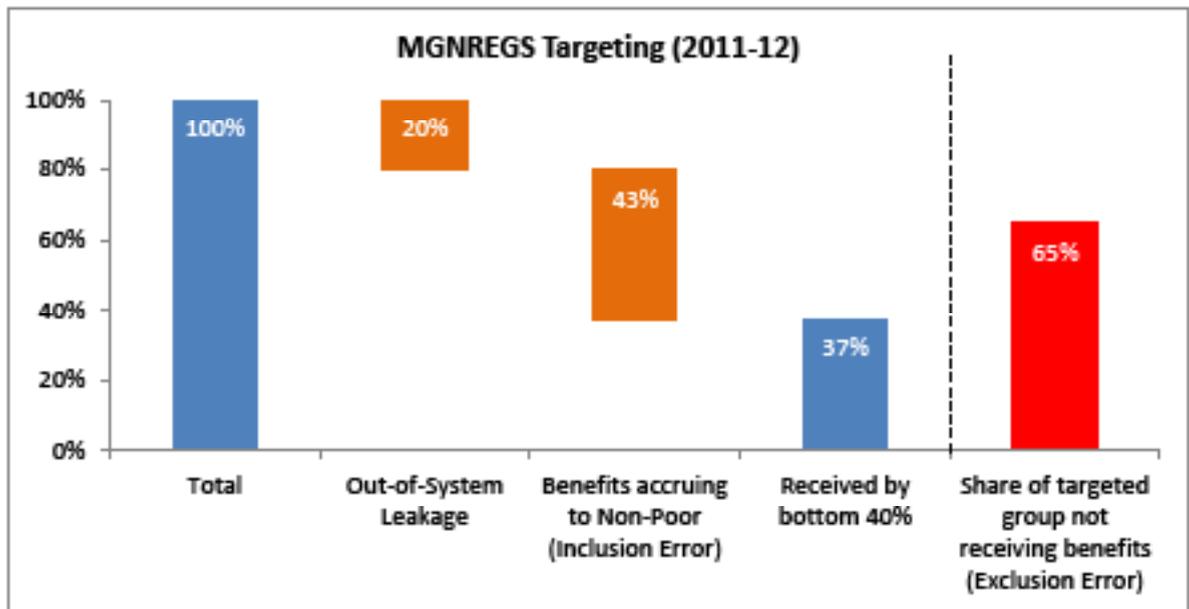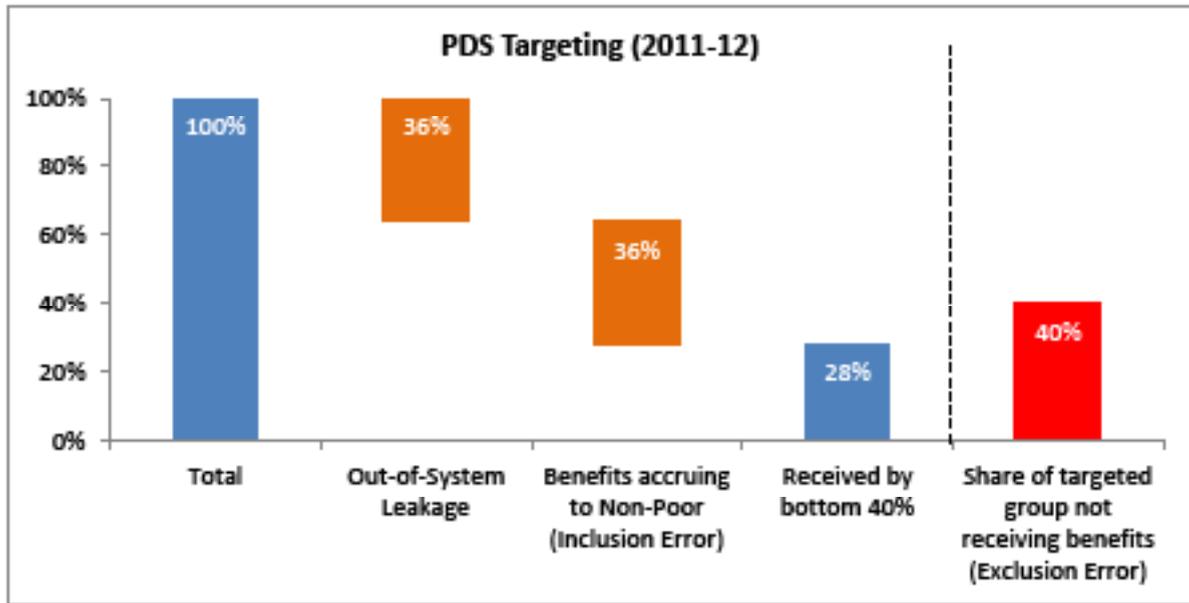
**APPENDIX 3: SEWA BHARAT – UNICEF
STUDY ON BASIC INCOME TRANSFERS[44].**

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Moral hazard associated with labour supply as a consequence of UBI

This is an issue often raised across national contexts. That giving unconditional basic income would act as a major disincentive to work. That people would simply take the free money and laze around. However, Davala et al (henceforth referred to as the "MP study") shows clearly that it is not the case in Madhya Pradesh in India.

One of the major findings of the study is a shift from wage labour to own cultivation. That is, small and marginal farmers, when they get a basic income, begin to invest more into their own cultivation. As a result, one observes a positive jump in agricultural production and land cultivated. This dynamic also had another positive effect on indebtedness which is chronic in the case of small and marginal farmers. They borrowed less from money-lenders whose rates in the region are as high as 2 to 10percent per month. In short, the study shows that people become more productive when they get a basic income.

Two, by definition, the basic income is not meant to replace employment. One cannot live entirely on basic income. It is a guaranteed income that acts as a cushion to survive even under extreme situations.

Lastly, the study also shows that if the right amount is given as a basic income, the positive effect is disproportionately higher than what the monetary value is under normal circumstances. In other words, the emancipatory value of basic income is several times greater than it monetary value.

2. Effect of UBI on conspicuous spending and spending on bad goods

When one raises this question, one has two images in mind.

1. That cash is fungible and need not necessarily be used for the desired welfare effect that any social policy envisages, and for the basic needs that oneassociates the poor with, such as food and nutrition, clothing and education, and so on.

2. Two, an irresponsible male head of the household can wipe out all the assistance money reducing the family members to start begging on the streets.

The empirical evidence clearly demonstrates that these presumptions do not hold much water in reality. In the first place, there has been no statistical evidence of any increase in economic "bads" such as consumption of alcohol and tobacco. On the contrary, in Bhil tribal village, there was actually a drop in consumption of alcohol since that is where people had liquidity to use for agricultural inputs and therefore one saw an increase in agricultural productivity and own cultivation effect.

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[44] Contributed by India Network for Basic Income and SEWA Bharat based on Davala et al (2015).

APPENDIX 3: DETAILS OF 7 STUDIES USED FOR META-ANALYSIS IN BANERJEE, HANNA, KREINDLER AND OLKEN (2015)

Country	Program	Evaluation Years	Number of Households at Endline	Targeting Method	Transfer Type and Amount	Transfer/ Consumption
Honduras	Programa de Asignación Familiar - Phase II (PRAF II)	2000-2002	3,185	Geographic and family demographics	CCT ranging from $4 to $23 per month depending on family structure	4%
Morocco	Tayssir	2008-2010	4,268	Geographic	CCT and labelled CCTs: between $8 to $13 per month per child (depending on age of child)	5%
Mexico	Progresa	1998-1999	18,351	Geographic and PMT	CCT: $12.5/month + $8 - $30.5/month per child (depends on child grade) + $11-$20.5 grant for school materials per child, Max grant per HH (1999): $75/month	20%
Mexico[1]	Programa de Apoyo Alimentario (PAL)	2004-2005	2,866	Geographic	UCT: $13 per month	11.50%
Philippines	Pantawid Pamilyang Pilipino Program (PPPP)	2009-2011	1,410	Geographic and PMT	CCT: $11 -$30 per month depending on number of kids	11%
Indonesia	Program Keluarga Harapan (PKH)	2007-2009	14,665	Geographic and PMT	CCT: $44 -$161 per year	17.50%
Nicaragua	Red de Protección Social (RPS)	2000-2002	1,433	Geographic. All except 6% who owned vehicle or ≥ 14ha land	CCT: $224/year + $112/year (school attendance) + $21/child/year	20%

Notes: (1) The experiment included two treatments: a food transfer and a cash transfer. We focus on the cash transfer treatment only.
Sources: Honduras: Galiani and McEwan (2013), Glewwe and Olinto (2004); Morocco: Benhassine, Devoto, Duflo, Dupas, and Pouliquen (2015); Mexico Progresa: Parker and Skoufias (2000); Skoufias and di Maro (2008); Mexico PAL: Skoufias, Unar, and Gonzalez-Cossio (2013); Philippines: Chaudhury, Friedman and Onishi (2013); Indonesia: World Bank Office Jakarta (2011); Nicaragua: Maluccio and Flores (2005)

APPENDIX 4: CALCULATION OF POVERTY AND VULNERABILITY FOR DIFFERENT VALUES OF UBI

The IHDS 2005-06 and 2011-12 longitudinal surveys are used to calculate the poverty and vulnerability for each level of UBI. Additionally, poverty levels are also calculated using the NSS 2011-12 Survey.

ASSUMPTIONS AND CAVEATS:

1. Both the decline in poverty and vulnerability is calculated assuming status quo. More specifically, the assumption is that current welfare schemes and subsidies provided by the government continue to remain the same and the UBI is a contribution made in addition to it. Therefore, insofar as the UBI comes in place of other welfare schemes, the poverty reduction estimates may be an overestimate.

2. These estimates view a UBI solely as a source of consumption but in reality it may also be used as a means of asset accumulation which in turn may lead to higher incomes and consumption. Hence, these estimates may be an underestimate of the true effect of UBI on poverty and vulnerability.

3. It is assumed that the population consumption distribution in 2016-17 looks exactly like the population consumption distribution in 2011-12. In fact, it would be reasonable to assume that the consumption distribution rose faster than the poverty line and poverty may have fallen below the 2011-12 estimate of 16 percent (22 percent using NSS 2011-12). The consumption levels of the bottom 40 percent of population and the poor are similar, as can be seen in the consumption distribution chart below. Here the red vertical line is the poverty line, the green vertical line twice the poverty line. Almost 40 percent of households have consumption levels between these two lines (intersection of horizontal and vertical lines).

Figure A6. Distribution of Consumption (2011-12)
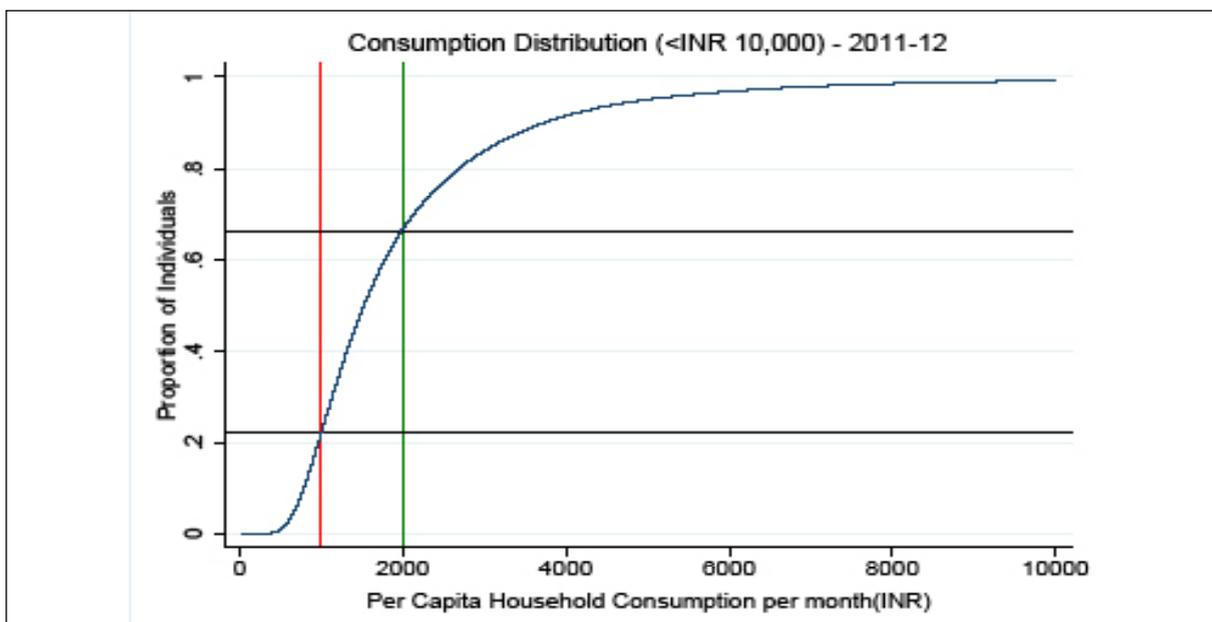
Source: **NSS 2011-12,** *Survey* **Calculations**

Poverty Rate: For each UBI amount of INR X per capita per month one calculates the total per capita consumption post UBI equal to total per capita consumption (NSS 2011-12 + X) for each household. One then calculates the proportion of households that continue to remain below poverty line. The same analysis was repeated using IHDS 2011-12.

Vulnerability: For each UBI amount of INR X per capita per month, calculate the total per capita consumption post UBI in 2005-06 and 2011-12 (as per formula above – only IHDS numbers are used since vulnerability is estimated using the longitudinal nature of the dataset). Next, calculate the proportion of non-poor in 2005-06 (post UBI transfer) who become poor in 2011-12 (again, post UBI transfer).

Marginal Reduction in Poverty: For each additional rupee of UBI transfer, calculate the percentage point reduction in poverty.

Marginal Reduction in Vulnerability: For each additional rupee of UBI transfer, calculate the percentage point reduction in vulnerability.

*Fiscal cost of UBI:*Adjust the 2011-12 UBI amounts for inflation to get a 2016-17 UBI amount. This number is then multiplied by total population to arrive at the total cost of UBI as well as cost of UBI as a proportion of GDP (budget estimates for 2016-17).

Bang-for-buck UBI:

Figure A7. UBI fiscal cost and effect on marginal reduction in poverty and vulnerability
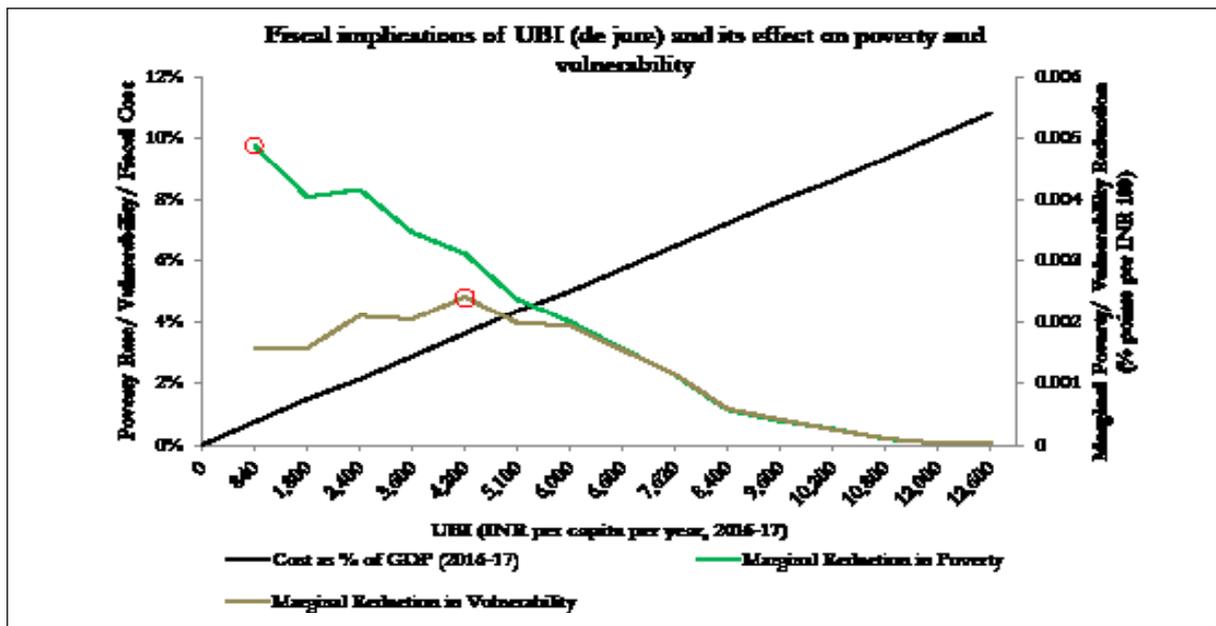
Source: **IHDS 2005-06 and 2011-12,** *Survey* **Calculations**

The Figure A5 charts UBI based on obtaining the maximum bang-for-buck– i.e., it calculates the poverty and vulnerability reduction for each additional rupee spent on the UBI and, subsequently, chooses the amount that maximizes this reduction. These are called the marginal poverty and marginal vulnerability reduction curves, denoted by the green and grey lines in Figure A5. A look at the two curves in this figure shows that the maximum bang-for-buck UBI for poverty reduction is INR 600 per capita per year and for vulnerability is INR 3000 per

capita per year in 2011-12. The inflation adjusted figures for 2016-17 are INR 840 and INR 4200 (red circles in Figure A5). Taking an average of the two estimates implies a UBI of INR 2520. This translates to only about 2.2 per cent of the GDP. Assuming a *de facto* universality that excludes the top 25 percent of the population, this costs 1.6 per cent of the GDP. This level of UBI reduces poverty rate to 9 percent and vulnerability to 7.5 percent. If provided only to females (of all age groups) this cost would come down to about 0.85 percent of GDP.

Table 3: UBI amounts, Poverty Rate (NSS & IHDS 2011-12) and Cost to GDP (percent)

UBI (Rs. per capita per year, 2011-12)	UBI (Rs. per capita per year, 2016-17)	Poverty Rate (2011-12) NSS	Poverty Rate (2011-12) IHDS	Fiscal Cost as % of GDP (2016-17) NSS	Fiscal Cost as % of GDP (De Facto targeting, 2016-17) NSS
0	0	22.03%	16.86%	0.0%	0.0%
600	874	17.62%	13.93%	0.7%	0.6%
1200	1747	13.54%	11.51%	1.5%	1.1%
1800	2496	9.78%	9.02%	2.1%	1.6%
2400	3370	6.63%	6.94%	2.9%	2.1%
3000	4243	4.14%	5.08%	3.6%	2.7%
3600	5117	2.52%	3.66%	4.3%	3.3%
4200	5866	1.42%	2.46%	5.0%	3.7%
4800	6739	0.82%	1.53%	5.7%	4.3%
5400	7613	0.45%	0.85%	6.5%	4.9%
6000	8486	0.20%	0.51%	7.2%	5.4%
6600	9360	0.11%	0.28%	8.0%	6.0%
7200	10109	0.06%	0.12%	8.6%	6.4%
7800	10982	0.04%	0.06%	9.3%	7.0%
8400	11856	0.02%	0.05%	10.1%	7.6%
9000	12730	0.00%	0.03%	10.8%	8.1%
9600	13603	0.00%	0.02%	11.6%	8.7%
10200	14352	0.00%	0.02%	12.2%	9.1%
10800	15226	0.00%	0.01%	12.9%	9.7%
11400	16099	0.00%	0.00%	13.7%	10.3%
12000	16973	0.00%	0.00%	14.4%	10.8%

APPENDIX 6: UNDERSTANDING THE UBI PILOT IDEAS
AND IMPLICATIONS FOR SCALE-UP

Panel A and B of the Table below detail implications for a nation-wide UBI in the event of success and failure, respectively, for each of the gradualist approaches listed in section X.C.

Notionally, the definition assumed for the success of a UBI pilot is one that is leakage-free and perfectly targets the beneficiary group for each of the pilots.

1.   SUCCESS

UBI Idea	If the following ideas work, what does it imply for each of the categories below?			How do we scale up?
	Accurate beneficiary identification	Well-functioning JAM infrastructure	Administrative feasibility	
UBI for women	**Yes** – a UBI for ALL women that works will suggest that beneficiary identification during scale-up shouldn't be an issue.	**Yes** – A UBI that perfectly targets women can be sufficient proof for JAM's ability to deliver benefits.	**Yes** – An administration that can handle a UBI for all women should not find it too hard to extend to all persons. (Despite doubling the scale, the fixed costs associated with setting up a UBI will already have been incurred)	The UBI for women alone should precede a UBI for *all* persons, including men and children.
Choice to replace existing benefits with UBI	**No** – since this approach reinforces previous beneficiary mis-identification.	**To a certain extent** – since it will show that JAM works for those who are already included in the system.	**Yes** – a choice scheme that works will not only overcome administrative issues related to fund transfer, but will also display the capability of the system to effectively recognize those who have chosen to give up and those who don't.	Choice should gradually be replaced by a system where everyone who is interested should be allowed to enter the UBI system, independent of whether they give up other benefits.
Across vulnerable groups	**No** – these groups are easily identifiable: success here may not mean success across all groups.	**Yes** – this would be a strong proof of concept for JAM's ability to correct exclusion error, since these groups of individuals are particularly likely to be excluded.	**To a small extent** – as these groups account for a small proportion of UBI's beneficiaries, they wouldn't tax the administration as a full-scale UBI would.	Unclear on what the next steps are with respect non-easily identifiable groups.

In lieu of state aid	**Yes –** since it covers all residents in these areas.	**Yes –** this would be a very strong proof of concept for JAM, since these areas are low on financial inclusion.	**Yes –** if UBI works here where the state capacity is relatively lower, it is likely to work in areas with better state capacity.	Gradually expand to all states.
Urban areas	**To a certain extent** – results may not extend to rural areas especially because exclusion of urban rich may be somewhat easier.	**To a certain extent** – results may not extend to rural areas where JAM preparedness may be lower.	**To a certain extent** – it displays that a UBI for urban areas could be undertaken at scale. However, the rural administrative machinery could be a very different one from its urban counterpart.	Tread cautiously before expanding to rural areas since not all lessons are directly transferrable.

2. FAILURE

UBI Idea	If it doesn't work, then what does it imply for the UBI?
UBI for women	This would imply that a UBI for all may be very challenging to design and implement.
Choice to replace existing benefits with UBI	This would imply that a choice-based UBI may not be the best way to go – the learnings for a non-choice based UBI is limited.
Across vulnerable groups	It would suggest one or more of the following: (a) A UBI, if it has to succeed, may be tried across a larger cross-section of the population. (b) Either the JAM infrastructure or the administrative capacities of the state are not sufficient to cater to the most vulnerable groups via a UBI.
In lieu of state aid	A failure here is more likely than elsewhere – so, this may not have huge implications for the success of a UBI in most parts of the country.
Urban areas	A failure here is least likely, since urban areas have better JAM infrastructure and state capacity – therefore, in the event of a failure, one has to rethink the feasibility of a UBI in India.

Government Subsidies/Spending/ Help for Middle Class (with explanatory notes)

Scheme (2015-16)	Implicit Subsidy to T 40 (Rscrore)	Source
LPG	28,219	Economic Survey, NSS 2011-12, International Gold Council and Rail Ministry
Railways-1 (only A/C)	1,115	
Railways-2 (Sleeper class)	9,002	
Aviation turbine fuel	762	
Gold	10,800	

The top 40 per cent population estimated based on expenditure distribution as per NSS data of 2011-12 is assumed to be the "middle class". Effective subsidy rate is the difference between normative tax rate (50 per cent for LPG and Aviation turbine fuel, 14 per cent service tax for railways and 6 per cent for gold) and actual subsidy/tax rate. Implicit subsidy is the effective subsidy rate multiplied by consumption of that commodity by middle class. Number of beneficiaries are counted as only those HHs which are consuming the particular commodity based on NSS survey. For Aviation turbine fuel, total domestic passengers have been taken for estimation of subsidies. Railway-1 : Covers passengers travelling in A/C first class, A/C sleeper class and A/C chaircar. Railway-2 : Covers passengers travelling in sleeper class (M and E). Number of passengers also includes suburban passengers.

	Implicit Subsidy (Rscrore)	Source
Personal Income Tax (2015-16)	59,928.33	Union Budget 2016-17

Revenue foregone on account of personal tax exemption has been considered as implicit subsidy to non-poor as it is only the top quantile of the population that benefits from such exemptions.

Fertiliser (2015-16)	Subsidy (Rscrore)	Source
		Budget 2016-17, Economic Survey, Agriculture Statistic at a Glance
Total large farmers	5435	

The total number of large farmers has been estimated using NSS 70th round on Situation of Agricultural Households in India. Any farmer having land holding size >=5 ha is considered to be a large farmer. In calculating net subsidy to farmers, subsidies that finance inefficient domestic production and subsidies that associated with leakages is excluded.

	Implicit Benefit (Rscrore)	
Tax exemption limit	9,181	Economic Survey and Department of Revenue.

With a view to provide relief to small and marginal taxpayers and senior citizens, the current Government in their first budget in 2014-15 increased personal income tax exemption limit by Rs 50,000 i.e., from Rs 2 lakh to Rs 2.5 lakh in the case of individual taxpayers who are below the age of 60 years. Similarly, the government raised the exemption limit from Rs 2.5 lakh to Rs 3 lakh in the case of senior citizens. This was the highest increase in exemption in single stance since 2005-06. The initiative benefits around ~1.84 crore taxpayers who fall under the 10 percent to 30 percent tax bracket. The estimated benefit of Rs 5000 is same across the tax brackets because it just changes the lower bound of the 10 percent tax bracket (from 2 lakh to 2.5 lakh) and other bounds remain unchanged.

	Interest Subsidy (Rscrore)	Source
Interest Subvention Scheme (2015-16)	13000	NABARD

Number of farmers in 2015-16 has been projected from the number of farmers in 2013-14 assuming an annual growth rate of 6.8 percent. We assume that the growth rate between 2014-15 and 2015-16 is approximately equal to the growth rate in the previous fiscal year, which we calculated as 6.8 percent. Interest subsidy amount has been taken from NABARD and GOI Budget.

Mudra	Disbursement (in crore)	Source
2015-16	1,32,955	Mudra website
Interest Subsidy on Mudra Account		
	Interest Subsidy (Rscrore)	Source
2015-16	14,678	Based on Information Received from DFS.

To estimating the interest subsidy on mudra accounts, we have assumed an interest rate of 25 percent (interest rate in informal loan market or charged by moneylenders. As per the information given by Department of Financial Services (DFS), the weighted interest rate of 13.96 percent. The difference of these two interest rate is considered as interest subsidy. If we take interest rate in informal market as 20 percent, the per capita (account) interest subsidy is Rs 2294 per account.

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Income, Health, and Fertility: Convergence Puzzles

<div style="text-align:right">

10

CHAPTER

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"... real development cannot ultimately take place in one corner of India while the other is neglected."

– Pandit Jawaharlal Nehru

Despite rapid overall growth, there is striking evidence of divergence, or widening gaps in income and consumption across the Indian states, in sharp contrast to patterns within China and across the world. This trend is particularly puzzling since that the forces of equalization—trade in goods and movement of people—are stronger within India than they are across countries, and they are getting stronger over time. This raises the possibility that governance traps are impeding equalization within India. In contrast, health outcomes are converging within India. Compared to international standards and accounting for levels of income, India does well on life expectancy, not-so-well on infant mortality rate, and strikingly well on fertility rate.

I. Introduction

10.1. As Chapter 1 has documented , India's economic performance has been remarkable in the aggregate. Its continued success as a federation depends on the progress of each of its individual states. What can be a reasonable standard for assessing how well the states are doing? One intuitive metric can be to see how well individual states have done over time on two broad sets of indicators: economic and health/demographic indicators. This analysis starts from the 1980s because it allows for a longer term perspective; but also because that is the time when the structural break from the previous era of the "Hindu Growth Rate" (to use the late Professor Raj Krishna's term)

occurred (De Long, 2001; Williamson and Zagha, 2002; Rodrik and Subramanian, 2004).

10.2. Figure 1 plots the level of real per capita GSDP over time between 1983 and 2014 (the latest year for which comprehensive data is available). It is clear that, especially during the last decade, there has been an across-the-board improvement reflected in the whole distribution shifting right. For example, between 1984 and 2014, the least developed state (Tripura) increased its per capita GSDP 5.6 fold; (from per capita GSDP of Rs. 11,537 in 1984 to Rs. 64,712 in 2014) and the median state (Himachal Pradesh) increased its income level 4.3 fold.

10.3. Figures 2A, 2B and 2C show plots

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1   In 2011-12 prices. The words "income" and "per capita GSDP" are used interchangeably in this chapter.

Figure 1. Income Levels over the years in India, All Indian States
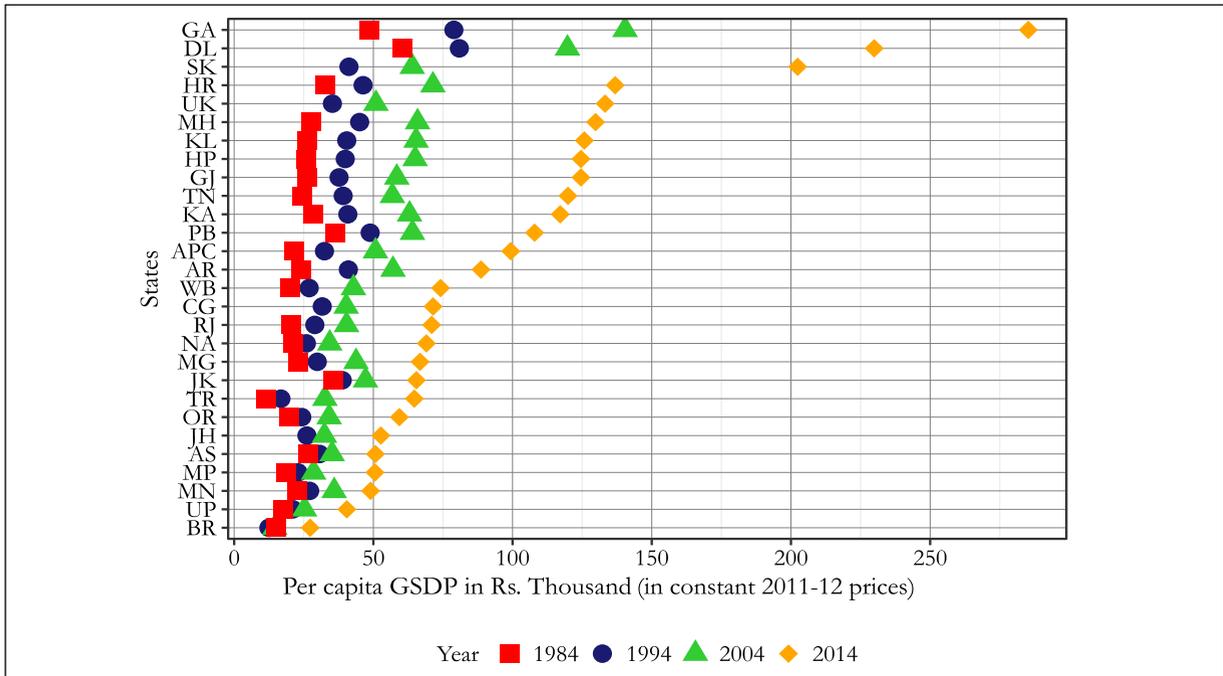
Source: **Survey estimates**

Figure 2A. Life Expectancy Levels Over Time in India
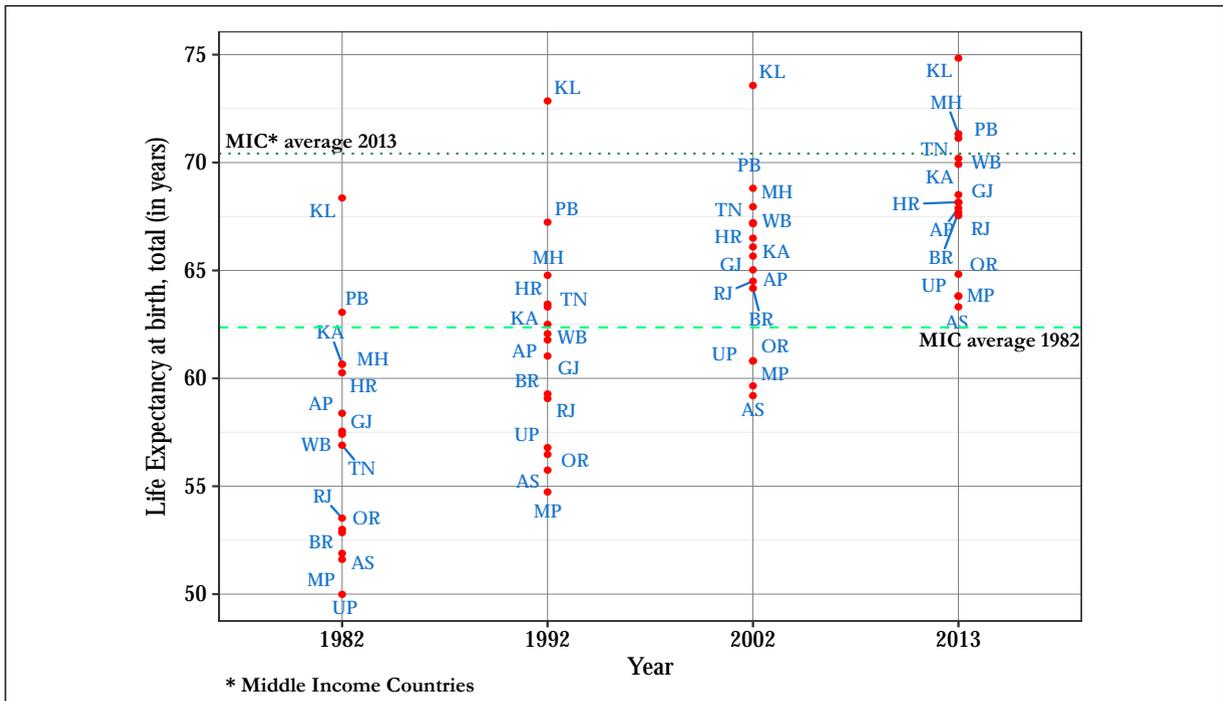
for life expectancy, infant mortality rate, and total fertility rate for Indian states[2]. Life expectancy at birth (LE) indicates the number of years a newborn would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

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[2] We focus on a sub-set of overall health indicators for reasons of space and tractability. It is possible that other indicators such as child stunting and maternal mortality do not conform to the patterns of the indicators we discuss here. Last year's Survey (Vol. 1, Chapter 5) contained an extensive discussion of outcomes relating to "mother and child," including stunting and health of pregnant women.

Figure 2B. Infant Mortality Rate (IMR) Levels Over Time in India
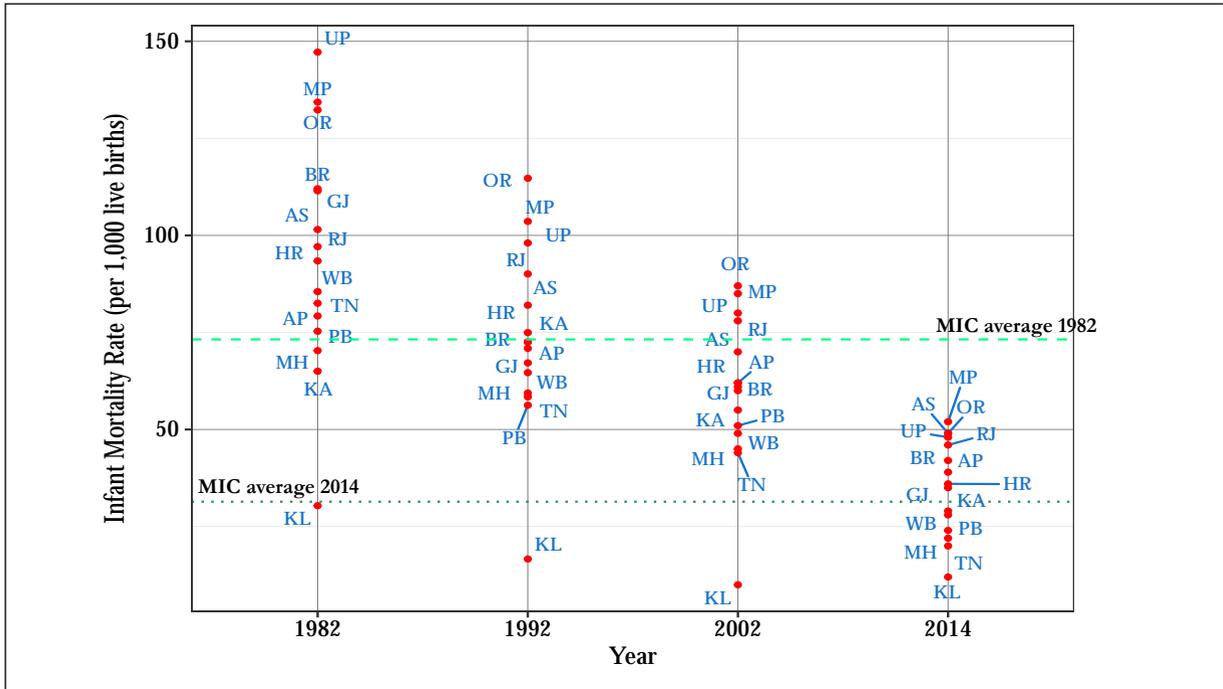
Figure 2C. Total Fertility Rate (TFR) Levels Over Time in India
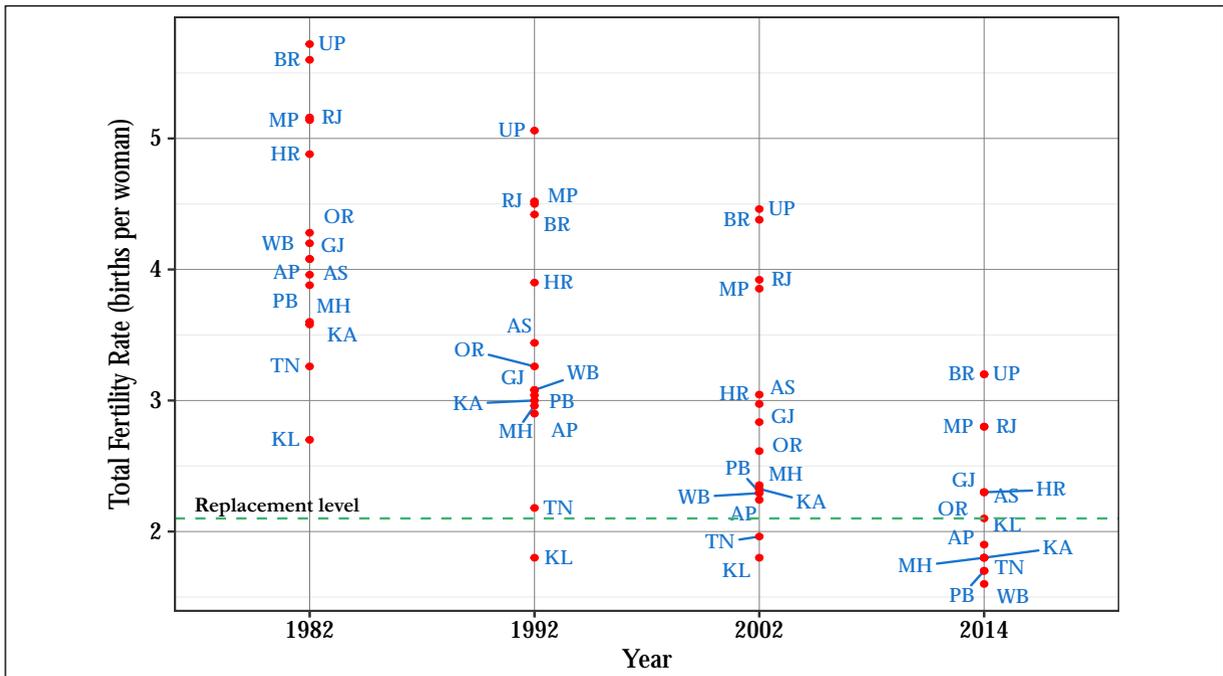
Source: **Sample Registration System**

Infant mortality rate (IMR) is defined as the number of infants dying before reaching one year of age, per 1,000 live births in a given year. Total fertility rate (TFR) is defined as the number of children that would be born

to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates in a given year.

10.4. Across these health and demographic

indicators, there have been dramatic improvements: over the last 3 decades, the poorest performer (UP) has increased its life expectancy by 13.8 years, reduced its IMR by 99 points, and lowered its TFR by 2.5 points (with a level of 3.2 TFR in 2014). The corresponding numbers for the median state are: a rise in life expectancy by 12.5 years (West Bengal), a fall in IMR by 36 points (Karnataka), and a drop in TFR by 1.8 points (Assam).

10.5. While these developments are encouraging, they don't allow a full assessment because there is no obvious benchmark to measure these improvements. How has Odisha done relative to Kerala? How have Odisha and Kerala done relative to other states? Economic theory provides one metric to make such comparisons: convergence (or unconditional convergence).

10.6. Convergence means that a state that starts off at low performance levels on an outcome of importance, say the level of income or consumption, should see faster growth on that outcome over time, improving its performance so that it catches up with states which had better starting points. For

example, since the per capita GSDP of Odisha in 1984 was 25 percent lower than the per capita GSDP of Kerala, traditional convergence theory would suggest that Odisha would experience higher growth rates over time, thereby reducing the gap between the two states.

10.7. Convergence is thus an intuitive measure of absolute and relative performance, allowing national and international comparisons. It measures the rate of catch-up, in particular whether less developed states have caught up with richer ones and hence whether regional dispersion is increasing.

10.8. In this chapter, we focus on two broad economic indicators—income and consumption—and three indicators of health and demographic outcomes—life expectancy, infant mortality rate and total fertility rate. We report three major findings.

II. Finding 1: Income/Consumption Divergence Within India

10.9. In terms of income convergence, Indian states offer a striking contrast to the catch-up that is happening globally and within

Figure 3. Income Convergence: India, China and the World, 2004-2014
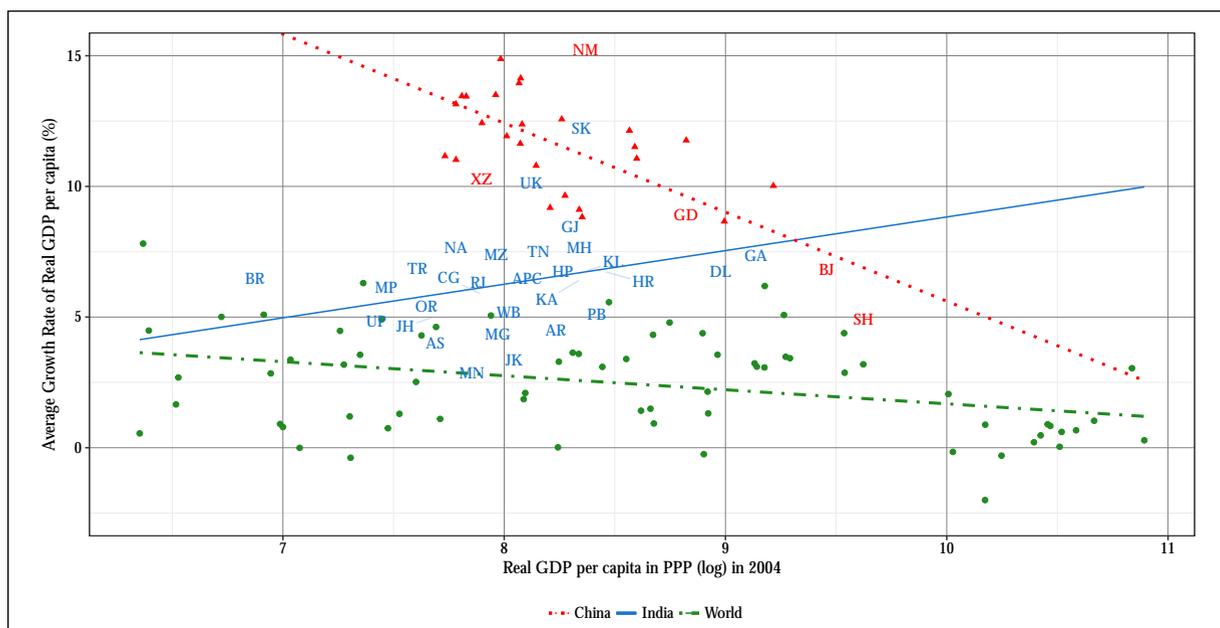
China. Figure 3 captures these divergent developments for the period 2004-2014. It plots income convergence for the world, China and India. In the figure, the growth of per capita GDP is on the y-axis and the log value of initial level of per capita GDP (in PPP terms) on the x-axis. For convergence or catch-up to occur, the relationship should be negative (the line of best fit should be downward sloping because convergence theory says that the less developed you are to start off with the faster you should grow subsequently). The blue, red, and green lines plot, respectively, the relationship for India, China, and the world.

10.10. The figure speaks for itself: the relationship is strongly negative for the world and China, and weakly positive for India. Poorer countries are catching up with richer countries, the poorer Chinese provinces are catching up with the richer ones, but in India, the less developed states are not catching up; instead they are, on average, falling behind the richer states.

10.11. Internationally, growth rates of per capita GDP widened at least since the 1820s with poorer countries growing slower than richer countries, leading to the basic divide between advanced and developing countries (Pritchett, 1997). However, since 1980 this long term trend was reversed and poorer countries started catching up with richer ones (Roy et. al., 2016). In stark contrast, there continues to be divergence within India or an aggravation of regional inequality.

10.12. What is especially striking is how convergence has evolved over time. In the 1990s, convergence patterns were not dissimilar (Figure 4 plots the same for the 1990s) across the world, China and India with either weak convergence or divergence. But things really changed for both the world and China in the 2000s;[3] they did not, however, for India. This was despite the promise that less developed states such as Bihar, Madhya Pradesh and Chhattisgarh had started improving their relative performance[4].But the data show that those developments were neither strong nor durable enough to change the underlying picture of divergence or growing inequality.

Figure 4. Income Convergence: India, China and the World, 1994-2004

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[3] This analysis finds that per capita incomes in the world and China are converging significantly.

[4] See Appendix II

10.13.   A similar exercise for consumption was conducted. Using data from the four reliable "thick" rounds of the National Sample Survey (1983, 1993-94, 2004-05, and 2011-12), convergence for both the state level and the level of regions within states was tested (which the NSS data allows for). Figure 5 plots state level consumption convergence regressions for the three decades. Again, no sign of convergence in the 2000s was found. The 1990s (purple line) and 2000s (brown line) show that consumption has been diverging for the last two decades[5].

10.14.   A robustness check that was performed relates to the sample. All the data described above for India pertains to the major states that account for 98 percent of the population and 93 percent of GDP in 2011-12. Appendix II contains figures that

plot the same convergence relationship for a sample including all the states. The same pattern of divergence appears to hold.

10.15.   A final check was performed by lengthening the time period of examination. Since convergence is a long term process, there might be evidence for it over a several decade horizon rather than a shorter time frame. There was no evidence of convergence in per capita NSDP in India for the 1970-2014 period.

10.16.   Barro   and   Sala-i-Martin   have documented that convergence occurred within the United States and Japan over long periods and that the average rate of convergence was about 2 percent[6] in income. This implies that a country will reach half the distance to the frontier in 35 years. During the 2000s, China posted a convergence rate

Figure 5. Consumption Convergence within India: 1993-2004, 2004-2011

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5   See Appendix II figure 4 for consumption convergence patterns over the last 3 decades.

6   This can be calculated by noting that the half-life, say t*, of a variable growing at a constant negative growth rate (say λ) is the solution to e$^{-\lambda t^*}$ = 0.5. Taking logs, t*= 0.69/λ.

of nearly 3 percent in income which implies that the poorest province will catch up with half the level of the richest province in 23 years. The evidence so far suggests that in India, catch-up remains elusive.

10.17.	The opposing results in India versus those in China and internationally pose a deep puzzle. Convergence happens essentially through trade and through mobility of factors of production. If a state/country is poor, the returns to capital must be high and should be able to attract capital and labor, thereby raising its productivity and enabling catch up with richer states/countries. Trade, based on comparative advantage, is really a surrogate for the movement of underlying factors of production as Samuelson pointed out early on. A less developed country that has abundant labor and scarce capital will export labor-intensive goods (a surrogate for exporting unskilled labor) and imports capital-intensive goods (a surrogate for attracting capital).

10.18.	The	main	finding	suggests that India stands out as an exception. Within India, where borders are porous, convergence has failed whereas in China, we observe successful convergence. Even across countries where borders are much thicker (because of restrictions on trade, capital and labor) the convergence dynamic has occurred. The driving force behind the Chinese convergence dynamic has been the migration of people from farms in the interior to factories on the coast, raising productivity and wages in the poorer regions faster than in richer regions.

10.19.	The Indian puzzle is deeper still because in Chapter 11 it can be seen that, contrary to perception, trade within India is quite high. And that chapter also documents that mobility of people has surged dramatically—almost doubled in the 2000s. These indicate that India has porous borders—reflected in actual flows of goods and people—convergence has not happened.

10.20.	Although further research is required to understand the underlying reasons, one possible hypothesis is that convergence fails to occur due to governance or institutional traps. If that is the case, capital will not flow to regions of high productivity because this high productivity may be more notional than real. Poor governance could make the risk-adjusted returns on capital low even in capital scarce states. Moreover, greater labor mobility or exodus from these areas, especially of the higher skilled, could worsen governance.

10.21.	A second hypothesis relates to India's pattern of development. India, unlike most growth successes in Asia, has relied on growth of skill-intensive sectors rather than low-skill ones (reflected not just in the dominance of services over manufacturing but also in the patterns of specialization within manufacturing). Thus, if the binding constraint on growth is the availability of skills, there is no reason why labor productivity would necessarily be high in capital scarce states. Unless the less developed regions are able to generate skills, (in addition to providing good governance) convergence may not occur.

10.22.	Both these hypotheses are ultimately not satisfying because they only raise an even deeper political economy puzzle. Given the dynamic of competition between states where successful states serve both as models (examples that become evident widely) and magnets (attracting capital, talent, and people), why isn't there pressure on the less developed states to reform their governance in ways that would be competitively attractive? In other words, persistent divergence amongst the states runs up against the dynamic of competitive federalism which impels, or at

least should impel, convergence.

III. FINDING 2: HEALTH CONVERGENCE WITHIN INDIA WITH ROOM FOR IMPROVEMENT AGAINST INTERNATIONAL STANDARD

10.23.   India's low level of expenditures on health (and education) have been the subject of criticism. It is worth understanding states' health and demographic outcomes since the 1980s. Two such key indicators are life expectancy at birth and infant mortality rate.

10.24.   There are two primary reasons to expect convergence in these key health indicators. Intuitively, the worse the initial situation, the faster progress will occur not least because many medical "technologies" such as antibiotics and other medical practices are commonly available across the world and India.

10.25.   Second is a measurement issue, there are much clearer bounds on health

indicators that would naturally lead to convergence. For instance, once a country has reduced its infant mortality to near zero, it is fundamentally impossible for it to experience a drastic reduction while countries with high mortality rates have much more room for improvement. This type of natural limit found in LE and IMR does not exist for income or consumption.

10.26.   Figures 6A and 6B plot such convergence charts for LE and IMR for the 2000s for Indian states and countries in the world[7]. The y-axis shows the annual average change during the 2000s (measured in percent growth rates for LE, level shifts for IMR), while the x-axis plots the initial log value of LE, and initial values for IMR.[8]

10.27.   On both indicators of health, there is strong evidence of convergence within India. Kerala, which started off with a life expectancy of 73.5 years in 2002, posted an increase of about 1.27 years over 11 years; UP,

Figure 6A. Life Expectancy Convergence: India and the World, 2000s

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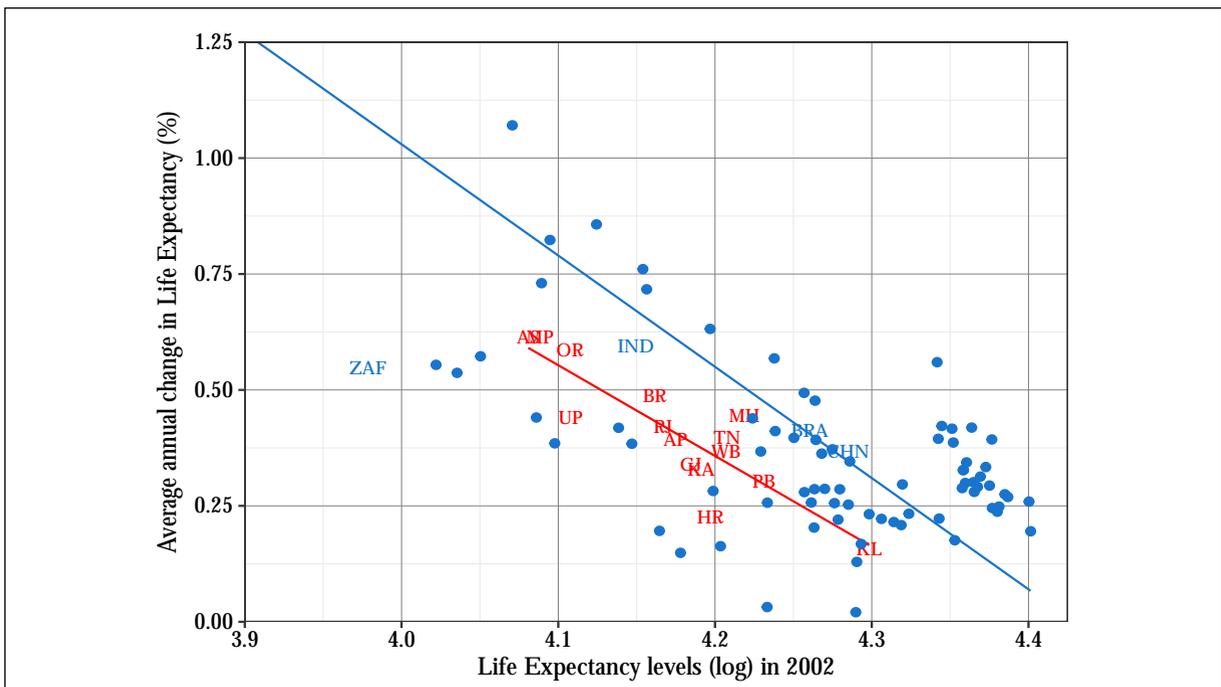
[7]   The patterns for the earlier periods are similar so we do not present them for tractability.

[8]   See Appendix I

Figure 6B. Infant Mortality Rate (IMR) Convergence: India and the World, 2000s
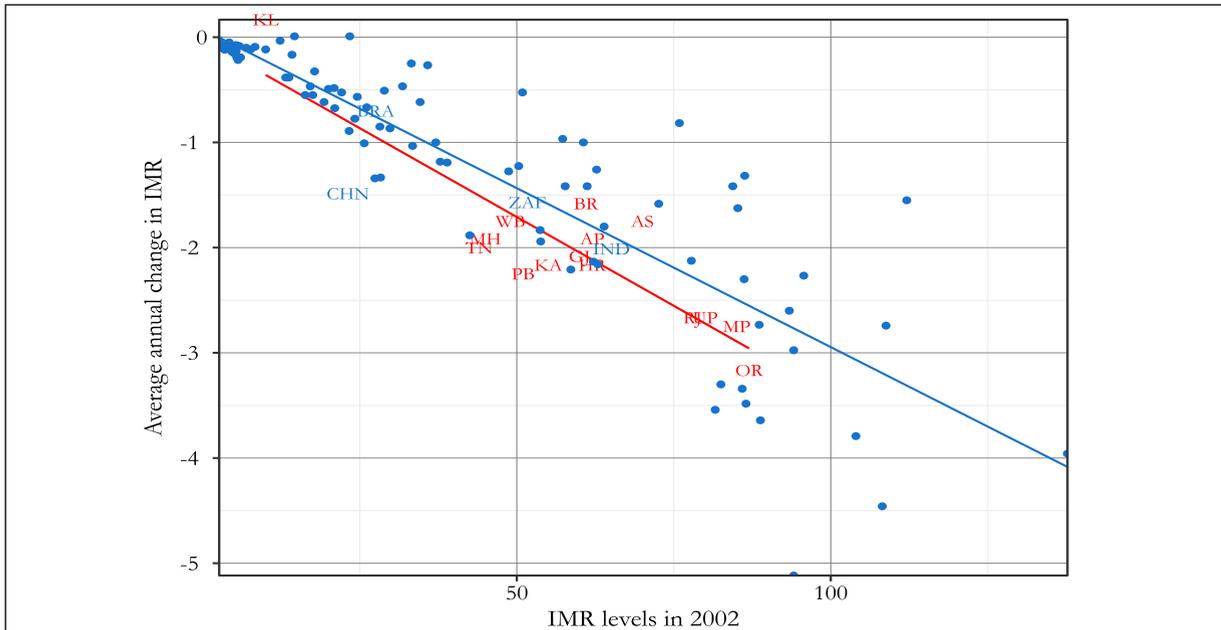
which started off with an LE of 60.8 years in 2002, saw a gain that was twice as large of about 3 years. Similarly, even more than a decade later, Kerala experienced little change in its IMR of 11 while Odisha registered a 49 point decrease, moving from an IMR of 87 to 38 points. The fact that convergence is occurring in key health indicators within India suggests that there are no traps of the sort described earlier that prevent technologies from flowing freely within the country.

10.28.   How does this progress compare on a global scale? There is an interesting contrast here. In LE, there is strong evidence of international convergence; however, the Indian states all lie below the line of best fit, indicating that the Indian states are making slower progress than the average country. For example, Kerala's LE increases by 1.7% in 11 years, whereas the representative country that started off at the same position as Kerala, posted greater gains in LE. This is true for all the Indian states. Further analysis shows that the under-performance of the Indian states was not true of the 1990s, but that owed in part to the AIDS epidemic that

drastically reduced LE in large parts of sub-Saharan Africa. The world recovered from that in the 2000s and seems to have posted stronger gains than the Indian states.

10.29.   The interpretation is the opposite for IMR, as Figure 6B indicates. Nearly all the Indian states lie below the line, indicating that they posted larger declines in the IMR than the average country. For example, Odisha registered a 38 point decline in IMR over the 2000s whereas the average country with similar IMRs in 2002 posted only a 28 point decline (Bihar, the median state in 2002, reports a drop from an IMR of 61 in 2002 to 42 in 2014.)

10.30.   So, there is convergence within India on the two health outcomes and India does not fare too badly in the 2000s compared to other countries. Another key comparison—which gives a sense of long-run performance—is simply to compare the level of these two outcomes today against a country's level of per capita GDP.

10.31.   Figures 7A-7B plot LE and IMR against GDP per capita for Indian states and the world. In LE, the Indian states are

Figure 7A. Life Expectancy and Per Capita GDP: India and the World, 2013
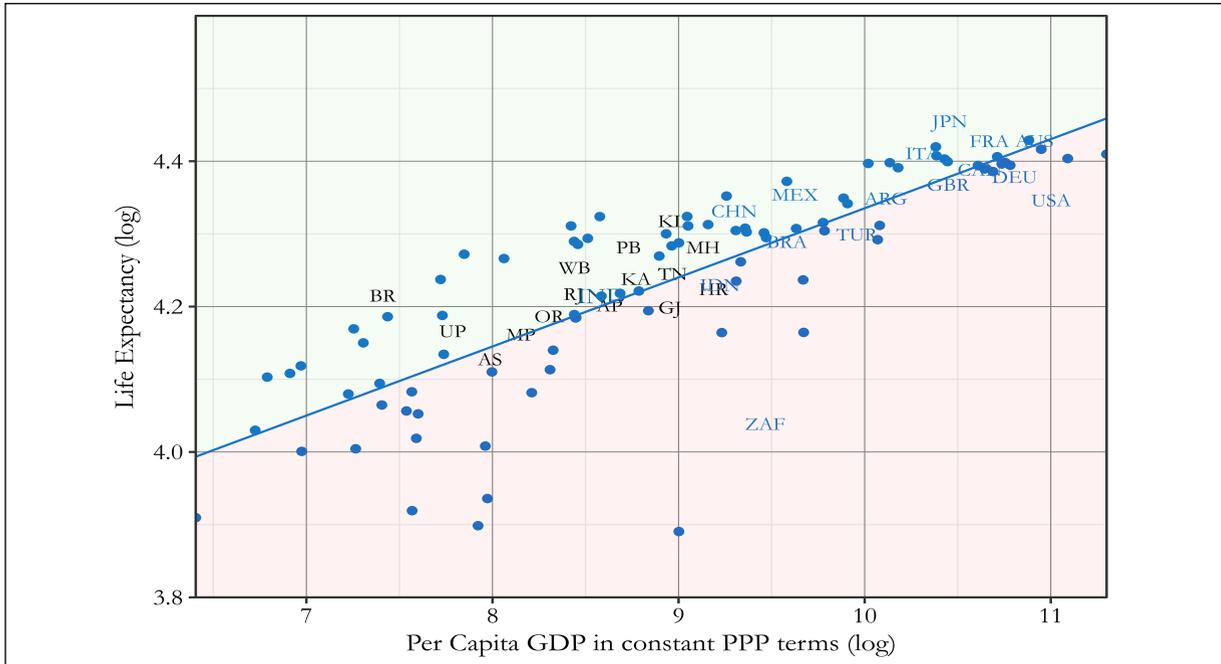
Figure 7B. Infant Mortality Rate and Per Capita GDP: India and the World, 2014
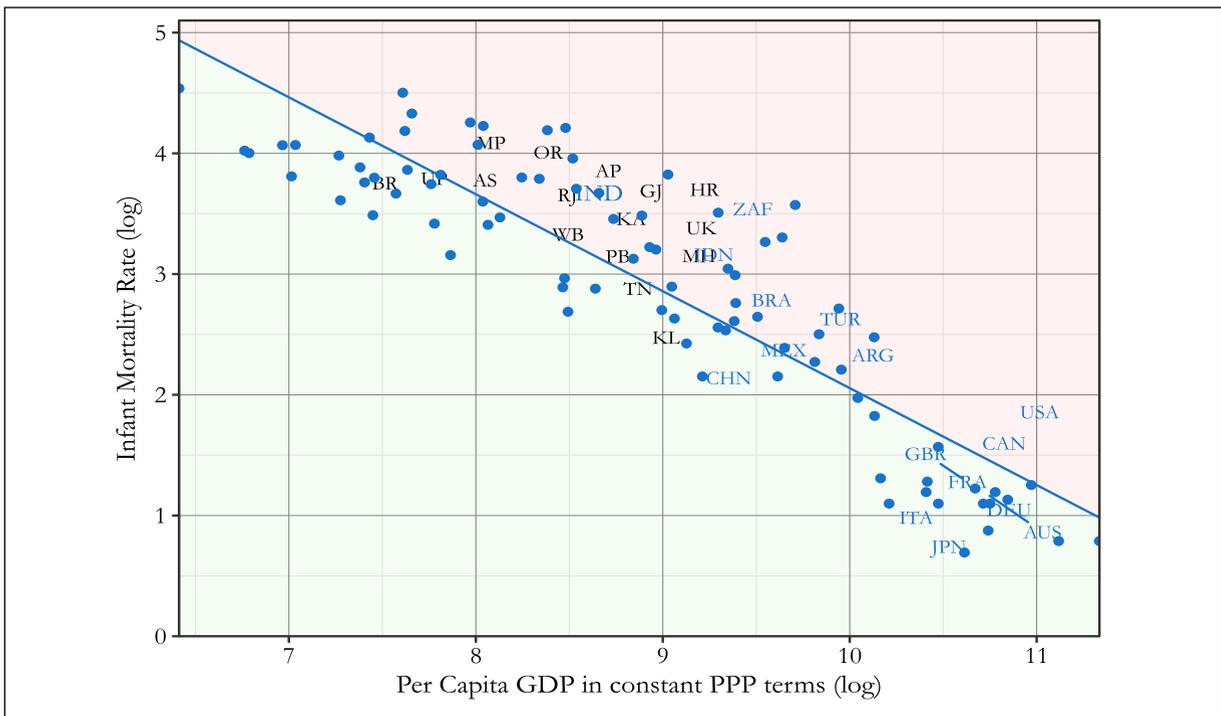
doing about the same or better on average than their international counterparts (they are mostly above the line of best fit); but for IMR, most states look worse in this international comparison (they are above the line of best fit). This is consistent with

last year's Survey finding that children and women perhaps bear the burden of deficient systems of health delivery.

10.32.   In sum, India is doing reasonably well on life expectancy on an international scale, but on IMR has scope for improvement.

IV. Finding 3: Fertility: Exceptional Performance

10.33. Perhaps one of the most striking developments over the past decade has been in fertility. First, 12 Indian states out of the reporting 23 states have reached levels of fertility that are below the replacement rate (2.1). Second, like in the case of LE and IMR but unlike income, there is evidence of strong convergence across the states. Figure 8A shows in the last decade, a pattern that was not true in the 1980s and 1990s. For example, between 2002 and 2014, UP reduced its TFR by 1.3 points compared with Kerala that registered an increase and Tamil Nadu which posted a very small decline.

10.34. Again, all the Indian states (with the exception of Kerala) lie below the line of best fit, suggesting that they are performing much "better" (in the sense of more rapid fertility declines) than countries on average. The extent to which they are doing better is striking especially for the high TFR states such as Bihar, UP, MP and Rajasthan. These states are in fact posting much stronger fertility declines than is true of the average country.

10.35. All these developments are reinforced when doing a comparison of Indian states against their international counterparts. Figure 8B plots the level of TFR for countries and the Indian states against the level of per capita GDP. The figures show the striking over-performance of the Indian states which are all below the line of best fit. For their level of development, the Indian states have much lower levels of fertility than countries internationally.

10.36. These fertility developments have strong implications for the demographic dividend going forward that are explored in the overview chapter.

V. Conclusions

10.37. Despite growing rapidly on average, there is sign of growing regional inequality among the Indian states. This is puzzling because the underlying forces in favor of equalization within India—namely strong and rising movements of goods and people—are strongly evident. One possible hypothesis that there might be governance traps that impede the catch-up process. And if there are such traps, labor and capital mobility

Figure 8A. Total Fertility Rate Convergence: India and the World, 2000s
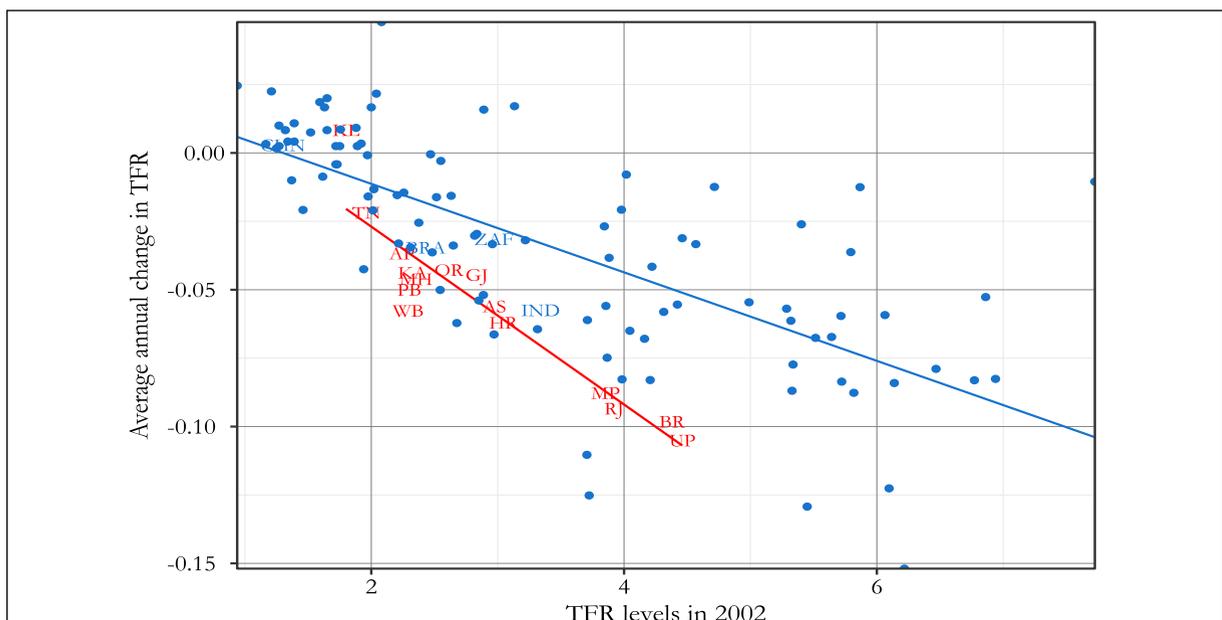
Figure 8B. Total Fertility Rate and Per Capita GDP: India and the World, 2014
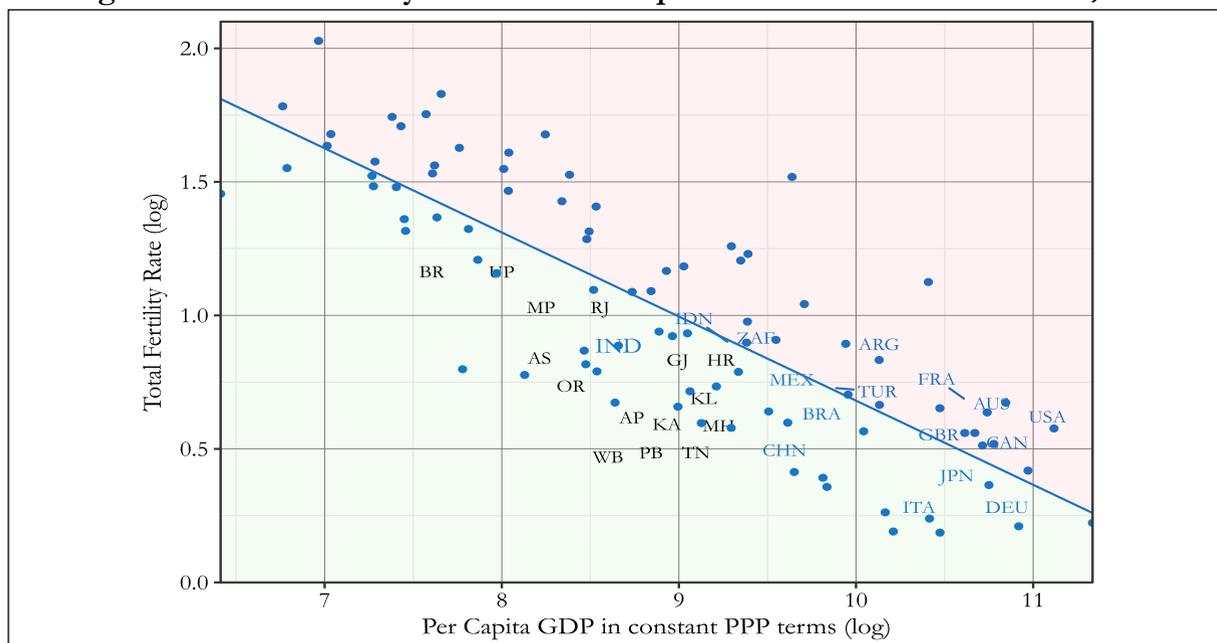
might even aggravate underlying inequalities. But why such traps persist if competitive federalism is forcing change upon the lagging states remains an open question.

9.38. In contrast, on health and demography, there is strong evidence of convergence amongst the states in the 2000s. This was not true in the previous decades for IMR and fertility. Here it is the international contrast is striking. With regards to life expectancy, the Indian states are close to where they should be given their level of income. However, this is not true of IMR, suggesting that the "mother and child" (discussed also in last year's Survey) bear the brunt of weaker delivery of health services. What really stands out in the international comparison is fertility and how much better the Indian states are performing than their international counterparts on that metric. These unusually large declines in fertility have strong—and positive—implications for India's demographic dividend going forward.

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Appendix I

Per Capita GDP convergence

1. 1980 to 2014-15 state GDP (provided by CSO) spliced series has been used for analysis. The series has been spliced at 2011-12 prices.

2. Decadal (1981, 1991, 2001, 2011) state level populations have been used for the analysis. For all the in between years, simple linear interpolation has been done to calculate the population numbers for calculating the per capita GSDP.

3. CAGR has been used for running unconditional convergence regressions on GDP per capita for various states, countries and regions.

4. The international per capita income data was taken from WDI Databank, and WEO databases.

5. BRC, MPC, UPC, APC stand for Bihar Combined (Bihar + Jharkhand), Madhya Pradesh Combined (Madhya Pradesh + Chhattisgarh), Uttar Pradesh Combined (Uttar Pradesh+Uttarakhand) and Andhra Pradesh Combined (Andhra Pradesh +Telangana) respectively. The per capita income for these entities were calculated (post split) by adding the GSDPs for each state and dividing by the total population of both states.

6. West Bengal GSDP series is not available at 2011-12 prices. Its 2011-12, splicing factor has been calculated using the ratio of sum of all other state GSDPs for 2011-12 (in 2004-05 prices) to sum of all other state GSDPs in 2011-12 (in 2011-12 prices)

7. Financial year (April to March) GDP numbers have been converted into calendar year (January to December) numbers by using a 0.25/0.75 ratio for every year. (E.g. The 2011 GSDP figure is 0.25 * 2010-2011 GSDP + 0.75*2011-2012 GSDP)

8. Major states have been defined as those that had a population of 10 million and above in 2011. Only they are used in unconditional convergence analysis. Results remain robust even if all the states are used.

9. For the long convergence between 1970 and 2014, NSDP data from EPW foundation has been used because CSO data is unavailable for this period.

10. In making the China, India, and world comparison: PPP current international $ (2011 prices) time series for GDP per capita for the world has been used. For China, the GDP per capita has been calculated for provinces in RMB. It has been divided by the RMB PPP conversion factor as of 2011 (3.506). For India, the GDP per capita for states has been calculated in Rupees. It has been divided by Rupees PPP conversion factor as of 2011 (15.109).

11. A balanced panel of 87 countries has been used for the analysis. Countries with population less than 1 million and oil countries[9] have been excluded.

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[9] **Countries with population less than one million in 2011:** Antigua and Barbuda,Bahamas , Belize, Bermuda, Barbados, Brunei Darussalam, Bhutan, Comoros, Cape Verde, Cyprus, Djibouti, Dominica, Fiji, Equatorial Guinea, Grenada, Iceland, St Kitts and Nevis, St Lucia, Luxembourg, Macao, Maldives, Malta, Montenegro, Sao Tome and Principe, Suriname, St. Vincent and the Grenadines.

Oil exporting countries: Algeria, Angola, Chad, Congo, Kuwait, Gabon, Nigeria, Sudan, Kazakhstan, Russian Federation, Libya, Oman, Saudi Arabia, Turkmenistan, Azerbaijan, United Arab Emirates, Yemen, Iran, Qatar, Bahrain, Ecuador, Venezuela, Trinidad & Tobago

CONSUMPTION CONVERGENCE

1. NSSO Consumption surveys data of the 38th (1983) Round, 50th (1993-94) Round, 61st (2004-05) round, and 68th (2011-12) round have been used for calculating the Monthly Per Capita Expenditure (MPCE). Uniform Recall Period (URP)-based MPCE have been used in the analysis.

2. Real Monthly Per Capita Expenditure has been calculated using the CPI deflators. The aggregate deflator has been calculated by taking rural and urban population weighted CPI-AL and CPI-IW average.

3. For all the NSSO rounds except 38th round, the survey period is July to June. In 38th round, the survey period was January 1983 to December 1983. CPI deflators for corresponding periods have been taken for creating the Real MPCEs.

4. Real MPCEs have been deflated on the basis of July 2011 to June 2012 CPI base prices.

5. Delhi and Chandigarh are outliers in terms of real MPCE levels. Therefore they have not been kept in the analysis.

6. All the states with less than 1 million population .i.e. Lakshadweep, Andaman & Nicobar Islands, Daman & Diu, Dadra & Nagar Haveli and Sikkim have been dropped for analysis.

7. In the unconditional convergence regressions, CAGR values have been used as growth rates calculation.

8. In order to keep a balanced panel through time, the entities of Bihar Combined (BRC), Madhya Pradesh Combined (MPC) and Uttar Pradesh Combined (UPC) have been created. Real MPCE values have been calculated for these entities by taking population weighted averages of Bihar and Jharkhand; Madhya Pradesh and Chhattisgarh; Uttar Pradesh and Uttarakhand respectively. This exercise is done to make state level analysis comparable across time.

HEALTH INDICATORS CONVERGENCE

1. For the international level analysis, a balanced panel (using World Bank Data) has been created for each of the health indicators. Total Fertility Rate (TFR) panel has 103 countries. Life Expectancy and IMR panels have 101 countries.

2. Countries with population less than 1 million and major oil exporting countries have been dropped.

3. For Indian states, the data provided by Sample Registration System (SRS) reports and bulletins have been used for the analysis.

4. Life Expectancy (LE) numbers are not available for 2014. So for LE, the analysis is done only up to 2013. For the other two measures, data up to 2014 has been used.

5. Life expectancy values for Jharkhand, Chhattisgarh, and Uttarakhand are not provided in the SRS reports and bulletins. Therefore, they have not been kept in the analysis. IMR numbers for the same set of states show volatility. Hence, even for IMR these states are not kept in the analysis. TFR data for these three states is only available from 2004 onwards.

6. For the three health parameters in the pre-split period, data is used for undivided Bihar,

Madhya Pradesh and Uttar Pradesh. Whereas in the post-split period, the data is used for the split Bihar, Madhya Pradesh and Uttar Pradesh.

7. The growth rate for life expectancy is Compounded Annual Growth Rate (CAGR), whereas the growth rate for IMR and TFR are annual average of the differences. This distinction has been made keeping in mind that TFR and IMR are already expressed as ratios and they have a lower bound of zero, whereas life expectancy is a level variable.

8. Indian states IMR data has been prepared by taking 3-year moving averages. TFR data has been prepared by linearly interpolating the values for the intermediate years.

9. Indian states LE data values are given in period class intervals. LE value has been taken to remain the same for all the years between each period class interval.

10. IMR and TFR are expressed in term of ratios whereas LE is a level number. Therefore, CAGR has been taken for LE and yearly averages have been taken for IMR and TFR.

Abbreviations	
Statecode	Statename
APC	Telangana + Andhra Pradesh
AR	Arunachal Pradesh
AS	Assam
BR	Bihar
BRC	Bihar + Jharkhand
CG	Chhattisgarh
DL	Delhi
GA	Goa
GJ	Gujarat
HR	Haryana
HP	Himachal Pradesh
JK	Jammu & Kashmir
JH	Jharkhand
KA	Karnataka
KL	Kerala
MP	Madhya Pradesh
MPC	Madhya Pradesh + Chhattisgarh
MH	Maharashtra
MN	Manipur
MG	Meghalaya
MZ	Mizoram
NA	Nagaland
OR	Odisha
PB	Punjab
RJ	Rajasthan
SK	Sikkim
TN	Tamil Nadu
TR	Tripura
UP	Uttar Pradesh
UPC	Uttar Pradesh + Uttarakhand
UK	Uttarakhand
WB	West Bengal

1. Income convergence in India, 1984-1994
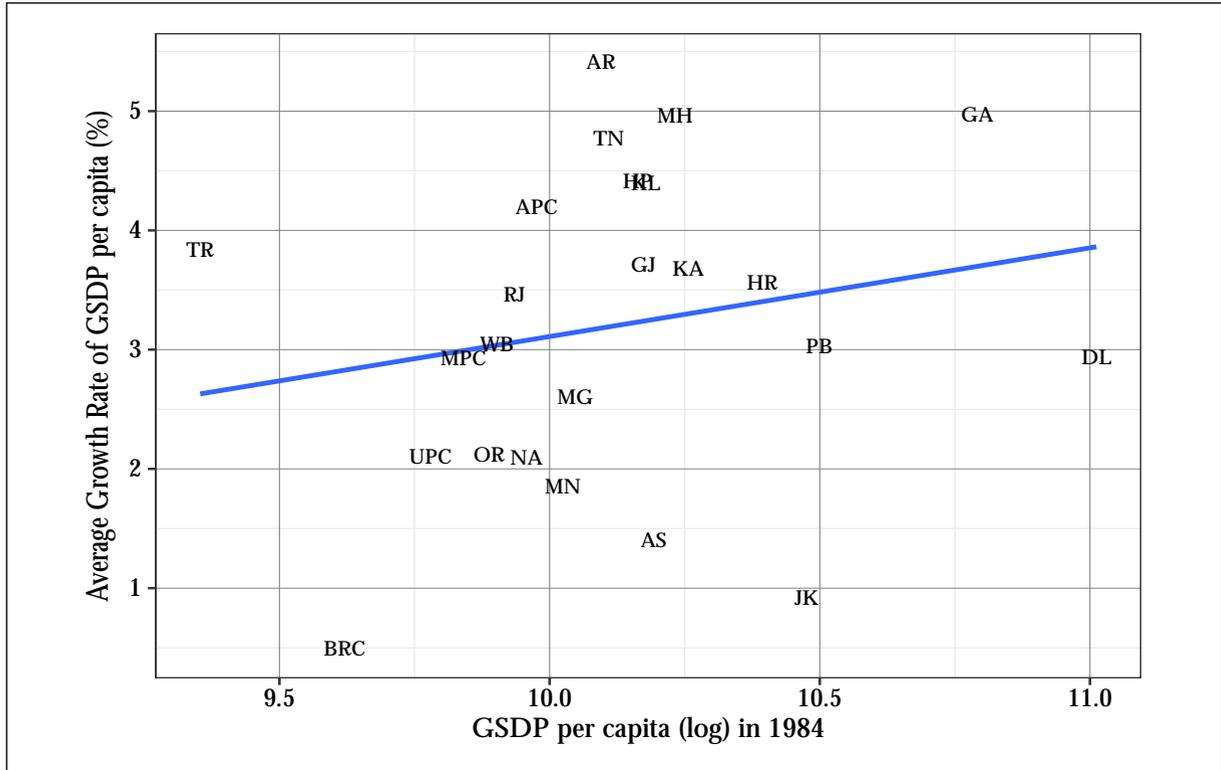
2. Income Convergence, 1994-2004
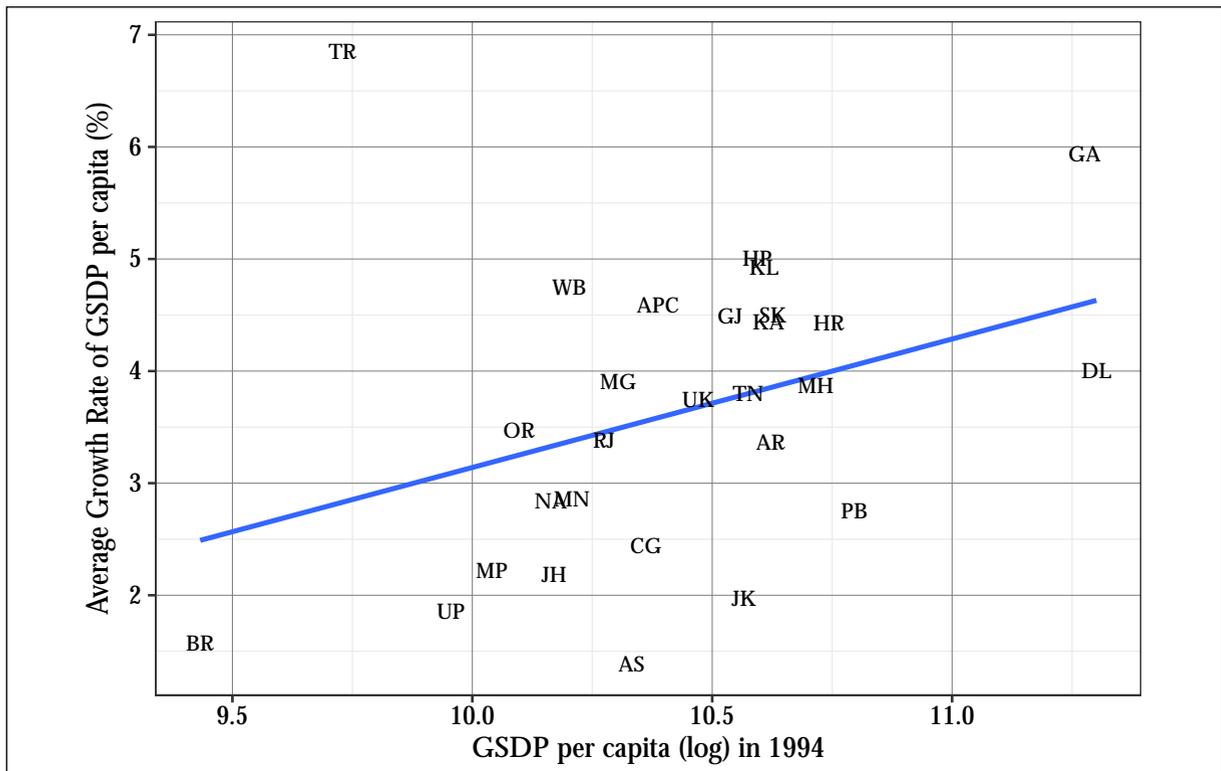
3. Income Convergence in India, 2004-14
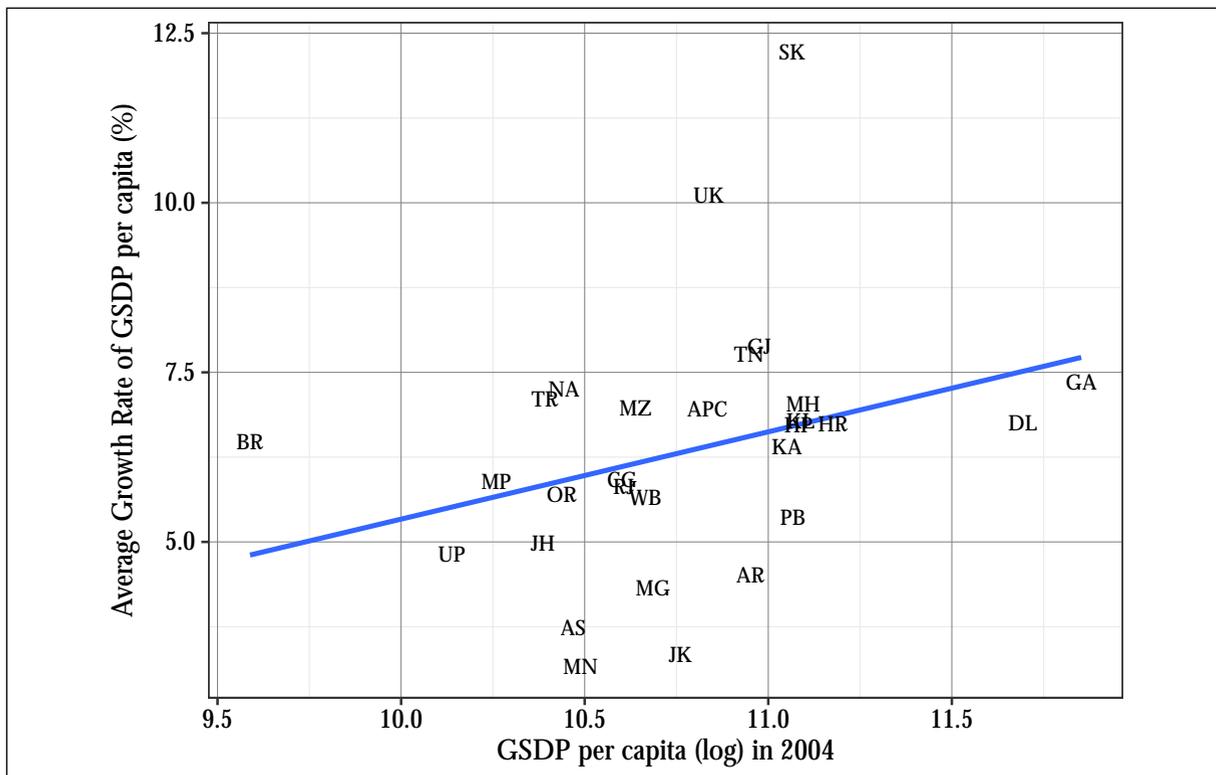
4. Consumption Convergence within India: 1983-1993, 1993-2004, 2004-2011
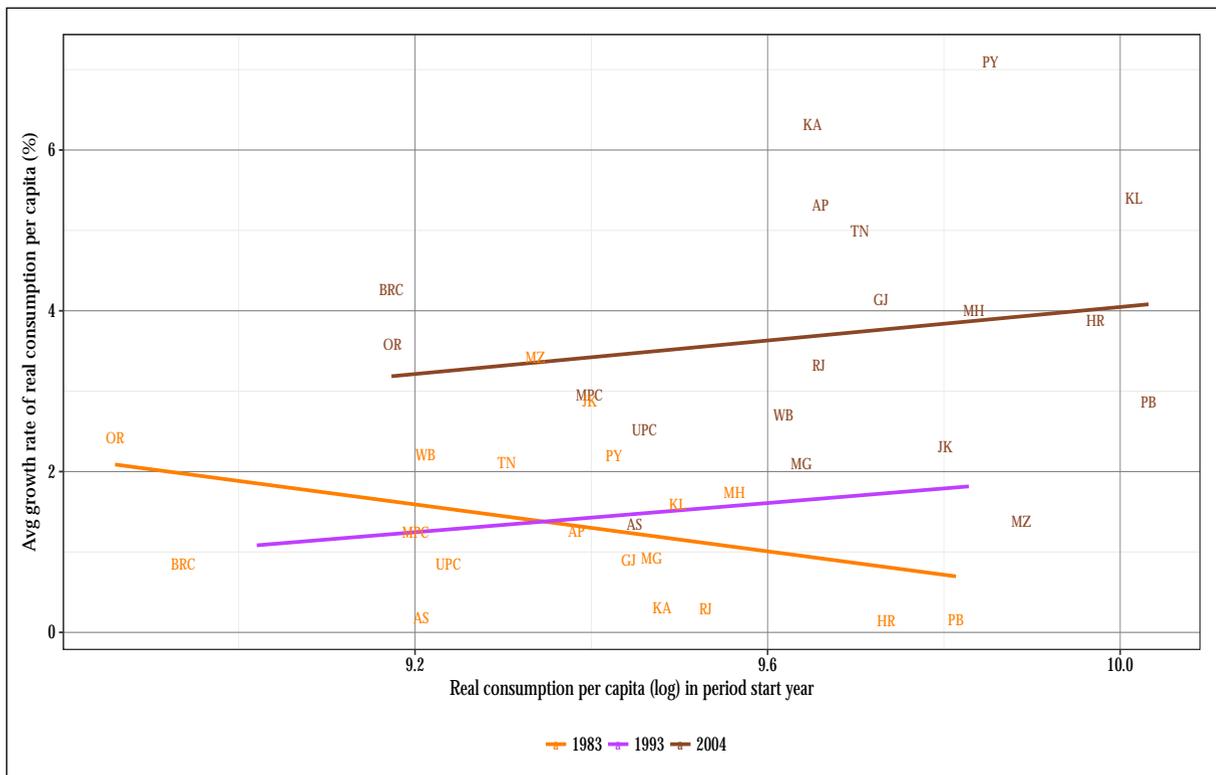
One Economic India: For Goods and in the Eyes of the Constitution

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11

CHAPTER

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> *Where the world has not been broken up into fragments by narrow domestic walls.*
>
> **– Rabindranath Tagore**

> *The popular impression is one of an India having achieved political integration but an incommensurate economic integration. Based on a novel source of Big Data—invoice-level transactions from the Goods and Services Tax Network (GSTN)—the chapter documents high levels of internal trade in goods. India's internal trade-GDP ratio at about 54 percent is comparable to that in other large countries. The chapter also documents patterns of trade flows across states which are consistent with priors but also throw up surprises, for example, that Uttar Pradesh is a net exporter of, and hence competitive in, manufacturing. The extent to which the Constitutional provisions facilitate the creation of one economic India is discussed in a final section.*

INTRODUCTION

11.1 When, several decades ago, an earnest Raj Kapoor famously sang *"Phir bhi dil hai Hindustani,"* ("Still, my heart is Indian"), he was expressing what in hindsight appears to be a deep insight on comparative national development. To the Bismarckian sequence "We have created Europe. Now we must create Europeans," the Raj Kapoor counter seems to be that India's founding fathers certainly created (and rightly favored creating) Indians in spirit and political consciousness.[1] The open question is whether they created one economic India, one market place for the free, unimpeded movement of goods and people. A cautious reading of the Constitution and the Constitutional Assembly debates intimates uncertainty; a less cautious reading indicates that the needs of creating one economic India were actually subordinated to the imperatives of preserving sovereignty for the states (Section 2 below).[2]

11.2 This chapter attempts to assess the extent to which India, which for nearly seventy years has affirmed and re-affirmed the political "idea of India," is de facto and de jure one economic India. At a time when *international* integration is under siege and when India is on the cusp of implementing transformational reforms to create "One India, One Market, One Tax," via the Goods

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[1]   This is a paraphrase of "We have created Italy. Now we must create Italians," by Italian statesman Massimo d'Azeglio after Italian unification.

[2]   The difficulties of European integration reflected in the Brexit vote and in the acrimonious debates on the design of the euro seem to suggest that perhaps the Indian sequencing was not just not inappropriate but prescient.

and Services Tax (GST), it seems appropriate to ask how much *internal* integration India has achieved. To be clear, unless otherwise specified, hereafter, trade will refer to trade between states within India.

11.3 This is done on the basis of a new "Big Data" set available from the Goods and Service Tax Network (GSTN- invoice level data on interstate movement of goods). Box 1 describes in detail how these data have been prepared but for now the main findings are summarised.

11.4 Contrary to perception and to some current estimates, it seems that India is highly integrated internally, with considerable flows of both people and goods. The headline findings are:

- The first-ever estimates for interstate trade flows indicate that cross-border exchanges between and within firms amount to at least 54 per cent of GDP, implying that interstate trade is 1.7 times larger than international trade. Both figures compare favourably with other jurisdictions: *de facto* at least, India seems well integrated internally. A more technical analysis confirms this, finding that trade costs reduce trade by roughly the same extent in India as in other countries.

- A potentially exciting finding for which we have tentative not conclusive evidence is that while political borders impede the flow of people, language (Hindi specifically) does not seem to be a demonstrable barrier to the flow of goods.

- The patterns of flows of goods are broadly consistent with priors but also throw up some surprises:
    o For example, on trade as a per

cent of GSDP, smaller states like Uttarakhand, Himachal Pradesh and Goa trade more; the net exporters are the manufacturing powerhouses of Tamil Nadu and Gujarat but otherwise agricultural Haryana and Uttar Pradesh are also powerhouses because of Gurugram and NOIDA, respectively which have become part of the great Delhi urban agglomeration.

- Another finding is that the costs of moving are about twice as great for people as they are for goods (Chapter 12).

- There is a potential dampener on our finding that trade in goods is high within India. This may be a consequence of the current system of indirect taxes which perversely favours interstate trade over intra-state trade, especially in the cases of final consumption items, exempted goods, or goods that are input tax credit ineligible. If true, the GST by ironing out these oddities may normalise interstate trade[3].

- A final finding is that we are able to quantify not just arms-length interstate trade (that is trade between firms), but also intrafirm trade across states. The latter is, surprisingly large (at least 68 per cent of interfirm trade), and is affected by trade costs to a greater extent than interfirm trade. It is also surprising given the constitution favours preserving state sovereignty over one market.

11.5 This chapter is organized as follows. In Section 1, we document our findings on trade. Section 2 examines the Constitutional provisions on promoting internal integration by comparing it with other models. The open question is whether laws can more proactively facilitate the economic integration of India.

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[3]   GST may still improve revenue collection through increased compliance, competitive enhancement benefits and other channels

SECTION 1. ONE INDIA: INTERNAL TRADE IN GOODS

Figure 1. Freight trucks queued up close to a border

(© Yann Forget / Wikimedia Commons / CC-BY- SA-3.0)

11.6 Images of queues of trucks in India, idling at state borders with their drivers haggling for official clearances or being subject to extortion are legion (Figure 1). The consequent damages to trade and economic activity too have been extensively catalogued. But is there empirical truth to these disparaging descriptions of India?

11.7 While international barriers to trade have been studied extensively, less attention has been devoted to studying the impact of trading networks and other barriers (political and cultural) to trade within countries. The estimation of these barriers to intra-national trade for India has hitherto been challenging due to the absence of a comprehensive interstate trade dataset. This chapter presents the first estimates of internal trade within India using a novel data source – transactions recorded in the process of Central Sales Tax (CST) collection as provided by Tax Information Exchange System (TINXSYS)[4]. This data covers all modes of transportation, including over road, which had been missing from previous attempts to study interstate trade flows.

I. Does India Trade More Than Other Countries?

11.8 Table 1 compares India's international and intra-national trade flows with that of other countries. The results here are surprising: India's aggregate interstate trade (54 per cent of GDP) is not as high as that of the United States (78 per cent of GDP) or China (74 per cent of GDP) but substantially

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[4] A detailed review of intra-national studies for India returns a single study, undertaken by the Directorate General of Commercial Intelligence and Statistics (DGCIS) Kolkata. The data captures trade flows between states only of goods moved through rail, air and inland waterways, failing to capture the most important component of trade via roads. Crucially, this data also fails to capture the rupee value of the trade flows and only captures quantities. http://www.dgciskol.nic.in/vaanijya/Indiaper cent20Internalper cent20Trade.pdf

greater than provincial trade within Canada and greater than trade between Europe Union (EU) countries (which is governed by the "four freedoms": allowing unfettered movement of goods, services, capital, and people). This is all the more striking given that the data here covers mainly manufactured goods, excludes agricultural products, and is therefore an underestimate of total internal trade in goods.[5] A substantial portion (almost half) of trade across states in India occurs as stock transfers within firms. That is, intrafirm trade is high relative to arms-length trade.[6]

11.9   Another way of gauging the magnitude of trade is to compare countries' internal trade with their international trade. India's internal trade is about 1.7 times its international trade

Table 1. Comparisons of International and Interstate Trade Flows

Country	Year	Interstate/GDP	International/GDP	Ratio of Interstate to International
Brazil[e]	1999	76%	14%	5.4
USA[a]	2015	78%	31%	2.5
India (C+F form)	2015	54%	32%	1.7
India (C Form)	2015	32%	32%	1
China[d]	2009	74%	45%	1.6
Canada[b]	2012	20%	62%	0.3
European Union[c]	2015	20%	84%	0.2
Indonesia[f]	2005	12%	63%	0.2

a: Freight Analysis Framework Data Tabulation Tool, b: Statistics Canada, c: Eurostat, d: Xing, Whalley and Li(2015), e: Vasconcelos (2001), f: Firdaus and Widiyasanti (2010)

Figure 2. Ratio of Interstate to International Trade by Log of Area

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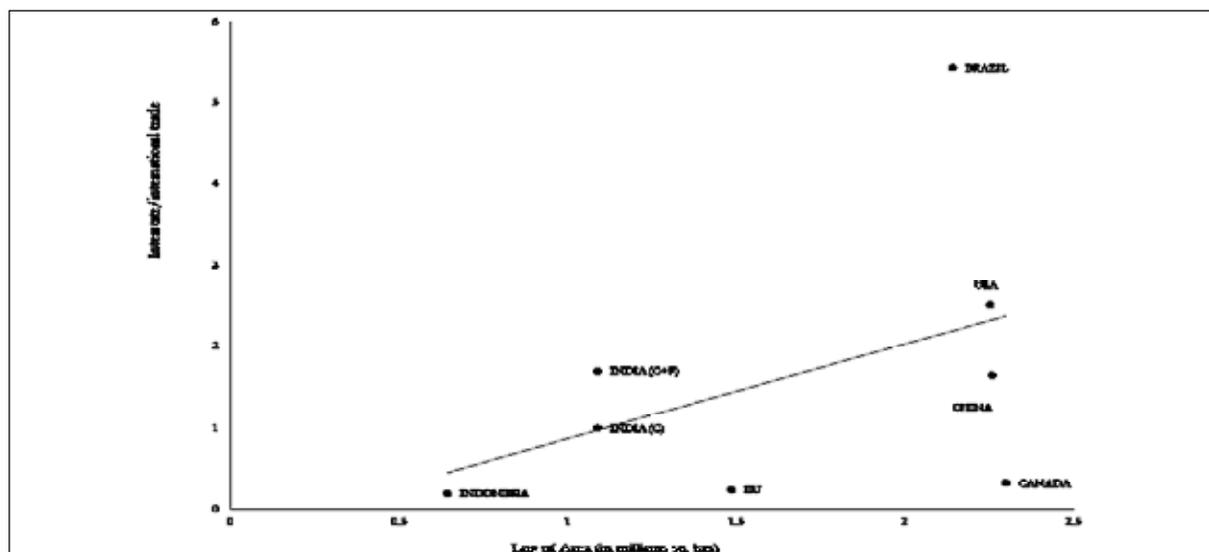
5   In the present study the commodities are limited to those that are liable for CST. In broad terms, the trade patterns shown here pertain to manufactured goods more than agricultural goods or services. Box 1 outlines the data preparation strategies we have employed to bring the TINXSYS data into "shape" for conducting the analysis of interstate trade.

6   In the following sections, arms-length and intrafirm trades are referred to, respectively as C-Form and F-Form trade in deference to the procedural requirements imposed by the administration of the CST. C-forms impose a 2% CST on goods trade, whereas F-form do not incur any taxes on account of the trades being stock transfers

of 32 per cent of GDP. By this criterion, India's trade profile more similar to that of China, whose internal trade is 1.6 times its international trade but less than the United States whose internal trade is 2.5 times its international.

11.10　The intuition from standard gravity models of trade is that large countries trade more within their own borders than beyond them because of the size of their domestic markets. Figure 2 illustrates this relationship for India and other countries by plotting the ratio of internal to international trade against a country's size. By this metric, the real outliers are Canada whose internal-external trade seems unusually low for its size and Brazil for whom this ratio seems unusually high. In contrast, India seems quite standard: the caricature of a country that is closed to international trade now seems dated (Chapter 2, Figure 1B), but so too does the caricature of a country closed to internal trade.

II. Relationship between Interstate Trade and Manufacturing

11.11　Figure 3 plots arms-length (between two different firms) and intrafirm trade flows against the manufacturing share of states' GSDP[7]. There is a strong correlation between a state's manufacturing share of GSDP and its trade volumes (as a per cent of GSDP) along expected lines because our data captures trades in manufacturing items only[8]. The other key observation to be made from the figure is the exceptional manufacturing share of Uttarakhand, Himachal Pradesh and Goa relative to other states. This manufacturing prowess in turn is associated

with higher interstate trades. The reasons are discussed in the following sections.

Figure 3. Relationship between Interstate Trade and Manufacturing Output
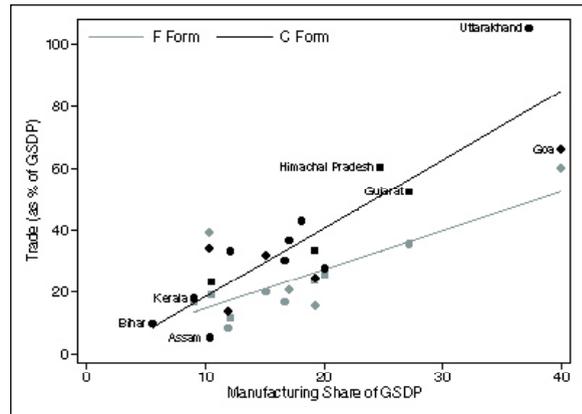
III. Patterns of Interstate Trade: Arms-Length Trade[9]

Openness to Interstate Trade (Exports + Imports)

11.12　Figure 4 plots the value of domestic trade in Indian states as a per cent of their GSDP. The most open states by this measure are Uttarakhand, Goa, Himachal Pradesh and Gujarat with Assam, Bihar and Uttar Pradesh bringing up the rear. High GSDP states such as Maharashtra and Tamil Nadu are conspicuous in their absence from the top of the list – though their trade to GSDP ratio is still substantial at 33 per cent and 24 per cent, respectively. This is the first of many indications that while India's borders seem porous, this might be because of its complex regulations rather than inspite of it.

11.13 This is illustrated for two of the positive outliers - Himachal Pradesh and Uttarakhand, whose exceptional trade volumes might be explained by the exemption from central excise tax for manufacturing in these

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[7]　Manufacturing as a share of GSDP is a simple average of manufacturing share obtained from CSO 2011-12 base series for the financial years 2012-2015.

[8]　This relationship holds even between exports as a per cent of GSDP and manufacturing share of GSDP.

[9]　The trade flows for interfirm trades (C Forms) are a close measure of what it would be for all states since we capture flows between all states except north-eastern states, Punjab and union territories.

Figure 4. Arms-Length Trade (Per cent of GSDP)
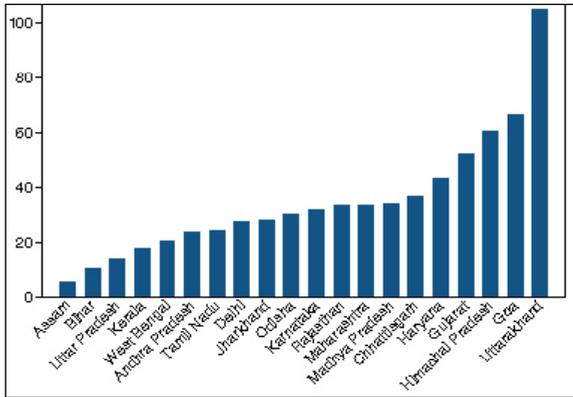
states[10]. The outlier status of these states is even more apparent when we examine the gravity relationship across states in the later sections – that is, whether smaller states trade more than larger ones.

11.14 The outliers on the under-performing side are Assam (5.3 per cent), Bihar (9.9 per cent) and Kerala (17.9 per cent), who have much lower trade openness than what their size would predict. This is not surprising in view of Figure 3 which shows that these states have small manufacturing share in their GSDP. The other possibility is the exclusion of north-eastern states that may be important trading partners for Assam and Bihar.

11.15 Figure 5 plots the relationship between trade within India, Canada and US states and the log of their land area. Indian states exhibit a negative relationship between the size of the state and the openness to both inter- and intrafirm trade. Also of note is that Canadian and US states contrary to India show a weak relationship between land area and openness to trade. The linear fit is flat and even positive for the United States. So, the gravity intuition that small jurisdictions

should trade more outside than inside is borne out to a greater extent for the Indian states than the United States or the provinces within Canada. Given this relationship, Uttarakhand, Himachal Pradesh and Gujarat stand out with much higher trade than other states of similar size in India which could be explained by domestic taxes.

Figure 5. Trade Volume for Indian, American and Canadian states (per cent of GDP)
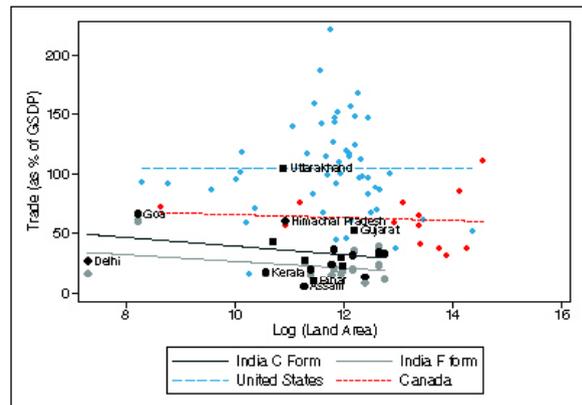
Balance of Interstate Trade: Net exporters and net importers

11.16 If the sum of exports and imports measures how open a jurisdiction is, the balance of trade is a useful, if imperfect, measure of that jurisdiction's manufacturing competitiveness. The mercantilist view of trade is that exports are good and imports are bad and that the measure of a jurisdiction's economic strength is the net balance on its trade, with net exports (especially in manufacturing) signifying strength and net imports signifying weakness.

11.17 Figure 6 uses the GSTN database to show state-wise trade balances of arms-length trade flows.[11] The variation is enormous, from a trade deficit of nearly

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[10] In Himachal Pradesh, for example, there is a high concentration of flows into firms registered in the Baddi/Solan/ Guru Majra area of the state, whereas for Uttarakhand the trade concentration is high in addresses originating in SIDCUL zones of the state. These are the areas with high industrial concentrations in the two states.

[11] The sample of states in intrafirm data is different from interfirm trades due to differences in reporting requirements between C and F-forms. It is not compulsory for states to be uploading their F-form data on the TINXSYS system causing the import flows of these states to be missing from the dataset. Their trade flows are excluded to produce a balanced panel of importer and exporter states.

45 per cent of GSDP in Uttarakhand and a trade surplus of nearly 25 per cent of GSDP in Haryana.

Figure 6. Trade Balance (Net Exports as per cent of GSDP)
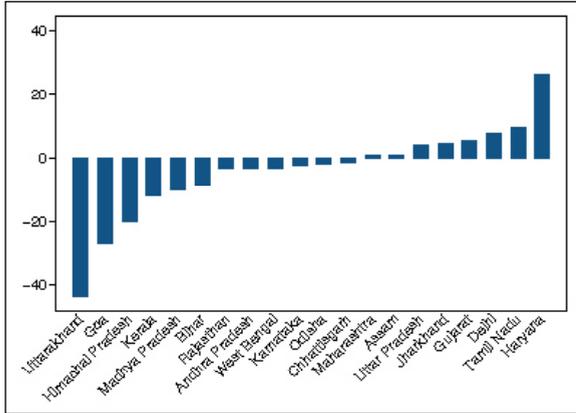
11.18 The large manufacturing states – Gujarat, Maharashtra and Tamil Nadu have a positive balance of trade highlighting their competitive manufacturing capabilities. This positive balance is also a feature of Delhi (7.4 per cent), Haryana (26.1 per cent) and UP (4.2 per cent), reflecting the large value additions occurring in the manufacturing hubs of the National Capital Region, namely Gurugram and NOIDA. Gurugram and NOIDA, respectively, make otherwise-agricultural Haryana and UP manufacturing powerhouses (by Indian standards).

11.19 Uttarakhand, Himachal Pradesh and Goa (seen earlier to possess the highest trade to GSDP ratios) are predominantly trade balance deficient. This may be because we do not observe import side intrafirm trade flows. It is likely that these states' special status (in terms of tax exemptions) would encourage firms to allocate some intermediate stages of their production process there, followed by intrafirm exports. Observing the intrafirm net export flows is, however, not possible because even though the export side of this

trade data (using the F-forms) exists, the corresponding import side of trade has not been reported for these states.

IV. PATTERNS OF INTERSTATE TRADE: INTRAFIRM TRADE

11.20   Figure 7 plots the intrafirm patterns of trade across states as a percentage of their GSDP (See Box 1 for how the numbers were obtained.). Goa, Gujarat and Maharashtra, relative to other states, are as open to intrafirm trades as they are to arms-length trades. On the lower end of intrafirm trade openness are Uttar Pradesh (8.4 per cent), Rajasthan (11.8 per cent) and West Bengal (15.5 per cent). The fixed cost of setting up companies in these states may potentially be causing frictions in intrafirm trade flows in these states.

Figure 7. Intrafirm Trade (as a per cent of GSDP)
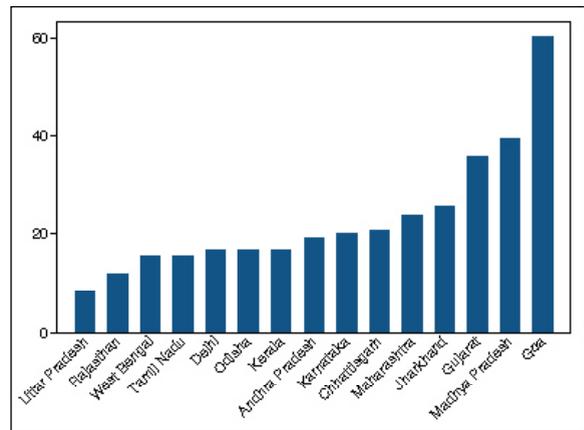
11.21   Comparing intrafirm and arms-length trade for the same sample of state pairs in Figure 8[12] indicates that there is no discernible correlation between the two types of trades – a state open to arms-length trade may not be equally amenable to intrafirm trade. Madhya Pradesh stands out as having much higher intrafirm trade than interfirm trade, possibly owing to its

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[12]   The relative ranking of states in terms of arms-length trade in Figure 4 is different from Figure 8 is because of the differences in sample of state pairs. In the latter, to make the comparisons with intrafirm trades, we consider only the 15-by-15 state pairs which are the same states as those that are available in the F-form dataset.

central location in the country, making it ideally suited to logistics supply chains.

Figure 8. Intrafirm and Interfirm Trade (per cent of GSDP)
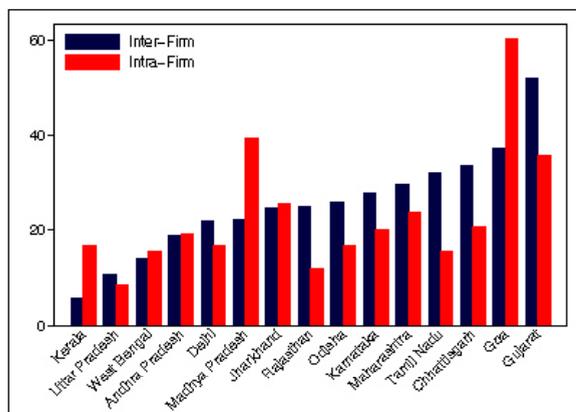
11.22 These differences in intrafirm trade could also be due to the considerable variation in the underlying commodities represented in the two types of flows. Such disparities have also been documented in the context of international trade by Bernard et al (2007). Appendix Table 4 shows the top 15 commodities by value represented in the intrafirm and arms-length trade imports in Andhra Pradesh and Telangana in FY 2015 (two states which have good quality commodity information). Only five of these 15 product categories (highlighted in green) are common to both types of flows. Thus the types of products produced in each state, their suitability to F-form related transfers and the fixed costs of setting up subsidiaries may jointly determine these flow trends across states.

Box 1. Interstate Trade in India: Data Preparation and Challenges

The estimates for interstate trade values and trade balances were calculated using the TINXSYS dataset, administered and hosted by the Goods and Services Tax Network (GSTN). TINXSYS contains CST tax invoices for trades occurring between two states. The dataset is populated by the states individually uploading different CST-related forms – i.e, the trade values reported are imports into a state because CST forms are issued by the importing states. In the ideal case, each reported transaction is expected to have the Tax Identification Numbers (TINs) of the importing and exporting firms, the invoice date and value, date of issue of the CST form, the nature of these firms, a code for the commodity and the commercial tax office at which the firms are registered. The data is however not reported in this consistent format, with the most crucial data point – the name or the code of the exporting state or the TIN of the exporting firm – is misreported in the dataset - about 5% of the time. The level of misreporting varies slightly across states with Gujarat having the highest proportions at 10%.

Given that the name of origin and destination state for any trade flow is key to understanding interstate trade patterns, we apply several techniques to impute exporting state identifiers for missing observations. First, we attempt to purge the exporting firm TIN numbers of special characters or simple typographical errors that might have occurred during the data uploading process. For the resulting 11-digit TIN numbers, we are able to correctly identify the exporting state using the first two digits of the TIN (the first two digits of the TIN corresponds to the state's census code).

For the remaining set of missing data transactions, we query the unique serial number and series number of these missing observations on the GSTN website to explore if states may have manually entered the exporting firm's address. For these addresses, we conducted a fuzzy string match with census names for district, sub-districts and towns. For the matched observations, we are then able to identify the corresponding state names from the Census.

In the third round, for the observations that still continued to be missing, we used Geographic Information Systems (GIS) mapping APIs to identify the geolocation for these firms as best as possible. These geolocations were then taken to QGIS (GIS software) and spatially merged with a state shapefile to arrive at the exporting state name. In the final round, to trim outlier trade values that seemed to be typographical errors, a filter of 1% of GSDP was applied on individual transactions. This implied that all transaction of value greater than 1% were excluded from the dataset. This strategy is not comprehensive in correcting the data for all errors (or minimising misclassification errors). A comprehensive data correction exercise would require review of all high value transactions, which has not been conducted in the interest of time. However, the CST collection implied by the exercise is 85% of the States' reported CST collections based on their own administrative dataset indicating are coverage of the actual trade data.

V. Is Indian Interstate Trade Unusual? Formal Evidence from a Gravity Model

11.23   The evidence shown so far suggests that contrary to the received wisdom, India's internal trade does not seem unusually low. But what about the distance cost of trade? Gravity models of trade are one of the most empirically robust relationships and theoretically grounded toolkits used in the analysis of estimating trade costs and their impacts on trade flows[13]. The basic intuition is that trade between two jurisdictions will be greater: the richer they are, the closer together they are, and fewer the policy and other cultural barriers between them.

11.24   All these predictions are borne out by the Indian data. Table 2 shows that richer states trade more with each other; states that are closer together trade more; contiguity matters as does the distance between

economic agents. For the interested reader, an extensive set of robustness checks and interpretation for the different coefficients is provided in Appendix Table 5.

11.25   Model (1) in Table 2 captures the basic gravity specification: log of arms-length trades regressed on distances (between economic capitals of the states), a dummy to capture Hindi-speaking trading partners and the GDP of the importing and exporting state. Model (2) uses fixed effects to capture time-invariant state level unobservable characteristics which also absorbs their GSDPs. Model (4) is the same fixed effects specification on log of *intrafirm* trades; Model (3) has interfirm flows as the dependent variable but includes only those states for which intrafirm flows are also known. Models (5) and (6) estimates the gravity model on US-data to benchmark the coefficients for India.[14] Models (2), (4) and (6) are our preferred specifications for arms-

Table 2. Regression Coefficients for gravity model

Dependent Variable: Log(Value of Imports)	India				United States	
		Inter-Firm		Intra-Firm	Excluding Agriculture	
	(1)	(2)	(3)	(4)	(5)	(6)
Log(Distance): Economic Capital	-0.928***	-0.565***	-0.539***	-0.810***	-0.965***	-0.938***
	(0.169)	(0.0952)	(0.116)	(0.1674)	(0.024)	(0.068)
Adjoining State Dummy	0.349*	0.638***	0.704***	0.495**	0.994***	0.937***
	(0.193)	(0.117)	(0.123)	(0.1999)	(0.072)	(0.097)
Hindi Dummy	-0.391**	-0.0225	-0.037	0.406*		
	(0.187)	(0.133)	(0.16)	(0.2330)		
Log(Importer GSDP)	0.816***				1.101***	
	(0.0934)				(0.017)	
Log(Exporter GSDP)	0.958***				0.928***	
	(0.0568)				(0.017)	
Importer State FE	No	Yes	Yes	Yes	No	Yes
Exporter State FE	No	Yes	Yes	Yes	No	Yes
R-squared	0.522	0.903	0.91	0.83	0.83	0.9
Observations	380	380	210	210	2450	2450

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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[13]   The derivation for the gravity specification has been outlined in Economic Survey 2015-16's statistical appendix.

[14]   We exclude the agriculture flows from the US data to make the products comparable to the Indian dataset.

length trade, intra-firm trade and trades in the US, respectively.

11.26   The results from these models can be interpreted as follows:

- *Distance* - The most remarkable finding is that India's elasticity of trade flows with respect to distance is much lower than one might have expected – a 10 percentage point increase in distances between economic capitals results in a fall in trade of only 5.65 percentage points[15]. Contrast this with the US, which enjoys a much better freight infrastructure, where a 10 percentage point increase in distance results in trade falling by 9.3 percentage points. In Section VI, an attempt is made to explain why India might have a lower distance elasticity than the US.

- *State GDP coefficients* – The elasticity of trade with respect to income is positively correlated with trade flows: a 10 percentage point increase in GDP of an importing or exporting state is associated with an 8.2 and 9.6 percentage points increase in trade, respectively. The elasticity of trade with respect to income is higher in the US at 11 and 9 percentage point for 10 percentage point increase in GDP.

- *Proximity coefficient* – Adjoining states in India tend to trade with each other about 90 per cent[16] more than other states[17]. This effect is lower than the US, where

interstate trade patterns are dominated by adjoining state pairs.

- *Language coefficient* – In the international trade literature, the language dummy has been found to be persistently positive and significant, implying that countries with shared languages tend to trade with each other more than with others. Subramanian and Wei (2007), for example, find that trade between countries sharing a common language is 16 per cent higher than others, whereas, Rose (2003) reports a 30 per cent higher trade for such country pairs. It is therefore surprising that there is insufficient evidence for this to be true within India; the Hindi dummy is insignificant for interfirm interstate trade but positive and weakly significant for intrafirm trade[18].

VI.   Explaining the puzzle: Why Does India Trade so Much?

11.27 Contrary to priors, it seems that India may be have a pro-trade bias. Why might this be the case? One plausible answer is that the current structure of domestic taxes as well as area-based tax exemptions might actually bias economic activity towards more internal trade.

Area-based exemptions

11.28   Since our data is derived from declarations filed for tax purposes, this is particularly pertinent.

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[15]   For intrafirm flows a 10 percentage point increase in distance between two states is associated with a decrease in intrafirm trade of about 8.1 percentage points. The coefficient of trade with respect to distance is higher for intrafirm trade than for interfirm trade within India even when the gravity model is estimated on the same set of state-pairs (model (3)). The appendix indicates why this might be plausible.

[16]   Exp(.638)-1=.892

[17]   For intrafirm trades, the adjoining states still trade more than states further away (about 63 per cent more).

[18]   For intrafirm trades, the coefficient is significant at 90 per cent confidence, perhaps reflecting the fact that it is easier for firms to establish subsidiaries in states where they share a common language and where they are able to navigate the regulatory requirements of the state in setting up their companies. When instead trading at an arms-length this linguistic dependence seems statistically insignificant.

11.29 The Central Excise Act exempts manufacturing in certain states from excise duty, including all the North-eastern states, Sikkim, Jammu and Kashmir, Uttarakhand, Himachal Pradesh and Kutch in Gujarat.[19] This exemption creates a strong incentive to shift real or reported production to these areas over what might be dictated by comparative advantage, trade costs and other traditional determinants of trade and firm location.

The CST and VAT

11.30 Under the current system, states levy a value-added tax on most goods sold within the state, the centre levies a near VAT-able excise tax at the production stage. Sales of goods across states fall outside the VAT system and are subjected to an origin-based non-VATable tax (the Central Sales Tax, CST). It turns out that the CST – far from acting as a tariff on interstate trade – may actually provide an arbitrage opportunity away from a higher VAT rate on intra-state sales in some cases.

11.31 The crucial determinant of whether the CST acts as a tariff is whether the buyer can receive an input tax credit (ITC) on the purchase if done within state[20]. The input tax credit is the defining feature of a VAT – without this you are taxed not just on your value addition but on the entire sale value– as with the CST. In such cases a buyer would much prefer to pay the lower 2 per cent CST rate than the higher VAT rate. In general, this situation arises whenever the firm is a final consumer, or when the firm is a manufacturer of tax exempt goods[21]. Far from being a rare occurrence, there are some big ticket items that fall into this category, like petrol, diesel, construction material and some machinery. In addition, most states provide a "negative list" of commodities that do not receive input tax credits even within state. This negative list of items represents at least 22 per cent[22] of imports in Andhra Pradesh. Within this negative list, automobiles and automobile parts alone constitute 16 per cent of the value of imports into Andhra. ITC non-eligible items constitute at least 30 per cent of imports in Odisha[23].

11.32 For all other goods, purchasing goods out of state would mean foregoing any input tax credits accrued, thereby raising costs and making it a less attractive proposition. Without a counterfactual, it is not possible to measure to what extent interstate trade in these goods is suppressed by the tax distortion. However, the relatively low elasticity of trade in India with respect to distance and the comparability of India's trade to international norms seems to suggest that the pro-trade bias wins over the disincentives to trade.

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[19] The excise duty is a value added tax levied at the point of production. The tax applies to the value addition declared at factory gate.

[20] See appendix for a detailed explanation.

[21] A detailed review of these possible cases is available in the appendix.

[22] Rule 20 (2) of AP VAT Act. This is based on a conservative reading of which goods are ITC ineligible. For example, input used in construction and maintenance of buildings are not eligible for ITC. Iron and steel might fall into this category and but we exclude because iron and steel can be ITC deductible if it is used in execution of a works contract. Since there are some invoices that do not contain commodity identifiers, this number may be even higher. Finally, inputs in the manufacture of tax exempts goods are also ineligible for ITC but are excluded in the 22 per cent since it is not possible to identify which of these imports were used in manufacture of exempt goods.

[23] https://odishatax.gov.in/Schedules/VAT/VAT-SCHEDULE-D-20-01-2016.pdf, https://odishatax.gov.in/Schedules/VAT/VAT-SCHEDULE-C-20-01-2016.pdf

11.33 In this case, when the Goods and Service Tax (GST) is implemented, by eliminating these distortions, it will actually lead to a normalisation in internal trade.

VII. CONCLUSION

11.34 Contrary to the caricature, India's internal trade in goods seems surprisingly robust. This is true whether it is compared to India's external trade, internal trade of other countries, or gravity-based trade patterns in the United States. For example, the effect of distance on trade seems lower in India than in the US. Hearteningly, it seems that language is not a serious barrier to trade.

11.35 There is enormous variation across states in their internal trade patterns. Smaller states tend to trade more, while the manufacturing states of Tamil Nadu, Maharashtra and Gujarat tend to have trade surpluses (exporting more than importing). Belying their status as agricultural and/or less developed, Haryana and Uttar Pradesh appear to be manufacturing powerhouses because of their proximity to NCR.

11.36 The analysis does leave open the possibility that some proportion of India's internal trade could be a consequence of current tax distortions, which are likely to be normalised under the GST. One market and greater tax policy integration but less actual trade is an intriguing future prospect.

SECTION 2: ONE INDIA: BEFORE THE LAW

I. INTRODUCTION

11.37   The GST was justly touted as leading to the creation of One Tax, One Market, One India. But it is worth reflecting how far India is from that ideal. Indian states have levied any number of charges on goods that hinder free trade in India—octroi duties, entry taxes, Central Sales Tax (CST) to name a few. The most egregious example of levying charges of services coming from other states is the cross-state power surcharge that raises the cost of manufacturing, fragments the Indian power market and sustains inefficient cross-subsidization of power within states. In agriculture, Agriculture Produce Market Committee (APMCs) still proliferate which prevent the easy sales of agricultural produce across states, depriving the farmer of better returns and higher incomes, and reducing agricultural productivity in India. These measures in agriculture, goods, and services make light of claims that there is one economic India.

11.38   It is also worth reflecting on the strength of the Constitutional arrangements in facilitating the creation of an Indian common market. Discussions around the Constitution are inevitably inward focused but in this instance it is worth analysing these arrangements from a cross-country perspective. There is an obvious conceptual commonality of public policy objectives in large federations or supra-national entities: balancing the imperative of creating a common market so that all producers and consumers are treated alike, with the imperative of not undermining the legitimate sovereignty of the sub-federal units. Three comparators suggest themselves: other federal countries such as the United States; other federal structures comprising countries such as the European Union; or multilateral trading agreements such as the World Trade Organization (WTO).

II. INDIA'S CONSTITUTIONAL PROVISIONS AND JURISPRUDENCE

11.39   That comparison requires understanding the constitutional provisions on both achieving and circumscribing the common market. Articles 301-304 provide a layered set of rights and obligations. Article 301 establishes the fundamental principle that India must be a common market:

301. **Freedom of trade, commerce and intercourse.** *Subject to the other provisions of this Part, trade, commerce and intercourse throughout the territory of India shall be free.*

Articles 302-304 both qualify and elaborate on that principle.

Article 302 gives Parliament the power to restrict free trade between and within states on grounds of public interest.

302. **Power of Parliament to impose restrictions on trade, commerce and intercourse.** *Parliament may by law impose such restrictions on the freedom of trade, commerce or intercourse between one State and another or within any part of the territory of India as may be required in the public interest*

Article 303 (a) then imposes a most-favored-nation type obligation on both Parliament and state legislatures; that is no law or regulation by either can favor one state over another.

303. **Restrictions on the legislative powers of the Union and of the States with regard to trade and commerce**

(1)   Notwithstanding anything in Article 302, neither Parliament nor the Legislature of a State shall have power to make any law giving, or authorising the giving of, any preference to one State over another, or making, or authorising the making of, any discrimination between one State and another, by virtue of any entry relating to trade and commerce

in any of the Lists in the Seventh Schedule

Article 304 (a) then imposes a national treatment-type obligation on state legislatures (apparently not on Parliament); that is, no taxes can be applied to the goods originating in another state that are also not applied on goods produced within a state. This Article refers only to taxes and not to regulations more broadly.

304. **Restrictions on trade, commerce and intercourse among States** *Notwithstanding anything in Article 301 or Article 303, the Legislature of a State may by law*

(a)   impose on goods imported from other States or the Union territories any tax to which similar goods manufactured or produced in that State are subject, so, however, as not to discriminate between goods so imported and goods so manufactured or produced; and

But then Article 304 (b) allows state legislatures to restrict trade and commerce on grounds of public interest.

(b)   impose such reasonable restrictions on the freedom of trade, commerce or intercourse with or within that State as may be required in the public interest: Provided that no Bill or amendment for the purposes of clause shall be introduced or moved in the Legislature of a State without the previous sanction of the President

11.40   Interestingly, this freedom to the states in Article 304 (b) is only different from that provided to Parliament in Article 302 in that states have to impose "reasonable restrictions" whereas Parliament may impose "restrictions." Of course, states can only impose restrictions in areas that are either on the state or concurrent list.

11.41   The gist of these provisions is that both the Centre and the States have considerable freedom to restrict trade and commerce that hinder the creation of one India.

11.42   Moreover, the jurisprudence has unsurprisingly come down in favor of even more permissiveness. Evidently, while the purpose of Part XIII was to ensure free trade in the entire territory of India, this is far from how its practical operation has panned out. Financial levies as well as non-financial barriers imposed by the States have become a major impediment to a common market. Levies in the nature of motor vehicles taxes, taxes at the point of entry of goods into specified local areas, sales tax on manufacturers of goods from outside a particular State, have always existed between States. At the same time, many of such levies are constitutionally valid and have been upheld, in principle, by the Supreme Court. For instance, in *Shree Mahavir Oil Mills v. State of Jammu and Kashmir*,[24] the Supreme Court upheld a notification issued under the Jammu and Kashmir General Sales Tax Act, 1962 which exempted the local producers of edible oil from sales tax in order to protect their businesses from facing closure. At the same time, the notification increased the tax to be paid by the manufacturers of edible oil from other States from 4per cent to 8 per cent. When challenged, the Supreme Court refused to quash this notification on the ground that it was necessary to protect the edible oil industry in the State of Jammu and Kashmir and was an adequate measure under the scheme of Part XIII of the Constitution.[25] In several cases where entry taxes have been challenged, the Supreme Court has upheld their validity on the ground that these taxes are 'compensatory'[26] in nature, which means that the proceeds from

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[24] 1996) 11 SCC 39.

[25] Ibid., para 26.

[26] The 'compensatory tax' theory was evolved in by Justice SK Das in *Automobile Transport (Rajasthan) Ltd. v. State of Rajasthan,* AIR 1962 SC 1406 who said that *"Regulatory measures or measures imposing compensatory taxes for the use of trading facilities do not come within the purview of the restrictions contemplated by Article 301 and such measures need not comply with the requirements of the proviso to Article 304(b) of the Constitution."* (para 17)

the taxes are used for facilitating trade in the charging State.[27]

11.43   This was not entirely unexpected—in looking to achieve free trade while protecting the sovereignty of states to raise revenue would always have led to trade-offs. With nearly seventy years of experience, it is clear that the trade-offs have been such that any hopes of a common market have been effectively crippled. In 2016, even though the Supreme Court has rejected the compensatory tax theory, it has upheld the right of States to levy entry taxes.[28] It is submitted that this view of the Court is entirely consonant with the constitutional scheme of Part XIII, which when read as a whole, seeks economic integration while ensuring considerable leeway for states to differentiate their own products from those from other states.

III. PROVISIONS IN OTHER COUNTRIES

11.44   How does this compare with other jurisdictions? The United States has a very strong interstate commerce clause in the Constitution. Article I, Section 8, Clause 3 vests Congress with the power: "to regulate commerce with foreign nations, and among the several states, and with the Indian tribes."

11.45   The rationale for this provision was best explained by James Madison in the Federalist Papers. He wrote, "*A very material object of this power was the relief of the States which import and export through other States, from the improper contributions levied on them by the latter.*

Were these at liberty to regulate the trade between State and State, it must be foreseen that ways would be found out, to load the articles of import and export, during the passage through their jurisdiction, with duties which would fall on the makers of the latter, and the consumers of the former. We may be assured by past experience, that such a practice would be introduced by future contrivances; and both by that and a common knowledge of human affairs, that it would nourish unceasing animosities, and not improbably terminate in serious interruptions of the public tranquility."[29]

11.46   This is to be read with the Tenth Amendment to the Constitution which provides, "*The powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people.*"

11.47 A combined reading of these provisions makes it apparent that even in a Constitution where residuary powers are reserved to the states (and not the Union, as is the case in India), states are constitutionally barred from regulating interstate trade and commerce as it was felt that such power would fundamentally hamper free trade and movement.

11.48   The Supreme Court has largely interpreted the Commerce Clause liberally, ensuring that the power of Congress to regulate interstate commerce is not excessively curtailed, thereby leading to protectionist legislation from particular states.[30] A pertinent example, in direct contradistinction

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[27] See, for instance, *Meenakshi v.* State of Karnataka, 1984 Supp SCC 326, where enhanced rate of taxes payable by operators of omnibuses, mini buses or stage carriages under the Karnataka Taxation and Certain Other Laws (Amendment) Act, 1979 were justified by the Court on the ground that the proceeds from such taxes would be utilised for construction and maintenance of roads and providing other facilities for free flow of traffic. However the jurisprudence pertaining to compensatory taxes has been rejected by majority in *Jindal Stainless Ltd. v. State of Haryana*, 2016 SCC OnLine SC 1260 *('Jindal Stainless')*.

[28] See, Order of the Supreme Court in Jindal Stainless (n 4) para 6.

[29] Federalist No. 42 in Alexander Hamilton, James Madison and John Jay, The Federalist (The Belknap Press, Cambridge 2009).

[30] Key to this jurisprudential approach was the "substantial effects" test laid down by the Court in National Labour Relations Board v. Jones and Laughlin Steel Corp., 301 US 1, that even if an activity is intrastate, if they have a substantial connection or effect on interstate commerce, Congress can exercise power under the Commerce Clause.

to the Supreme Court of India's approach in *Shree Mahavir Oil Mills* (noted above) is the decision of the US Supreme Court in *West Lynn Creamery Inc. v. Healy*.[31] In *Healy*, a Massachusetts Pricing Order that required all milk dealers to provide a premium payment into an Equalization Fund was challenged for violating the Commerce Clause. Though the Court found that the premium payments were to be made by all producers, their effect was primarily on out-of-state producers, given that milk producers in Massachusetts were to be compensated by a subsidy from the state. It was thus struck down as its "avowed purpose and its undisputed effect are to enable higher cost Massachusetts dairy farmers to compete with lower cost dairy farmers in other States."[32]

11.49   Of course, there are some de facto restrictions, especially in services, reflected in state-specific accreditation or licensing requirements. At the same time, certain judgments have tended to read the Commerce Clause more restrictively.[33] But these are exceptions to the general rule of maintaining one common US market.

11.50   Since the Maastricht Treaty that created the common market in Europe, it is now accepted that countries within the EU must not, except under narrow circumstances, restrict the four freedoms of movement: of goods, services, capital, and people. Now, it could be argued that both the US and EU are very different from India because of their long and particular histories of nationhood: for example, it could be argued that Indian states are more diverse than states within the US and hence require greater freedom of tax and regulatory

maneuver. The counter-argument would of course be that the American states were always fiercely jealous of their sovereignty and that the Constitution embodies that. In this view, the strong interstate commerce clause exists despite strong states. It could also be argued, with even less plausibility however, that states within India should have more regulatory freedom than sovereign countries within Europe.

IV.   COMPARABLE WTO LAW

11.51   But there is a third and much weaker standard by which Indian rules should be assessed: the WTO. The WTO has a membership of 164 countries with widely varying income levels and political systems: for example, the ratio of per capita GDP of the richest countries is more than 60 times that of the poorest, while the corresponding ratio within India is less than 5. Also, the WTO has democracies like the US and Europe and non-democracies like China whereas all Indian states are democratic. So, it cannot possibly be argued that the Indian states should have greater freedom than countries in the WTO on the issue of creating a common market.

11.52   If that is reasonable, then the comparison between WTO rules and the provisions of the Constitution is not inappropriate. That is, it is reasonable to compare the common-market/regulatory freedom balance provided for countries in the WTO with the same provided for states in the Constitution.

11.53   What then are the comparable WTO rules? The WTO imposes a most-favoured-nation and national treatment

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[31]   512 US 186.

[32]   Ibid. at 194.

[33]   For an illustrative example, see Kidd v. Pearson, 128 US 1 where the Court held that state regulation of intrastate production of liquor even when intended for export purposes is valid and not violative of the Commerce Clause.

requirement just as the Constitution does. But the key difference with the Constitution is the freedom provided to depart from these anti-protectionism requirements. The contrast is really between Articles 302 and 304 (b) of the Constitution and Article XX of the General Agreement On Tariff and Trade (GATT) WTO.

Article XX - General Exceptions

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

(a) necessary to protect public morals;

(b) necessary to protect human, animal or plant life or health;

(c) relating to the importations or exportations of gold or silver;

(d) necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement, including those relating to customs enforcement, the enforcement of monopolies operated under paragraph 4 of Article II and Article XVII, the protection of patents, trade marks and copyrights, and the prevention of deceptive practices;

(e) relating to the products of prison labour;

(f) imposed for the protection of national treasures of artistic, historic or archaeological value;

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;

(h) undertaken in pursuance of obligations under any intergovernmental commodity agreement which conforms to criteria submitted to the CONTRACTING PARTIES and not disapproved by them or which is itself so submitted and not so disapproved;*

(i) involving restrictions on exports of domestic materials necessary to ensure essential quantities of such materials to a domestic processing industry during periods when the domestic price of such materials is held below the world price as part of a governmental stabilization plan; Provided that such restrictions shall not operate to increase the exports of or the protection afforded to such domestic industry, and shall not depart from the provisions of this Agreement relating to non-discrimination;

(j) essential to the acquisition or distribution of products in general or local short supply; Provided that any such measures shall be consistent with the principle that all contracting parties are entitled to an equitable share of the international supply of such products, and that any such measures, which are inconsistent with the other provisions of the Agreement shall be discontinued as soon as the conditions giving rise to them have ceased to exist…

11.54 The two striking differences between the two are first that the reasons for invoking departures from free trade/common market principles are more clearly and narrowly specified in the WTO than in the Constitution which instead refers to an open-ended "public interest." Second, and more important are the criteria that have to be met before the departure can be justified. In the WTO, the measure must not constitute arbitrary discrimination; must not be a form of disguised protectionism; and above all must be "necessary."

11.55 WTO jurisprudence has over the years elaborated on all these three criteria and others. For example, the burden of proof is on the party invoking the exception provision (i.e. invoking the right to depart from a common market); measures adopted must be the least restrictive amongst the alternatives available; strict rules must apply to prevent arbitrary and unjustifiable discrimination.

11.56 The key point is that in the WTO the departures from a common market across widely varying countries is quite heavily circumscribed whereas similar departures between states within India is easily condoned by the Constitution and consequent constitutional jurisprudence.[34]

11.57 At a time when India is embracing cooperative federalism, the question to ponder is this: even if India cannot embrace the strong standards of a common market prevalent in the US and EU, should not the law in India at least aspire to the weak standards of a common international market embraced by countries around the world?

V. CONCLUSION

11.58 At the time of the drafting of the Constitution, and given the considerable anxieties of holding together a large and disparate nation, the demands for respecting states' sovereignty were understandably strong. Nearly 70 years on, the sense of nationhood and unity is strong, and anxieties about territorial integrity have faded. Cooperative federalism is becoming an increasingly important governance dynamic. Reflecting this, the country has unanimously passed a landmark Constitutional amendment to implement the GST which should result in a common market for domestic indirect taxes.

11.59 Building on this, the country can go further and extend this principle of one economic India to other spheres. Indeed, in his budget speech of July 24, 2014, the Honorable Finance Minister articulated the principle of extending the principle to agriculture: "the farmers and consumers' interest will be further served by increasing competition and integrating markets across the country…"

11.60 The evidence of this chapter and a review of Indian history suggests that on the question of creating one economic India, technology, economics, and politics have been surging ahead. Perhaps, it is time for the Constitution to catch up to further facilitate this surging internal integration.

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I.   A STATE DYADS

Appendix Table 1 shows the pattern of interfirm trade between state dyads. The intensity of colour shade used in the table indicates the intensity of the trading partnership between the two state pairs. The darker blue shades represent the fact that both states rank high in each other's trading distribution. The darker red shade represents the opposite fact, that is, both states rank quite low in each other's trading share.

The colour codes indicate the central role of Maharashtra in every other state's trade flow: it is the most important exporting partner for every state and also serves as the predominant importer for goods from almost every other state. Assam resides on the other end of the colour spectrum: it ranks low in both exporting as well as importing relationships with all other states. More generally, states that are close to each other tend to trade more with each other and states that are richer trade with each other more than others (reflecting the results in the main text).

Appendix Table 2 uses the same colour codes to indicate the intensity of intrafirm trade flows between states. Maharashtra appears to be the dominant state in these types of interstate flows (both as an exporter and importer) as was also seen earlier in arms-length interstate trades. In contrast, firms tend to not have established subsidiaries either in the north-eastern states, Punjab or the smaller union territories. Two exceptions are pertinent in the case of union territories: Delhi which uses the F-form mechanism to trade with the NCR regions of Haryana and UP; and, Dadra and Nagar Haveli, which is not so much an important importing hub, but surprisingly a key exporting partner for Maharashtra, Gujarat, Rajasthan and Madhya Pradesh. The reasons for this trade pattern seems to be not immediately clear.

Table 1: Arms-length trade flows between states (C-forms, FY2015-16 in Rupees Crores)[35]

Importing State

Exporting State	Maharashtra	Gujarat	Karnataka	Andhra Pradesh	Uttarakhand	Rajasthan	Madhya Pradesh	West Bengal	Tamil Nadu	Kerala	Odisha	Uttar Pradesh	Delhi	Chhattisgarh	Himachal Pradesh	Haryana	Bihar	Jharkhand	Goa	Assam
Maharashtra		85679	40253	30734	22679	10215	23634	11409	18793	12336	5438	4380	6583	7783	7137	4006	3629	2957	7038	449
Gujarat	82044		12882	19679	11717	35627	22534	9664	11643	10618	6487	6464	3871	4799	4378	8105	1536	1457	4945	279
Tamil Nadu	40113	14463	40075	26217	3846	4984	7923	6520		19856	4385	2136	2879	3146	1490	1414	1136	1991	1126	331
Haryana	25267	15327	11534	8665	14124	15965	7049	7390	4761	6764	2898	6380	9469	2374	8227		3137	1882	969	871
Karnataka	32519	9828		20777	3430	3465	8229	5686	19300	13589	3332	2218	2117	2042	1158	1782	967	1535	3403	223
Andhra Pradesh	25071	6345	18941		2092	9769	4514	4664	10614	5291	6901	1728	1138	2897	1794	692	1187	726	1276	161
Uttar Pradesh	10849	8521	4037	3225	26900	5569	5983	4133	1859	1514	1450		5848	1385	3488	4873	2141	968	271	162
Rajasthan	11307	33743	3501	3644	7714		4868	5058	2231	1778	1531	3149	3368	1014	2113	2776	2020	1102	308	231
Delhi	8203	9898	4519	2642	16912	7089	2684	2885	1628	2195	1377	8791		1511	6642	6729	1265	416	216	195
West Bengal	9716	6667	2995	4550	1783	2181	4066		2194	1219	8442	1516	1399	4929	807	911	7006	6632	129	951
Madhya Pradesh	11181	6843	2267	3252	2650	7227		8540	2201	697	1288	3006	2086	3101	1008	726	1047	724	1057	55
Uttarakhand	8691	3498	4007	2890		2910	3146	3083	1497	972	1265	3191	5646	1185	2655	1786	1958	1214	188	145
Odisha	7294	2385	2426	4301	1337	940	2090	9359	575	357		933	347	6832	174	311	1574	2172	34	187
Chhattisgarh	11062	4265	2421	5556	505	2866	5923	1635	687	412	2659	743	646		330	347	342	852	120	150
Jharkhand	2092	1029	1347	1388	1750	1316	1174	10930	472	297	1796	2733	518	1657	421	1183	4670		35	48
Himachal Pradesh	3295	1571	1368	1060	2410	1491	1630	919	481	309	302	1228	2388	243		1560	555	137	54	23
Kerala	2830	1041	3820	1383	261	183	326	421	3559		221	208	338	73	160	89	72	82	90	5
Goa	2756	716	1817	552	177	285	386	405	265	678	121	108	266	69	106	90	85	59		14
Assam	602	695	203	212	75	157	541	1777	33	22	169	266	188	236	21	158	608	96	0	
Bihar	121	44	42	38	110	85	136	417	67	3	85	267	59	96	32	15		464	0	12

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[35] The total value of exports and imports of states reported in these tables are restricted to the set of states considered within the balanced dyad table. The actual value of trade is higher because of flows from other states and union territories that have been excluded from this table for presentational convenience.

Table 2: Intrafirm Trade flows between states (F-forms, FY2015-16 in Rupees Crores)[36]

Importing State

Exporting State	Maharashtra	Madhya Pradesh	Andhra Pradesh	Karnataka	West Bengal	Rajasthan	Gujarat	Kerala	Delhi	Tamil Nadu	Chhattisgarh	Dadra and Nagar Haveli	Jharkhand	Odisha	Uttar Pradesh	Goa	Puducherry	Daman and Diu	Chandigarh	Nagaland	Manipur	Mizoram	Punjab
Gujarat	101038	99736	10346	9954	5671	8406		2937	4461	3578	5040	11615	298	629	3670	1135	305	2008	72	0	0	0	0
Maharashtra		25693	23173	23814	15009	7415	36044	7762	7144	8429	7930	5449	1450	2477	1177	4390	529	1854	145	62	0	0	0
Tamil Nadu	23638	4672	27506	25173	7889	4050	5848	26102	2772		848	14232	888	999	644	481	6693	67	25	0	0	1	2
Haryana*	14987	6088	14833	8677	5247	14138	1164	1828	20889	2293	5204	148	1596	880	5353	83	62	76	176	103	1	0	0
Andhra Pradesh	23665	2669		21273	6099	1891	4816	7312	599	7072	5760	156	946	5865	511	415	1301	18	14	0	0	0	0
Uttar Pradesh	13211	6440	4765	6764	6896	12272	1272	2344	13809	1780	1684	328	1202	1265		1066	60	54	72	24	1	0	1
Karnataka	27107	2365	13997		2842	2250	2763	9133	1267	7725	516	45	187	456	256	1429	563	61	48	0	0	0	1
West Bengal	9604	1987	6772	3107		1464	1210	1364	1576	1495	2086	582	8108	6188	797	1248	454	58	37	84	0	2	0
Uttranchal*	16109	4509	3867	2992	5015	3839	633	1285	3643	1319	1176	14	692	726	1026	62	92	27	99	1	0	0	0
Delhi	11260	4085	3051	4381	3718	10019	1524	1087		1746	851	53	633	551	3189	171	48	1	171	12	2	2	0
Punjab	12724	2214	3704	7748	3450	4342	390	1162	2288	1193	868	3	604	638	1032	172	11	19	605	637	0	0	
Madhya Pradesh	14664		2544	2688	2289	2701	4144	1394	753	870	2346	847	459	423	1374	177	20	31	13	0	4	0	0
Jharkhand	10176	1554	1720	1285	11807	2148	1674	140	529	1413	897	2		1302	519	2	3	0	0	0	0	0	0
Odisha	4538	653	2949	1309	10142	994	1712	997	124	606	2684	1024	3340		446	83	8	1	134	0	0	0	0
Assam*	1221	276	1102	364	23304	0	0	32	684	87	42	154	644	248	46	2	4	0	1	135	275	273	0
Kerala	2013	482	13229	5593	389	196	468		149	3405	110	27	90	113	8	481	725	6	1	0	0	0	0
Dadra and Nagar Haveli	5334	4203	1052	734	430	2896	4295	236	225	1213	133		25	74	155	8	90	245	10	0	0	0	0
Chhattisgarh	4402	769	1105	1529	2867	963	740	696	191	650		1	2386	1144	278	69	1	0	1	0	0	0	0
Rajasthan	3747	2470	963	1887	1375		501	384	3376	543	451	10	222	152	861	162	3	9	46	9	0	0	0
Goa	6818	845	1386	2992	563	597	790	930	223	579	158	23	65	168	58		33	7	5	2	0	2	0

36 * indicates states with no corresponding import information

Exporting State	Maharashtra	Madhya Pradesh	Andhra Pradesh	Karnataka	West Bengal	Rajasthan	Gujarat	Kerala	Delhi	Tamil Nadu	Chhattisgarh	Dadra and Nagar Haveli	Jharkhand	Odisha	Uttar Pradesh	Goa	Puducherry	Daman and Diu	Chandigarh	Nagaland	Manipur	Mizoram	Punjab
Puducherry	1643	236	1317	2026	571	236	354	1600	126	2672	52	28	53	94	103	26		163	2	0	0	0	0
Sikkim*	17	633	37	6	8753	3	49	6	9	152	1	0	1	10	0	14	0	8	0	0	0	0	0
Bihar*	318	425	82	161	2999	19	18	7	58	34	61	1	1023	327	405	2	3	0	0	0	0	0	0
Daman and Diu	2556	127	211	260	343	89	1332	29	44	64	37	307	19	28	11	18	17		0	0	0	0	0
Jammu and Kashmir*	1292	190	601	255	303	182	28	52	307	34	93	2	17	50	114	4	0	0	3	0	0	0	0
Chandigarh	318	15	12	64	8	78	8	11	151	68	2	0	4	4	2	2	1			0	0	0	4
Meghalaya*	0	0	0	1	74	0	0	0	0	0	0	0	1	0	0	0	0	0		22	92	39	0
Tripura*	3	1	0	0	111	31	4	1	17	0	0	0	35	0	11	0	0	0	0	0	0	0	0
Nagaland	1	0	53	2	64	0	0	0	1	0	0	0	0	2	0	0	0	0	0		0	0	0
Lakshdweep*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0
Arunachal Pradesh*	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mizoram	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0		0
Andaman & Nicobar Islands*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manipur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0

I.B Trade Openness and Trade Competitiveness

In addition to the graphs provided in the main text, Appendix Table 3 offers the underlying trade openness and trade balances data as a percentage of state GDP for a larger set of states (as noted earlier these additional states in F-form do not report import but their export data exists).

Table 3: Trade Volumes and Trade Balances

Trade (Export +Import) as % of GSDP* (C Form)		Trade (Export +Import) as % of GSDP* (F Form)	
Assam	5.30%	Uttar Pradesh	8.49
Bihar	9.90%	Rajasthan	11.84
Uttar Pradesh	13.70%	West Bengal	15.55
Kerala	17.90%	Tamil Nadu	15.69
West Bengal	20.40%	Delhi	16.83
Andhra Pradesh	23.40%	Odisha	16.88
Tamil Nadu	24.40%	Kerala	16.95
Delhi	27.30%	Andhra Pradesh	19.19
Jharkhand	27.80%	Karnataka	20.00
Odisha	30.30%	Chattisgarh	20.80
Karnataka	32.00%	Maharashtra	23.87
Rajasthan	33.30%	Jharkhand	25.54
Maharashtra	33.50%	Gujarat	35.76
Madhya Pradesh	34.20%	Madhya Pradesh	39.47
Chhattisgarh	36.80%	Goa	60.34
Haryana	43.10%	Total	15.76
Gujarat	52.60%		
Himachal Pradesh	60.50%		
Goa	66.30%		
Uttarakhand	105.20%		
Total	25.97%[37]		

* Trade values are from FY 2015, GSDP (2011-12) is for FY 2014

* Trade values are from FY 2015, GSDP (2011-12) is for FY 2014

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[37] The numeraire for the total is India's overall GDP for FY 2015

Trade Balance as % of GSDP* (C Form)	
Uttarakhand	-43.50%
Goa	-27.00%
Himachal Pradesh	-20.20%
Kerala	-12.10%
Madhya Pradesh	-9.90%
Bihar	-8.80%
Rajasthan	-3.40%
West Bengal	-3.30%
Andhra Pradesh	-3.30%
Karnataka	-2.50%
Odisha	-2.10%
Chhattisgarh	-1.60%
Maharashtra	0.60%
Assam	0.80%
Uttar Pradesh	4.20%
Jharkhand	4.30%
Gujarat	5.20%
Tamil Nadu	9.30%
Delhi	7.40%
Haryana	26.10%

Trade Balance as % of GSDP * (F Form)	
Madhya Pradesh	-24.27
Kerala	-6.81
Rajasthan	-6.25
Chattisgarh	-5.74
Maharashtra	-4.69
Karnataka	-4.29
West Bengal	-3.81
Andhra Pradesh	-2.33
Delhi	1.88
Odisha	2.86
Uttar Pradesh	5.84
Jharkhand	6.86
Tamil Nadu	8.39
Goa	10.67
Gujarat	21.59

Trade balances are for FY 2015, GSDP (2011-12 series) is for FY 2014, West Bengal (2004-5 series) for FY 2014. Negative values indicate net importing states

Trade balances are for FY 2015, GSDP (2011-12 series) is for FY 2014, West Bengal (2004-5 series) for FY 2014. Negative values indicate net importing states

I.C HETEROGENEITY IN COMMODITIES ACROSS C AND F-FORMS

As noted in the main text, the commodity composition underlying the two kinds of interstate trade transactions is quite different. Appendix Table 4 below shows value of trade for products that are common to the two forms (shaded in green) and the products that are different across the two firms for Andhra Pradesh and Telangana combined.

Table 4: Top-15 commodities for each form

Top 15 C-Form Commodities in Andhra Pradesh (United)

Commodity	Value of Imports (Rs. Cr.)
All Motor Vehicles Except Tractors	13983
Iron And Steel	10104
Automobile Parts	6485
Dyes And Chemicals	5575
Electrical Goods Except Engines/ Motors	4873
Machinery	3224
Coal	3198
Readymade Garments And Hosiery Goods	3066
Packing Materials	2659
Cotton	2583
Plastic Raw Materials	1606
All Kinds Of Vegetable Oils	1545
Paper	1465
Electronics	1246
Bitumen	1155

Top 15 F-Form Commodities in Andhra Pradesh (United)

Commodity	Value of Imports (Rs. Cr.)
Bullion, Jewellery And Precious Stones	5268
Tractors And Parts And Other Agricultural Implements	4064
All Motor Vehicles Except Tractors	1693
Consumer Electronics	1392
Iron And Steel	1142
Pesticides	636
Diesel	544
Fertilizers	432
Petrol	387
Lubricants And Other Petroleum Products	380
Electrical Goods Except Engines/ Motors	308
All Kinds Of Metals (Non-Ferrous)	292
Electronics	259
Tobacco And Tobacco Products	249
Readymade Garments And Hosiery Goods	183

I.D ROBUSTNESS TO GRAVITY SPECIFICATION

The robustness of the gravity estimates highlighted in the main text is explored in greater detail in this appendix. The full set of specifications are listed in Table 5 – the variables used in this table are the same as the ones described in the main text. In model (1) and (2), the distances are measured based on centroids of the states and from the administrative capitals of the states respectively. Models (3), (4), (6), (8), (11) and (12) correspond to Columns (1)-(6) in Table 2 in the main text. In Models (7) and (5) respectively, the log of intrafirm trades and log of arms-length trades is regressed on states' GDP (keeping the sample of states between the two flows the same) and other standard gravity variables. In Models (9) and (10), the whole sample (including agriculture commodities) of US states and commodities is used for gravity estimation.

A.   State GDP coefficients

As noted in the main text, the elasticity of trade with respect to income is positively correlated with trade flows. The result is consistent with the observed aggregate trade flows between states in Figure 3 in the main text, i.e., high income states tend to trade more than others. The income coefficients are robust to different distance specifications, to different samples, across types of flows and between India and the US. A 10 percentage point increase in GDP of a state is associated with 7.4% increase in intra-firm trade flows (column 7). This elasticity is smaller than corresponding elasticity for inter-firm trade (column 5), reflecting the patterns seen earlier in the main text in Figure 5.

B.   Proximity coefficient

The adjoining state dummy captures the impact of sharing a border on the strength of the trading relationship between two states. The estimated relationship changes with the way distances between states are measured (not surprising in view of the findings in Head and Mayer (2010)). As the distance measure gets closer to measuring the true distance traveled by goods (between economic capitals instead of geographic centroids of the states), the relationship between sharing a border and size of trade flows becomes more significant as we expect. When distance is measured as the distance between economic capitals of the state, sharing a border is associated with 41 %[38] higher trade flows (column 3). When controlling for state fixed effects, the relationship becomes much more economically and statistically significant at the 1% level. Adjoining states trade 90% more. Since state fixed effects allows one to capture unobserved state specific characteristics of trade – it is used as the preferred specification in the main text and in the discussion going forward.

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[38] =exp(0.349)-1

Table 5. Robustness check for the gravity estimates

Dependent Variable: Log(Value of Imports)	India								United States			
	Inter-Firm (Full Sample)				Inter-Firm (IF Form Sample)		Intra-Firm		Including Agriculture		Excluding Agriculture	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Log(Distance): Centroid	-1.480***											
	(0.186)											
Log(Distance): Administrative Capital		-1.253***										
		(0.160)										
Log(Distance): Economic Capital			-0.928***	-0.565***	-0.692***	-0.539***	-0.7305***	-0.8180***	-0.984***	-0.974***	-0.965***	-0.938***
			(0.169)	(0.0952)	(0.221)	(0.116)	(0.2613)	(0.1674)	(0.024)	(0.069)	(0.024)	(0.068)
Adjoining State Dummy	-0.0811	0.172	0.349*	0.638***	0.706***	0.704***	0.7442***	0.4949**	0.992***	0.902***	0.994***	0.937***
	(0.205)	(0.184)	(0.193)	(0.117)	(0.188)	(0.123)	(0.2429)	(0.1999)	(0.071)	(0.103)	(0.072)	(0.097)
Hindi Dummy	-0.347*	-0.305*	-0.391**	-0.0225	-0.562***	-0.037	-0.4683*	0.4061*				
	(0.179)	(0.181)	(0.187)	(0.133)	(0.15)	(0.16)	(0.2508)	(0.2330)				
Log(Importer GSDP)	0.826***	0.856***	0.816***		0.953***		0.7407***		1.062***		1.101***	
	(0.0914)	(0.0926)	(0.0934)		(0.0513)		(0.0778)		(0.017)		(0.017)	
Log(Exporter GSDP)	0.968***	0.998***	0.958***		0.790***		0.7743***		0.954***		0.928***	
	(0.0548)	(0.0577)	(0.0568)		(0.0717)		(0.0989)		(0.017)		(0.017)	
Importer State FE	No	No	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Exporter State FE	No	No	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
R-squared	0.548	0.543	0.522	0.903	0.72	0.91	0.57	0.83	0.83	0.9	0.83	0.9
Observations	380	380	380	380	210	210	210	210	2450	2450	2450	2450

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

C. Language coefficient

The language dummy attempts to capture whether Hindi speaking states tend to trade with each other more than others. The language dummy is insignificant for inter-firm trades in both the full and the restricted samples for India when we use our preferred specification based on fixed effects. This coefficient is however significant at 90% confidence for intrafirm trades and tends to be significant when we use state GDP controls.

D. Distance coefficient

The most remarkable finding is that India's elasticity of trade flows with respect to distance is much lower than we might have expected. In the preferred specification (column 4), a 10 percent increase in distances between economic capitals results in a fall in arms-length trade of 5.65 percentage points. For intra-firm flows (column 7), a 10 percentage point increase in distance between two states is associated with a decrease in intra-firm trade between these states of 7.3 percentage points. Controlling for all time invariant characteristics of the source and destination states, this elasticity falls to about 8.1 percentage points. The coefficient of trade with respect to distance is higher for intra-firm trade than for inter-firm trade within India even when the gravity model is estimated on the same sample of state-pairs (column 6).

One explanation for the difference between inter and intra firm trade costs of distance might be simply that for the same distance, intra-firm trade requires a firm to have operations at the source and destination whereas inter-firm trade only requires a willing buyer and seller at each point. The cost to setting up subsidiaries might increase faster over distance compared to the cost of finding a willing buyer or seller. Another is that the differential tax treatment of sales between firms within state and across states could be distorting incentives in favour of greater trade. Such a differential tax treatment does not exist between intra-firm transfers within and across state lines.

Despite the differences in the distance coefficient between the two types of flows, it is pertinent to compare these estimates to trade within other countries. Fortunately, we have similar data for trade within the United States. The distance between the states in the US is measured to be the distance between the most populated cities of respective states in the US. The regressions are run separately on two samples: with and without agricultural commodities (models (11) and (12)). The latter specification makes the basket of commodities in the two countries similar to each other. Reflecting similar trends observed in India, trade between states are positively correlated with state GDPs and adjoining states.

The distance coefficient on the U.S. sample is remarkably stable between the specification with state GDP controls and with state fixed effects. This suggests that the state GDP measure captures much of the time—invariant differences between states. This stability is also reflected in the relatively high R-squared in (9) and (11).

The surprising result here is that a 10 percent increase in distances between states in the US is associated with a trade reduction of 9.8% to 9.3% on average and this result is robust to the selection of the underlying sample. Contrast this with results for India, where a 10% increase in distances between states is associated with a reduction of 5.6% and 8.1% trade between interfirm and intrafirm trade flows. Considering the fact the US has much better transport infrastructure this result reflects the surprising observation noted earlier, that is, India's internal trade is not as bad as we expected.

Before proceeding, it is instructive to review these estimates in light of Baldwin (2007) study of biases in gravity analysis. Using the state fixed effects in the preferred specification reduces the time-invariant biases from the estimates ("multi-lateral trade resistance" as per Anderson and Van Wincoop (2001)). However, since it is not possible to add state pairwise fixed effects, idiosyncratic bilateral trade effects continue to bias the results (for example, states with similar demographic composition will perhaps be better poised to trade with each other than others). The data also does not allow controlling for the effect of time-varying changes in relative prices between trading nations. This is certainly going to bias the distance estimate. In so much as relative prices of tradeables are negatively correlated with trade values, the estimated coefficients are biased downwards.

E.   Other benchmarks for the distance coefficient

Comparing the distance coefficient in the above regressions to others studies of intra-national trade costs is difficult due to the various theoretical interpretations of the gravity coefficient. The literature typically interprets the regression distance coefficient (distance being a proxy for overall costs of trade) as the product of two elasticities: (a) the elasticity of trade costs with distance and (b) elasticity of trade with distance (Disdier and Head (2008)). As a result, the interpretation of distance coefficient varies across studies with the spatial level of aggregation used or the degrees of substitutability between goods, the spread of productivity dispersion, or changes in trade costs over distances. Comparing the estimates in this chapter to other distance coefficients is therefore hard due to these differences and also due to the fact that there is no counterfactual group in this data (measuring interstate trade relative to international or intrastate flows) as noted earlier.

In addition to benchmarking the Indian estimates against US data, another closest comparable measure of the distance coefficient can be produced by plugging in the characteristics[39] of this study design into the meta-analysis of the distance coefficient in gravity models conducted by Disdier and Head (2008). This exercise reveals that the average distance coefficient from the meta-regression is -1.64, that is, a 10 percentage decrease in distance is associated with a decrease of 16.4 percentage decrease in trade values. One must be careful in comparing this to India's distance estimate of -.565 because the meta-regression analysis does not have a separate control for inter-country flows (it only controls for inter-continental flows). This implies that the effect of national boundaries is incorporated in the -1.64 estimate but not in India's interstate distance coefficient.

With these limitations of this study in mind, one may be able to hypothesize that India's interstate flows do not face as many frictions has been previously assumed to be the case. Whether this is because of differential tax treatments across regions and products or due to porous state borders conducive to trading networks cannot be discerned at this point and is hoped that future studies will be able to resolve these apparent contradictions.

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[39] These characteristics (and calibration parameter for our study) are whether the study was in the years after 1990 (=1), Single continent (=1), Sample of developed economies only (=0), No developed economies (=1), Disaggregated Data (=0), Total Bilateral Trade (=0), Road/Sea Distance (=0), Adjacency Control (=1), Common Language Control (=1), Trade Agreements Control (=0), Remoteness control (=0), Country fixed effects (=1), Incorporates zero flows (=0), No Zero Flows (=1), Poisson pseudo-ML (=0), Corrects for GDP endogeneity (=0), High quality journal (=1).

I.E: An attempt to resolve the paradox: Tax Related Distortions to Trade

A. Central Sales Tax and Value Added Taxes

India's current system of Central Sales Tax (CST) on interstate sales and Value Added Tax (VAT) on intra-state sales distorts interstate trade compared to a nation-wide Goods and Service Tax (GST). The question is whether the current system resulted in moreinternal trade or less. The answer is that it depends on whether the potential importer would receive input tax credits on her purchases if she were to instead procure them within the state.

Case 1: Trade is disincentivised

The availability of input tax credits (ITC) on goods purchased within state but not from out of state discourages interstate trade. The loss of ITC on out-of-state purchases implicitly acts as a tariff. This is best illustrated with an example.

Consider the case of three firms – A, B and C. A and B are in the same state, while C is in a different state. A must choose whether to source her inputs from B or from C, who are both selling their goods for a unit price of Rs. 100. Column (1) in Table 6 below shows the prices, profits and taxes at each stage of the supply chain from B to A to the final consumer. Assuming a VAT rate of 10 % for simplicity, B remits VAT of Rs. 10 and A receives input tax credit worth Rs. 10 on the purchase of inputs. Suppose A sells to the final consumer for Rs. 110 (implying a value added of Rs. 10), she must remit a VAT of Rs. 11 and the consumer pays a final tax inclusive price of Rs. 121.

Now suppose A chooses to source her inputs from firm C.Compare this supply chain to the B-A-Final Consumer chain in two ways:

- holding the price to the final consumer fixed (column 2) and

- holding A's profits fixed (column 3).

Onesees that even if the price to the final consumer is the same, A will prefer to source from B since her profits will be higher in this case. In a competitive market, A cannot charge the final consumer a price greater than Rs. 121 since another firm can capture the entire market by sourcing her inputs from B and charging the lower price of Rs. 121.

In either case, C remits tax of Rs. 2 on the sale to A but A receives no input tax credits. A remits VAT of 10 % on the final sale to the consumer, which is Rs. 10 if we hold prices constant but Rs. 11.20 if we allow price received by A to adjust. If prices are fixed, the resulting profit to A is Rs. 8 compared to her profit of Rs. 10 when she sources from B. If prices are not fixed then the final price to the consumer is higher at Rs. 123.20 while the profit to A remains the same at Rs. 10.

Consumers would prefer to purchase from a seller charging only Rs. 121, and therefore seller A would prefer to source from B and retain higher profits while charging the consumer a lower price. This example illustrates why CST discourages interstate sales when firms can receive input tax credits for in-state purchases.

Case 2: Pro-trade bias when the firm does not receive input tax credits as a final consumer

Now consider the case where firm A itself is the final consumer. In this case the transaction

ends at row (3) in Table 1 below and it is clear that it is cheaper for firm A to source from firm C. In the case of many business inputs, the firm itself is treated as a final consumer under the state VAT. That is, they do not receive input tax credits on these purchases. Some big ticket items that fall into this category are motor vehicles, petrol and lubricants, air conditioners etc. These items are amongst the highest traded items between states (Table 6).

Case 3: Pro-trade bias when the firm does not receive input tax credits as a seller of exempt goods.

A third scenario arises when the firm is a seller of VAT exempt goods. Sellers of VAT exempt rather than zero-rated goods cannot claim input tax credits on any of their purchases. In this case the tax inclusive price on the final sale to the consumer will be the same as the price received by seller A. However, since firm A does not receive input tax credits, her profit if she sources her inputs from within the state will be zero. This scenario is illustrated in Table 7 below. If she sources inputs from within the state and sells her output at the same price, then she makes a profit of Rs. 8 per unit (Column 1). To make the same profit while sourcing inputs from out of state as from within state, she can charge the final consumer only Rs. 102 compared the much higher price of Rs. 110 when sourcing from within state (Column 3). Cotton yarn for instance is a tax exempt good in Andhra Pradesh. The input to cotton yarn manufacturers – cotton – is one of the top 15 commodities by value imported into Andhra Pradesh from other states (Appendix Table 4).

Table 6: Firm receives ITC on inputs.

S. No.		Inputs from B (in state) (1)	Inputs from C (out of state) (2)	Inputs from C (out of state) holding profits equal (3)
(1)	Price received by Seller B or C	100	100	100
(2)	Tax on Intermediate Stage (VAT or CST)	10	2	2
(3)	Tax inclusive price paid by A (1 + 2)	110	102	102.00
(4)	Input Tax Credit received by A	10	0	0.00
(5)	Price received by A on output	110	110	112.00
(6)	Tax on Final Sale from A to consumer	11	11	11.20
(7)	Tax inclusive price paid by Consumer (5+6)	121	121	123.20
(8)	Profit per unit (7-6+4-3)	10	8	10

Table 7. Final good is tax exempt so seller does not receive ITC on inputs

S. No.		Inputs from B (in state)	Inputs from C (out of state)	Inputs from C (out of state) holding profits equal
(1)	Price received by Seller B or C	100	100	100
(2)	Tax on Intermediate Stage (VAT or CST)	10	2	2
(3)	Tax inclusive price paid by A (1 + 2)	110	102	102.00
(4)	Input Tax Credit received by A	0	0	0.00
(5)	Price received by A on output	110	110	102.00
(6)	Tax on Final Sale from A to consumer	0	0	0.00
(7)	Tax inclusive price paid by Consumer (5+6)	110	110	102.00
(8)	Profit per unit (7-6+4-3)	0	8	0

India on the Move and Churning: New Evidence

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12

CHAPTER

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An ideal society should be mobile, should be full of channels for conveying a change taking place in one part to other parts.

– Dr. B.R. Ambedkar

The popular impression is one of an India where labour flows are relatively low. Based on two new datasets and methodologies, this chapter finds high levels of internal work-related migration in India. Analysing the changes in same-age cohorts using Census data yields an annual inter-state migration of about 5-6.5 million between 2001 and 2011. Railway passenger data analysis suggests an annual inter-state migration flow of close to 9 million since 2011. Clearly, rising growth after the 1980s has led to an acceleration of labour migration flows as the rewards of better economic opportunities have overcome the costs of moving. This chapter also documents patterns of railway passenger flows across states and districts which are consistent with priors but also throw up surprises. One such is that language does not seem to be a serious barrier to internal economic integration which if true would vindicate the founding fathers' permissive approach to India's linguistic cleavage. Of course, the striking findings of this chapter and the previous one on trade is deeply puzzling. Across India, income and consumption outcomes are diverging in the face of the equalizing forces of rapid internal integration of goods, people and capital.

I. INTRODUCTION AND MAIN FINDINGS

12.1   On Chinese New Year, a staggering 277 million migrants[1]– about 25 percent of the workforce – board trains to return home. In China, high economic growth rates have been accompanied by mass migration from the rural hinterlands to urban hotspots, mainly along the coast.

12.2   Historically, migration of people for work and education has been a phenomenon that accompanies the structural transformation of economies, and has paved the way for the release of "surplus labour" from relatively low-productive agricultural activities to sectors enjoying higher productivity. The resulting remittance flows increase household spending in the receiving regions and further the economic development of less-developed regions.

12.3   Given that higher labour migration

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bodes well for a country's economic future, how does India compare to its neighbor? The traditional view, based on a straightforward reading of the 2001 Census, is that the stock of migrants in India is low (around 33 million), and not increasing very rapidly. This chapter instead takes a different view and arrives at a much larger estimate of labour migration in India by analyzing 2011 Census data and railway passenger traffic flows data provided by the Ministry of Railways[2].

12.4   The pattern of flows of people found in this study are broadly consistent with popular conception - less affluent states see more people migrating out while the most affluent states are the largest recipients of migrants. The cost of moving for people is about twice as much as it is for goods – another confirmation of priors (Helliwell, 1997). There are three noteworthy findings that emerge.

12.5   First, India is increasingly on the move – and so are Indians. A new Cohort-based Migration Metric[3](CMM)—shows that annually inter-state labour mobility averaged 5-6 million people between 2001 and 2011, yielding an inter-state migrant population of about 60 million and an inter-district migration as high as 80 million[4]. The first-ever estimates of internal work-related migration using railways data for the period 2011-2016 indicate an annual average flow of close to 9 million people between the states. Both these estimates are significantly greater than the annual average number of about 3.3 million suggested by successive Censuses and higher than previously estimated by any study[5].

12.6   Second, migration is accelerating. In the period 2001-11, according to Census estimates, the annual rate of growth of labour migrants nearly doubled relative to the previous decade, rising to 4.5 per cent per annum in 2001-11 from 2.4 per cent in 1991-2001. There is also a doubling of the stock of out-migrants to 11.2 million in the 20-29 year-old cohort alone. This acceleration has been accompanied by the surge of the economy. As growth increased in the 2000s relative to the 1990s, the returns to migration might have increased sufficiently to offset the costs of moving, resulting in much greater levels of migration.

12.7   Third, and a potentially exciting finding, for which there is tentative not conclusive evidence, is that while internal political borders impede the flow of people, language does not seem to be a demonstrable barrier to the flow of people. Results from a gravity model indicate that political borders depress the flows of people, reflected in the fact that, controlling for distance, labour migrant flows within states are 4 times the labour migrant flows across states. However, language barriers appear not to create comparable frictions to the movement of goods (See Chapter 11) and people within India. The prescient permissiveness of the founding fathers in not dictating a lingua franca for the country appears to have succeeded in making language less salient an axis of cleavage across India, a remarkable achievement given the early anxieties about linguistic divisions (Guha, 2007).

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[2]   International migration is not the focus of this chapter. A recent book by Kapur et. al (2016) contains an excellent discussion of Indian migrants in the United States

[3]   See Appendix I for a detailed description of Cohort-based Migration Metric.

[4]   The Census definition of a migrant is as follows: "When a person is enumerated in census at a different place than his/her place of birth, she/he is considered a migrant". This chapter focuses on inter-state migration.

[5]   Earlier work by Munshi and Rosenzweig (2016) suggested that there were significant impediments to internal labour.

12.8   Of course, all these interesting results throw up a deep puzzle as to why greater internal integration has not led to a narrowing of income and consumption gaps across states, as we document in Chapter 10: the co-existence of diverging incomes and consumption alongside the equalizing forces of internal integration of goods, people and capital is a mystery waiting to be deciphered.

II. BASELINE CENSUS DATA: MIGRATION LEVELS AND GROWTH

12.9   Before the new estimates and new methodologies are discussed, the basic data provided by the Census is presented. These figures are significant under-estimates (see Box 1), but they still convey the same basic picture, of a surge in labour mobility.

12.10   Table 1 shows that between 1991 and 2001 the growth rates of the workforce and migrants for economic reasons were nearly identical, at 2.4 per cent per annum. But as GDP growth started to soar over the next decade, the two began to diverge. The growth rate of migrants rose spectacularly to 4.5 per cent per annum, while the workforce growth rate actually fell. Thus, the migrants' share of the workforce rose substantially. A breakdown by gender reveals that the acceleration of migration was particularly pronounced for females. In the 1990s female migration was extremely limited, and migrants were shrinking as a share of the female workforce. But in the 2000s the picture turned around completely: female migration for work not only grew far more rapidly than the female workforce, but increased at nearly twice the rate of male migration.

Table 1. Workforce and Migration for Economic reasons, Census 1991-2011

					Growth %	
		1991	2001	2011	1991 to 2001	2001 to 2011
Workforce (million)	Total	317	402	482	2.4	1.8
	Male	227	275	332	2.0	1.9
	Female	90	127	150	3.5	1.7
Migrants stating economic reasons for migration (million)	Total	26	33	51	2.4	4.5
	Male	22	29	42	2.7	4.0
	Female	4	4	9	0.4	7.5
Migrants stating economic reasons for migration as a share of workforce, %	Total	8.1	8.1	10.5		
	Male	9.6	10.4	12.7		
	Female	4.4	3.2	5.7		
Migrants who moved within last one year, stating economic reasons for migration (million)	Total	1.4	2.2	3.5	57	59
	Male	1.1	1.7	2.8	55	65
	Female	0.3	0.5	0.7	67	40
Flow/Stock Ratio (%) among migrants who moved for economic reasons	Total	5.4	6.7	6.9		
	Male	5.0	5.9	6.6		
	Female	7.6	12.1	8.2		

Source: **Census 1991, 2001 and 2011. Figures for 1991 adjusted for Census absence in J&K in 1991. Migration data for 2011 are taken from provisional D-5 tables. Economic reasons include work, employment and business. Flow/Stock ratio is migration for duration less than a year divided by total stock of migrants. Compound annual growth rates taken for stocks and simple growth rate used for annual flows.**

III. Re-Estimating Migration: Two Time Periods, Two Data Sources, Two New Approaches

12.11 This section presents two new approaches to estimating migration within India. The first is based on comparing similar cohorts across the two census periods, 2001 and 2011. The second is based on data on railway passenger traffic in the unreserved category for the period 2011-2016. Each is described in turn.

A. Cohort-based Migration Metric (CMM)

12.12 In order to further analyze recent trends in labour mobility, a Cohort-based Migration Metric (CMM) is developed to gauge net migration at the state and district level[6]. This metric considers net migration to be the percentage change in population between the 10-19 year-old cohort in an initial census period and the 20-29 year-old cohort in the same area a decade later, after correcting for mortality effects (See Appendix I)[7]. It is likely to capture labour migration, as other bilateral movements for reasons such as marriage are netted out in the equation[8].

12.13 Figure 1 and Table 2 show the change in CMM scores from the 1990s to the 2000s. Among net in-migration states, Karnataka is

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Box 1. Estimating the Size of the Migrant Workforce in India

Traditional views on labour mobility in India have held it to be low and stagnant over the years. According to Census 2001, 33 million people or 8.1% of the Indian workforce were migrants for economic reasons. Over 80% of these migrants were male. Labour mobility also appears to be low because urbanization rates have not picked up sharply over the years, changing by roughly three percentage points per decade, irrespective of the urban definition used.

Recent research has however questioned this view. First, labour migration in India tends to be circular[1] in nature in both short and long-term migration streams and is not adequately captured by Census data. Using sectoral workforce data, Deshingkar and Akter (2009) argue that the number of migrant workers exceeds 100 million. Similarly, using National Sample Survey data of 2007-08 that captures short-term migration better than the Census, Mazumdar et. al. (2013) document nearly 70 million migrant workers in India comprising 17% of the workforce of the survey year. Second, female migration for work is concealed in 'reason-for-migration' statistics because the principal reason given to the enumerator is 'marriage' or 'moved with household.' Using NSS 2007-08 data separately on migration and worker status, it can be shown that migrants comprise 29% of the workforce (GoI 2017, Srivastava 2011). Alternatively, nearly 20% of rural households had at least one out-migrant for work in 2007-08 (Tumbe 2015). Third, commuter migration for work across the rural-urban divide is also substantial in India, exceeding 10 million people in 2009-10 (Chandrasekhar 2011). Fourth, the slow pace of Indian urbanization is rooted in the demographic divergence between rural and urban natural growth rates and not necessarily in low or stagnant rates of migration (Tumbe, 2016).

While Census migration data is useful to understand certain aspects of migration, it has its limitations in capturing circular migration and female migration for work. Alternative estimates noted above place the share of migrants in the workforce to lie between 17% and 29%. As per Census 2011, the size of the workforce was 482 million people and based on extrapolation, this figure will exceed 500 million in 2016. If the share of migrants in the workforce is estimated to be even 20%, the size of the migrant workforce can be estimated to be over 100 million in 2016 in absolute terms.

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[1] Circular migrants are individuals who migrate from place to place for temporary periods.

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[6] At the time of publication, the Census had only released provisional D-5 migration tables, thus constraining the analysis possible using Census migration data.

[7] The focus on the 10-19 cohort has the advantage that it is less contaminated by other reasons for migration such as marriage.

[8] According to Census 2001, migration outside a district comprised nearly 50 per cent of all migration for economic reasons among men. International migration is also part of this metric but the volume is low as proportion to overall population. Kerala is one exception and figures are adjusted for it as explained in the Appendix.

**Figure 1. State level Cohort-based Migration Metric: 2001-11 vs. 1991-2001**
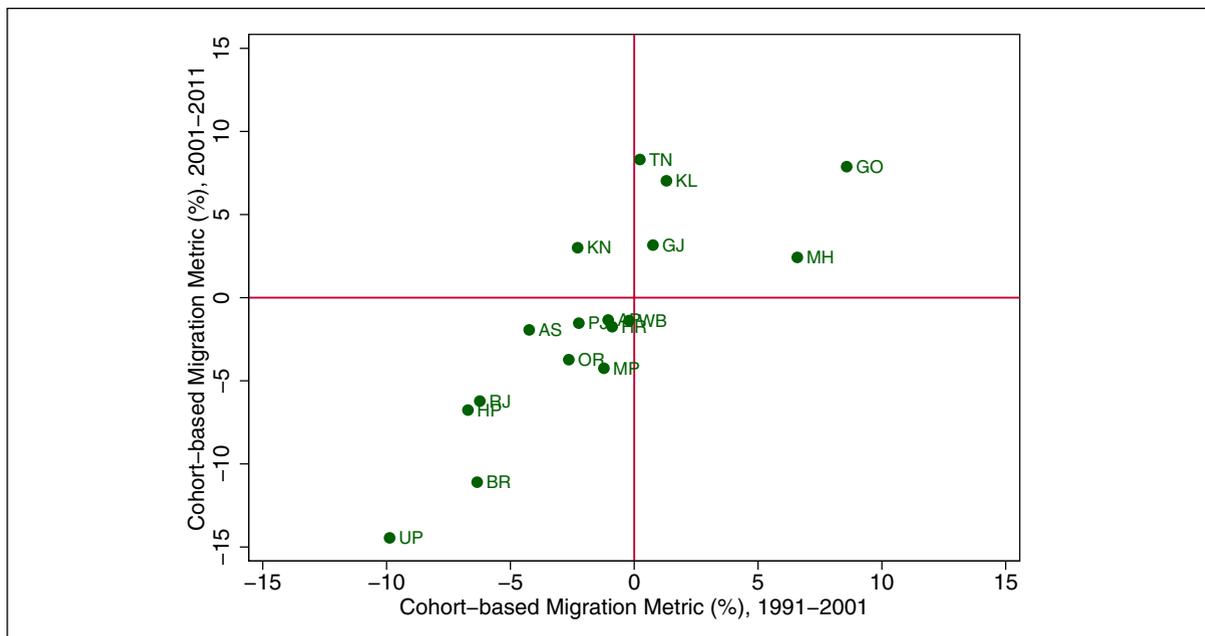
Table 2. Cohort-based Migration Metric (CMM) in selected states, 1991-2011

State	CMM 1991-2001 (%)	CMM 2001-2011 (%)	Net Migrants in 20-29 cohort, 1991-2001 (Thousands)	Net Migrants in 20-29 cohort, 2001-2011 (Thousands)
Delhi	46.1	15.6	887	466
Tamil Nadu	0.2	8.3	26	1,013
Goa	8.6	7.9	22	19
Kerala	1.3	7.0	395	900
Gujarat	0.8	3.2	69	343
Karnataka	-2.3	3.0	-224	348
Maharashtra	6.6	2.4	1,064	507
Andhra Pradesh	-1.1	-1.3	-148	-218
West Bengal	-0.2	-1.4	-30	-235
Punjab	-2.2	-1.5	-99	-82
Haryana	-0.9	-1.7	-34	-86
Assam	-4.2	-1.9	-209	-114
Odisha	-2.6	-3.7	-173	-290
Madhya Pradesh*	-1.2	-4.2	-166	-765
Rajasthan	-6.2	-6.2	-602	-791
Himachal Pradesh	-6.7	-6.8	-80	-90
Bihar*	-6.3	-11.1	-1,135	-2,695
Uttar Pradesh*	-9.9	-14.4	-2,955	-5,834
Total (Major Sending States)			-5,855	-11,200

Source: **See Appendix I for note on constructing CMM and adjustment of international migration figures for the state of Kerala (KL). *denotes undivided state.**

a recent entrant (see the northwest quadrant of the figure). Internal migration rates have dipped in Maharashtra and surged in Tamil Nadu and Kerala reflecting the growing pull of southern states in India's migration dynamics. Out-migration rates increased in Madhya Pradesh, Bihar and Uttar Pradesh and have dipped in Assam.

12.14 To illustrate the CMM analysis further, Gurugram district, known for high in-migration, shows a jump of 29 per cent between 2001 and 2011 in the age cohort whereas Azamgarh district in eastern Uttar Pradesh, known for high out-migration, shows a reduction of 24 per cent, after adjusting for cohort mortality. Their CMM scores are therefore 29 and -24 respectively. Similarly, the CMM score at the state level ranged from -15 (Uttar Pradesh) to +15 (Delhi) for the period 2001-11.

12.15 Figure 2 shows the strong positive relationship between the CMM scores and per capita incomes at the state level. Relatively less developed states such as Bihar and Uttar Pradesh have high net out-migration. Relatively more developed states take positive CMM values reflecting net in-migration: Goa, Delhi, Maharashtra, Gujarat, Tamil Nadu, Kerala and Karnataka.

12.16 The sum of all the out-of-state net migrants in the 20-29 age cohort for the period 2001-11 exceeded 11 million people, up from around 6 million people in the 1991-2001 period. Nearly 80% of these migrants were male in both periods.

12.17 As per Census 2001, the 20-29 age cohort formed a fifth of all migrants and of all migrants who moved for economic reasons respectively. Using a scaling factor of five, the number of out-of-state net migrants

Figure 2. CMM vs. Real Incomes across States

between 2001 and 2011 can be estimated to be over 55 million people using the CMM methodology.

12.18   Figure 3 shows the distribution of CMM scores at the district level for the 1991-2001 and 2001-2011 periods.[9] The distribution of CMM scores shifts left over this period reflecting that out-of-district migration is emanating from a growing number of districts in India. The range of the distribution also increases over time, indicating that the number of high-mobility districts (both sending and receiving) is growing.[10]

12.19   The sum of all the out-of-district net migrants in the 20-29 age group during 2001-11 exceeded 16 million, nearly 75 per cent being male. As with the previous analysis at the state level, using a scaling up factor of five for the remaining cohorts yields an all-India estimate of over 80 million out-of-district net migrants in India.

12.20   Table 1 in Appendix I lists some of the prominent high-mobility districts in India based on extreme value CMM scores, highlighting those districts that have recently witnessed high levels of mobility. Districts with high net in-migration tend to be city-districts such as Gurugram, Delhi and Mumbai. Districts with high net out-migration are located in the major sending states such as Uttar Pradesh and Bihar

12.21   Another important development is the growing role of female migrants. Until the 2000s, migration was largely a male dominated phenomenon. But in the 2000s there was a marked shift in the distribution for females (indicating more outflows), indeed much more than the shift for males, consistent with the discussion in the section on Census data (Figures 4A and 4B).

Figure 3. CMM Distribution at District Level
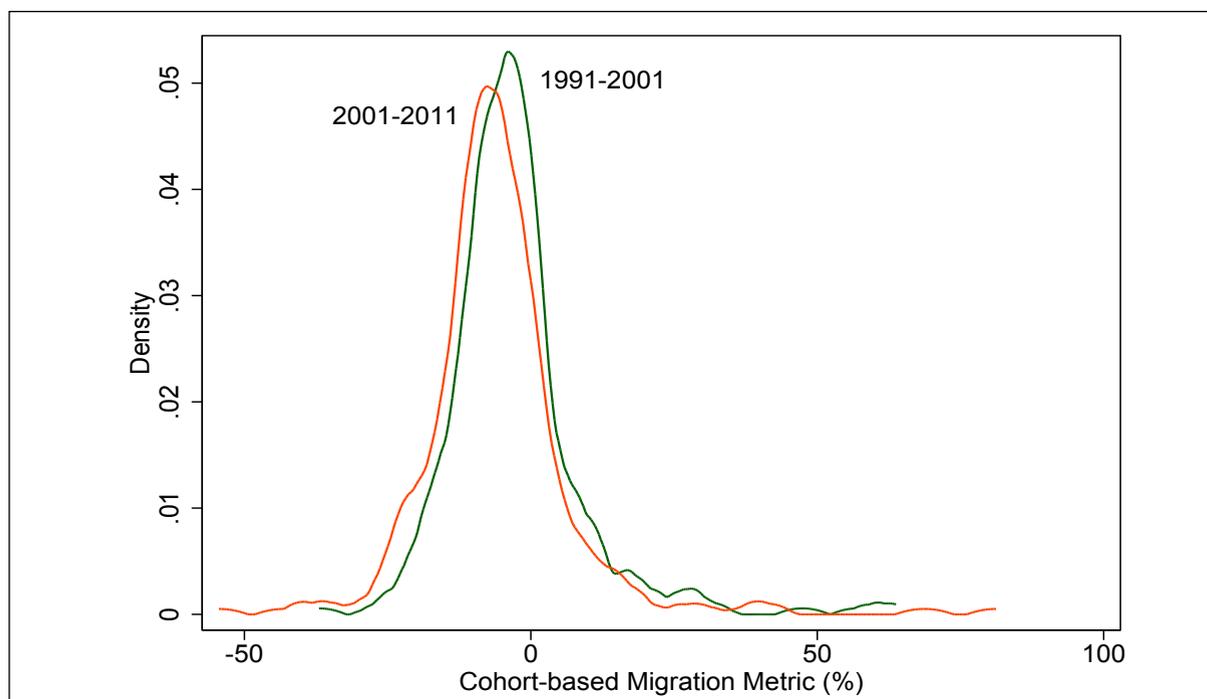
(*Source:* See Appendix I for note on constructing CMM.)

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[9]   Sample is restricted to around 300 districts with unchanged boundaries between 1991 and 2011, representing 60 per cent of the Indian population.

[10]   Results holds even after excluding districts with high international out-migration, as captured in NSS 2007-08 data.

**Figure 4A. CMM Distribution at District Level, Females**
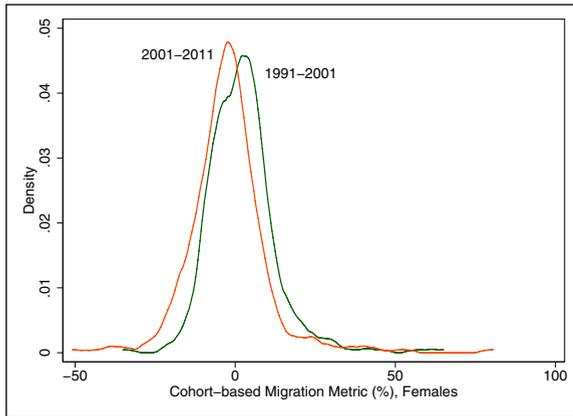
Figure 4B. CMM Distribution at District Level, Males
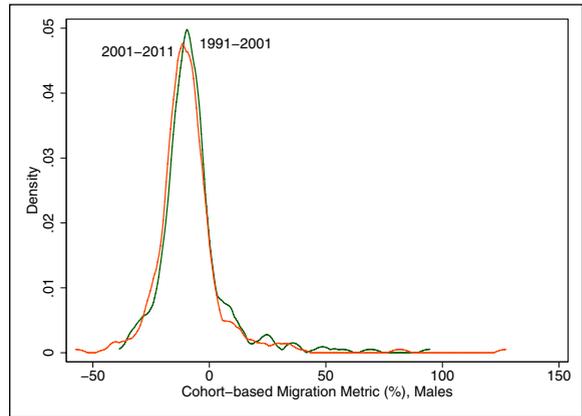
Source: See Appendix I for note on constructing CMM

B. Railway passenger data based migration metric

12.22 Monthly data was obtained from the Ministry of Railways on unreserved passenger traffic between every pair of stations in India for the years 2011-2016. The details of the analysis are explained in Appendix II, but the key idea is to use net annual flows of unreserved passenger travel as a proxy for work-related migrant flow. This class of travel serves less affluent people, who are more likely to travel for work-related reasons. It is also relatively unconstrained by capacity, hence reflecting the demand for travel, whereas reserved passenger traffic is more likely to be constrained by the supply of seats. The main findings are described below.

Magnitude and patterns of migration

12.23 Figure 5 shows the all India net annual passenger flows for India for the last five financial years starting 2011-12. Net

Figure 5. Total Net Flows at All India Level
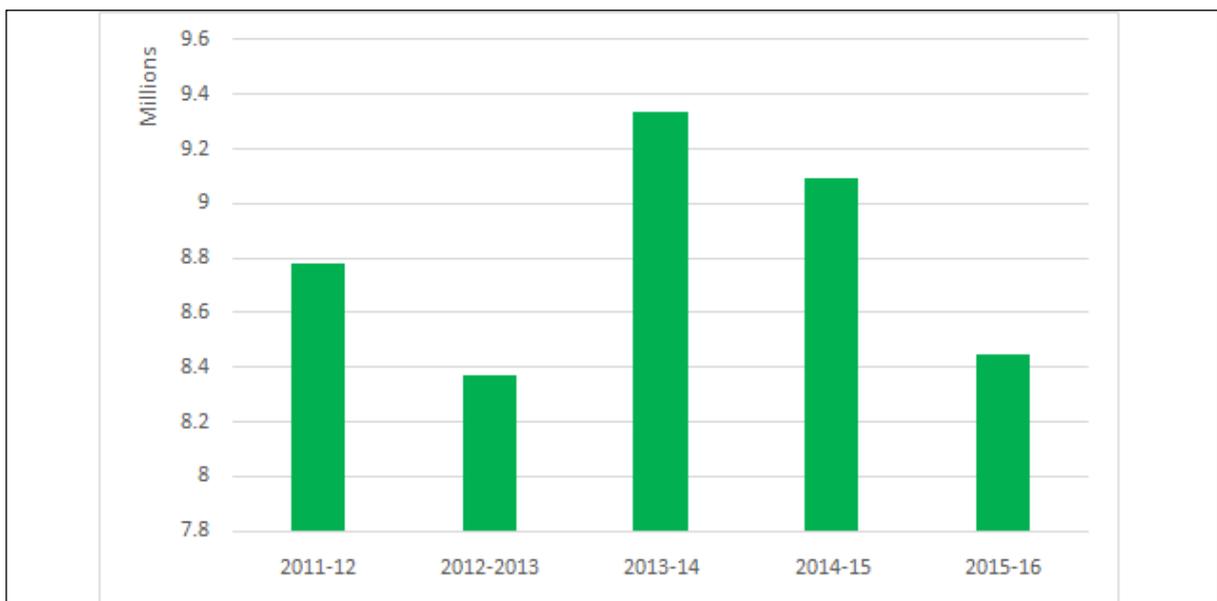
Source: Survey Calculations

Figure 6. Average Net Flows at State Level
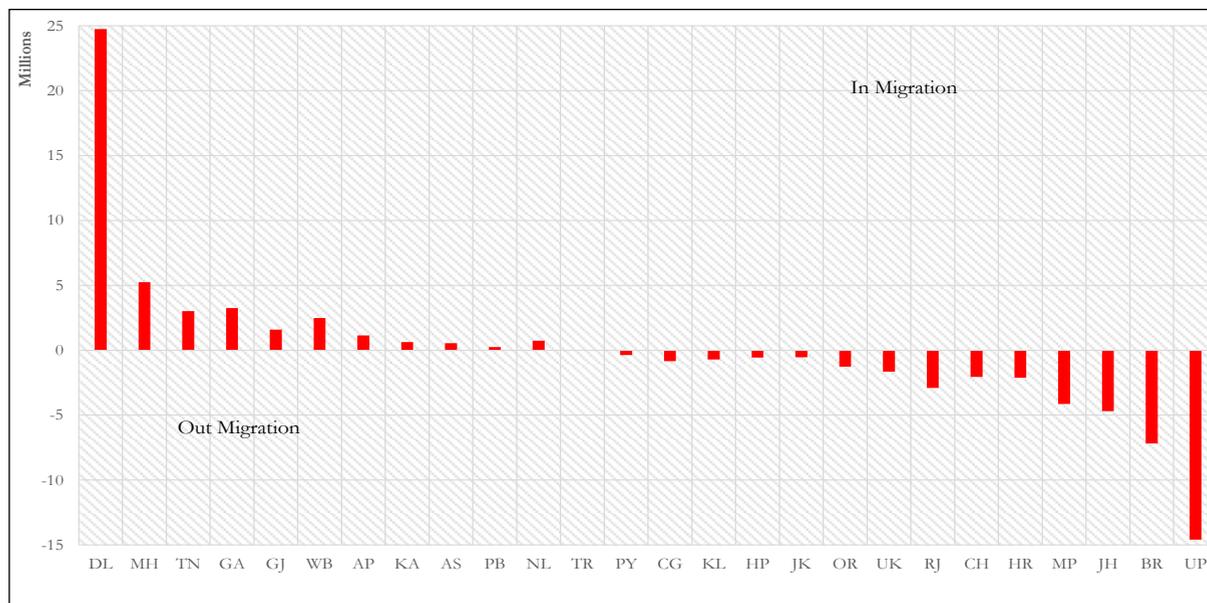
flows at the All-India level have averaged close to 9 million[11], peaking around 2013-14, considerably above levels suggested by the Census[12] (Table 1).

12.24   Figure 6 shows the net flows for the 26 states. Positive (negative) numbers denote in (out)-migration. The largest recipient was the Delhi region, which accounted for more than half of migration in 2015-16, while Uttar Pradesh and Bihar taken together account for half of total out-migrants. Maharashtra, Goa and Tamil Nadu had major net in-migration, while Jharkhand and Madhya Pradesh had major net out-migration.

12.25   Figure 1 in Appendix II   shows that the impact on migration activity on state labour supply is far more uniform. Out migration is a significant share of the working age population, both in the smaller states (Goa, Puducherry, Nagaland, Chandigarh) and largest states (UP, Bihar,

Jharkhand, MP). For India as a whole the annual net flows amount to about 1 per cent of the working age population.

12.26   Figure 7 maps the largest inter-state migration routes. States like Delhi, Maharashtra, Tamil Nadu, and Gujarat attract large swathes of migrants from the Hindi heartland of Uttar Pradesh, Bihar, and Madhya Pradesh. Kolkata in West Bengal attracts migrants from nearby states of Jharkhand, Uttar Pradesh, and Odisha making evident one of the laws of migration propounded by Ravenstein (1885) – "*There is a process of absorption, whereby people immediately surrounding a rapidly growing town move into it and the gaps they leave are filled by migrants from more distant areas, and so on until the attractive force is spent.*"   There is an interesting dynamic between Gujarat and Maharashtra where Surat has started acting as a counter magnet region to Mumbai and attracts migrants from the neighboring

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[11]   This is the net calculated by adding up the positive net values for set of states which are net importers. There can be another all India number calculated by summing up the imports or exports for various states. If the latter calculation is performed, then the net inter-state passenger flows increase to 13 million. When we net the flows across the entire span of the data set rather than annually, our annualized migration estimate is 8.8 million, close to the number reported above.

[12]   This may even be a slight underestimate of the flows because we exclude those travelling within 200 kilometers.

Figure 7. Top Inter-State Migration Routes with Highest Passenger Density
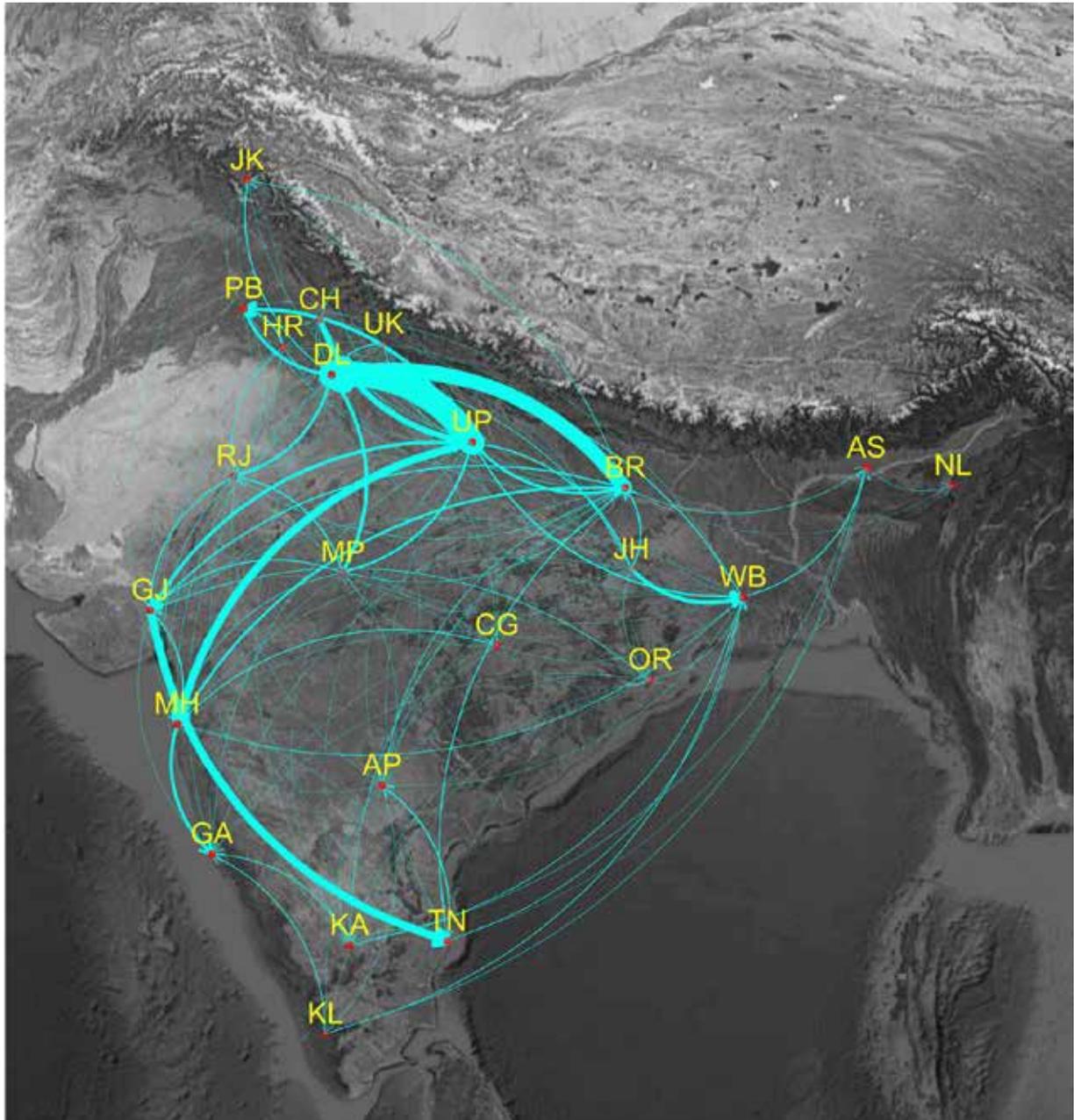
districts of Maharashtra. Other counter-magnet region dynamics are observed in Jaipur and Chandigarh (to Delhi).

12.27 While many of the patterns conform to priors, this analysis throws up some real surprises as well. For example, flows from Gujarat to Tamil Nadu are about 7 lakhs annually.

12.28 Figure 8 and Figure 9 show the heat map of the net passenger flows for FY 2015-16 at state and district level respectively. Gross and net level flows were also calculated at state and district level. The Report by the Working Group on Migration (GoI, 2017) has identified 54 districts with a high level of inter-state out-migration intensity. The net flows calculated using railway passenger traffic correctly identifies 40 of these 54 districts (75 per cent success rate). A similar exercise was done to match the out migrant and in migrant districts

Figure 8: State-wise Heat Map for Passenger Flows in 2015-16
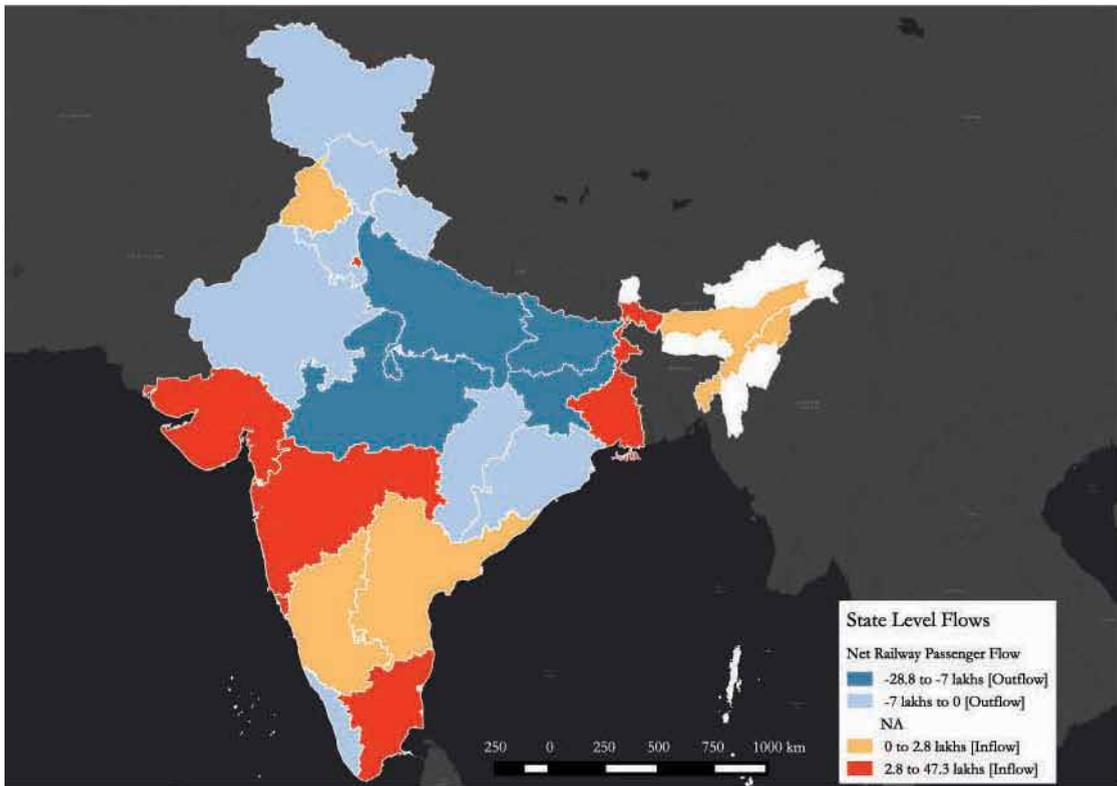
Figure 9: District-wise Heat Map for Passenger Flows in 2015-16
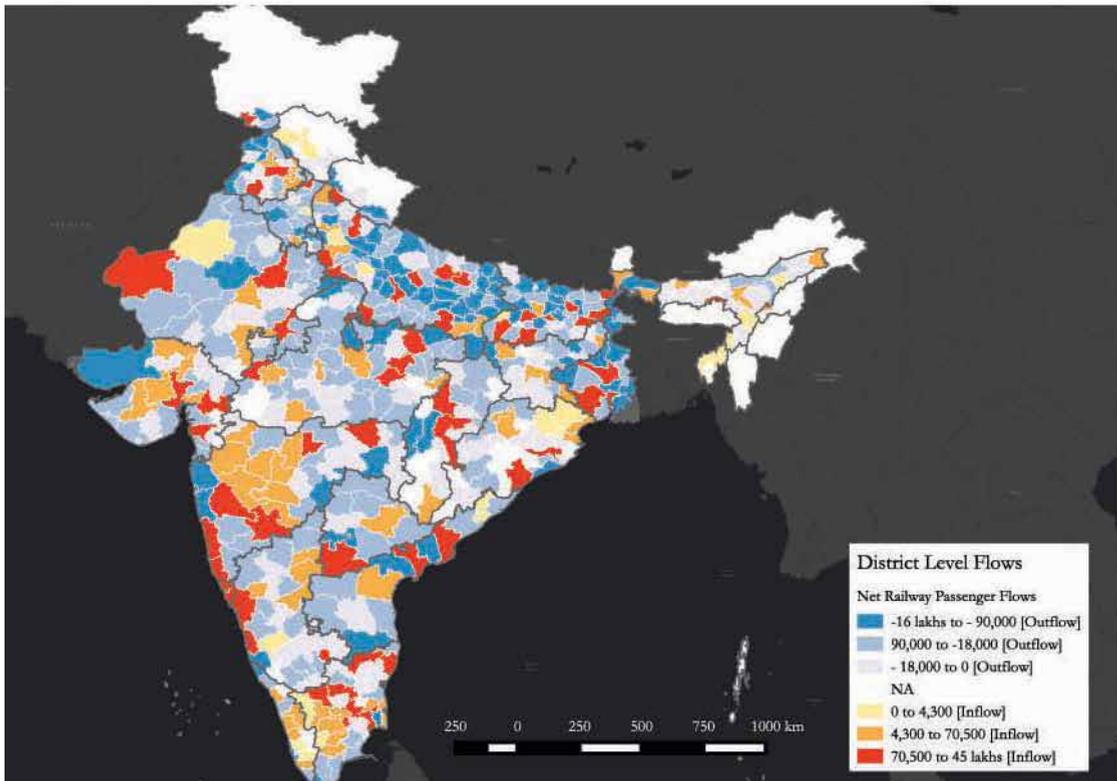
Box 2: Gravity model for migration

Gravity models have been used for analyzing the flow of goods, services and people. Chapter 11 covers its application in the analysis of trade within India.

Gravity model is an empirical observation which finds that the migrant/passenger flows between two geographies is directly proportional to the level of economic activity/population of these two geographies and inversely proportional to some measure of physical distance between the two geographies. Geographers were pioneers in using the gravity models for studying the migration and mobility patterns. Ravenstein (1885) in his work tried to systematically study the patterns of migration. Waldo Tobler (1970) described the gravity equation as the first law of geography, which states that "*everything is related to everything else, but near things are more related than distant things*".

Economists have also been using the gravity equation to study and predict both the flows of migrants between different countries and geographies. Neidercorn J. A. et al. (1969), Raul Ramos (2016), Anderson and van Wincoop (2003), and Anderson (2010) give the details on the theoretical underpinnings (random utility maximization) of the models used by economists to study the migration flows.

Details for preparing the data are provided in Appendix II. As Table 1 shows, the model is estimated for state-level (columns 1 and 2) and district-level (columns 3 and 4) flows. The specifications test the impact of distance[1], common language (Hindi[2] and non-Hindi), and common border between two states[3]. The state-level estimations can also help us test to what extent borders create impediments to flows of people. The results show that for every 1 per cent change in the distance, the net flow of migrants falls by 1.66 per cent[4]. This is broadly in line with other results and is quite robust when the same specification is run over different years. Interestingly, and reassuringly, this coefficient is greater than the comparable coefficient for India's trade flows: clearly people flow less easily than goods.

As expected, the adjoining state border effect (contiguity) is positive suggesting that migration is higher in the adjacent states even after controlling for distance. Interestingly, the common language dummy coefficient does not come out to be significant suggesting that common language between the origin and destination state is not significant in explaining the flow of the migrants. Put differently, not having a common language does not impede the flow of migrants. The results for both net and gross flows are close whether they are estimate at state-level or district-level (the coefficients in columns 1 and 3 are broadly similar as are coefficients between columns 2 and 4).

The district-level estimations allow us to test whether political borders between states impede migration. The same district dummy is positive and statistically significant: the coefficient (in column 4 suggests) suggests that people flows within a state are four times the flows across state borders.[5,6]

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[1] Distance is proxied by the Great circles distance between state capitals.

[2] The Hindi speaking states assigned in this study areBihar, Chhattisgarh, Delhi, Haryana, Jharkhand, Madhya Pradesh, Rajasthan, Uttarakhand and Uttar Pradesh. Others have been assigned as non-Hindi ones.

[3] Both origin and destination state/districts fixed effects have been added to capture state specific characteristics of migration. Fixed effects will also absorb GDP and population differences between two states/districts.

[4] The results remain same even if the state regressions are run on the net export rather than the net imports for different states. By construction the net numbers are symmetric.

[5] Any change in railway routes due to opening of new railway routes, starting of new trains between dyads, improvement of network connectivity has not be taken into account. Dyadic fixed effects have not been incorporated into the regressions as the distance between does not vary over time..

[6] Multi level clustering on importing district and year has been done for calculating the robust standard errors.

identified by the CMM measure in section II and those by railway passenger metric. The match was 89 percent (64 out of 72) for out migrants districts[13] and 57 percent (13 out of 23)[14] for the in migrant districts[15].

Formal analysis using a gravity model

12.29 Finally, a statistical analysis of the data based on the gravity model of trade and migration (explained in greater detail in Box

Table 1. Gravity Regression Results

Dependent Variable: Log of Passengers	State-Level Passenger Flows[1]		District-Level Passenger Flows[2]	
	Gross Flows	Net Flows	Gross Flows	Net Flows
Log of Distance	-1.858***	-1.666***	-1.924***	-1.379***
	(0.049)	(0.087)	(0.045)	(0.044)
Language(Hindi) Dummy	0.150	-0.135	-0.123	-0.053
	(0.104)	(0.191)	(0.094)	(0.091)
Common Border Dummy	0.629***	0.324**	0.538***	0.390***
	(0.089)	(0.157)	(0.044)	(0.040)
Same State Dummy			1.804***	1.334***
			(0.086)	(0.084)
Observations	3,165	1,584	597,395	337,065
R-squared	0.88	0.78	0.54	0.50

1   Fixed effects for: Import State, Export State, Year, Year interacted with Import State, Year Interacted with Export State

2   Fixed effects for: Import District, Export District, Year, Year interacted with Import District, Year Interacted with Export District

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

2) is undertaken. When the analysis is done at the level of inter-state flows, distance has a strong negative effect on labor flows. The impact is roughly twice as much as on flows of goods (see Chapter 11). This result is broadly identical when the analysis is done at the level of inter-district migration. There is a strong contiguity effect; even controlling for distance, states that share common borders see about 65 per cent more migration between them than states that do not share such a border.

12.30   We find that there is a border effect in the sense that migrant flows between states are lower than flows within states. Our estimates suggest that on average flows within states are around four times the flows across states. Kone et al., (2016) using a different specification, find this coefficient to vary between 8 and 2.8 for same-state neighbouring districts vs. same state non-neighbouring districts .

12.31   At the same time, we find little evidence that language is a barrier to the migration flows. When similar analyses are done internationally (Grogger, 2011),

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13   Bhagalpur, Buxur, Gaya, Patna, Rohtas, Vaishali (Bihar); Ratnagiri, Sindhudurg (Maharashtra); Ganjam (Odisha); Agra, Aligarh, Allahabad, Basti, Bulandshahr, Gonda, Mainpuri, Moradabad, Sant Ravi Das Nagar, Varanasi (UP) are the districts identified by GoI Committee and CMM score as out-migrating. Railways Passenger Metric analysis identifies these districts as in-migrating.

14   Sonitpur (Assam), Chandigarh, Valsad (Gujarat), Gurgaon (Haryana), Mumbai Suburban (Maharashtra), Indore(Madhya Pradesh), Thiruvallur (Tamil Nadu), Gautam Buddh Nagar (Uttar Pradesh) are the districts identified by GoI Committee and CMM score as in-migrating. Railways Passenger Metric analysis identifies these districts as out-migrating.

15   The discrepancy may be arising in both these cases due to the adjacency of these districts to districts with major terminal railway stations. A hypothesis is that the passenger traffic from(to) the terminal stations to(from) these districts is via non-rail transport, giving rise to the mismatch.

there is a strong language effect, namely that countries with a common language see larger migrant flows. In trade, the common language effect is estimated to be about 16 to 30 per cent more than countries that do not (Subramanian and Wei, 2007) (Rose, 2003). But within India, in both trade and labour flows, language doesn't seem to matter (in the sense that the dummy for Hindi-speaking states is not significant).

12.32 In the spirit of transparency, we now highlight some of the anomalies that our analysis threw up. Kerala in our data appears to be a net exporter of migrants between 2011-12 and 2015-16 which runs counter to priors. Small states and union territories i.e. Delhi, Goa, Chandigarh, Puducherry and Nagaland see large inflows and outflows in comparison to the findings in other studies. These states and union territories are small in terms of area and share boundaries (except Puducherry) with multiple neighboring states. It is possible that migrants are using these places as transit points from where they use other modes of transport to travel to the neighboring states.

IV. Conclusion 12.33 An India on the move is an India of churn, as Dr. Ambedkar observed. These new estimates, showing that migration within India is between 5 and 9 million annually, indicate that labour mobility in India is much higher than has been previously estimated. Another interesting finding of this study is that the acceleration of migration was particularly pronounced for females and increased at nearly twice the rate of male migration in the 2000s.

12.34 The patterns of migration observed conform to priors – less affluent states and districts evince higher out-migration, and rich metropolises attract large inward flows

of labour. Over time, there has been a shift towards the southern states, reflecting the opening up of new migration corridors in recent years. Preliminary evidence in the gravity model study suggests the absence of language as a significant barrier in the migration of people – a finding that will surely allay the apprehensions of this country's founding fathers.

12.35 This study predicts an increasing rate of growth of migrants over the years. The numbers show that internal migration has been rising over time, nearly doubling in the 2000s relative to the 1990s. One plausible hypothesis for this acceleration is that the rewards (in the form of prospective income and employment opportunities) have become greater than the costs and risks that migration entails. Higher growth and a multitude of economic opportunities could therefore have been the catalyst for such an acceleration of migration.

12.36 This acceleration has taken place in the backdrop of discouraging incentives such as domicile provisions for working in different states, lack of portability of benefits, legal and other entitlements upon relocation. To sustain this churn, however, these policy hurdles have to be overcome. Portability of food security benefits, healthcare, and a basic social security framework for the migrant are crucial – potentially through an interstate self registration process. While there do currently exist multiple schemes that address migrant welfare, they are implemented at the state level, and hence require inter state coordination of fiscal costs of migration. The domestic remittances market, estimated to exceed Rs. 1.5 lakh crores[16], can also be leveraged to enhance financial inclusion for

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[16] This figure is extrapolated from an estimated Rs. 50,000 crores in 2007-08 (Tumbe 2011), growing at an annual rate of 15% p.a., roughly in line with the nominal GDP growth rate. Domestic remittances serve 10 per cent of households in rural India and finance over 30 per cent of household consumption in remittance-receiving households

migrant workers and their families in the source region. Such measures would vastly enhance the welfare gains of migration and encourage even greater integration of labour markets in India.

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1.   Cohort-based Migration Metric (CMM)

CMM (t) = 100 x [Population in 20-29 age cohort in Census(t) – Population in 10-19 age cohort in Census(t-10) - Cohort Mortality]/ Population in 10-19 age cohort in Census(t-10)

Cohort Mortality= 10 x Age-specific (10-19) mortality rate per year x Population in 10-19 age cohort in Census(t-10)

Data Source: Population data from the Census 1991, 2001 and 2011 and age-specific mortality data (State level) for the 10-19 age group for the years 1996 and 2006 from Sample Registration System statistics. CMM is calculated at the district and state levels. At the State level, population for Kerala is corrected for international migration using data from the Kerala Migration Surveys conducted by CDS, Kerala.

Table 1. High Mobility Districts in India using CMM Methodology

Districts with high net in-migration [CMM 2001-11 scores above 15%]	Chandigarh; Gurgaon (HR); Delhi*; Gautam Buddha Nagar (UP); Sonitpur (AS); Indore, Bhopal (MP); Surat, Valsad (GJ); Daman; Dadra and Nagar Haveli; Thane, Mumbai Suburban, Pune (MH); Rangareddy (TG); Bangalore (KA); Thiruvallur, Chennai, Kancheepuram, Erode, Coimbatore (TN); Yanam, Puducherry (PY)
Districts with high net out-migration [CMM 2001-11 scores less than minus 15%]	Hamirpur (HP); Uttarkashi, Chamoli, Rudra Prayag, Tehri Garhwal, Pauri Garhwal, Pithoragarh, Bageshwar, Almora, Champawat (UK); Churu, Jhunjhunun, Pali (RJ); Muzaffarnagar, Bijnor, Moradabad, Rampur, Jyotiba Phule Nagar, Meerut, Baghpat, Bulandshahr, Hathras, Etah, Mainpuri, Budaun, Bareilly, Shahjahanpur, Unnao, Rae Bareli, Farrukhabad, Kannauj, Auraiya, Kanpur Dehat, Hamirpur, Fatehpur, Pratapgarh, Kaushambi, Faizabad, Ambedkar Nagar, Sultanpur, Shravasti, Basti, Sant Kabir Nagar, Gorakhpur, Kushinagar, Deoria, Azamgarh, Mau, Ballia, Jaunpur, Ghazipur, Sant Ravi Das Nagar (UP); Darbhanga, Gopalganj, Siwan, Saran, Sheikhpura, Bhojpur, Buxar, Jehanabad (BR); Nalbari, Darrang (AS); Bolangir, Ganjam (OR); Dhanbad, Lohardaga, Gumla (JH); Jhabua, Betul (MP); Amreli (GJ); Ratnagiri, Sindhudurg (MH); Bidar (KA)

Source: **Districts marked in bold italics are high-mobility districts using data for 2001-2011 but not for 1991-2001. State codes presented in parentheses. Data restricted to major states and union territories and excludes districts in Kerala. *Nine districts of Delhi collapsed into one unit for the analysis.**

Description of the data and preliminary results

Centre for Railway Information Systems (CRIS), Ministry of Railways provided the monthly data on tickets booked through the Unreserved Ticketing System (UTS) for travel across different station dyads in India for period between FY 2011-12 and FY 2015-16.

In the first stage, the stations were geocoded and mapped to various Indian states and Indian districts. Data for few stations without geocodes and stations in Manipur, Meghalaya, Mizoram and Arunachal Pradesh were dropped from the analysis[17]. Data for 26 states[18] and union territories was kept in the analysis. In the second stage, the data was aggregated to create Origin Destination dyad passenger flow matrix for each of the Financial Years. Aggregation of the passenger flows over financial years was done to ensure that the results are not impacted by any seasonality and, to check the robustness of the results, passenger flow data was aggregated over the calendar year as well. The passenger flow order and direction between different states remains similar. Around large urban agglomerations like Delhi, Mumbai, Kolkata and Bangalore, there is a large inflow of commuter traffic. Further, the flow of traffic to and from these agglomerations is not symmetric. Commuters close to these urban centres use railways for travelling to these centres and commute back using a different mode of transportation. Two different distance filters were used to remove the imbalance created by this phenomenon. In case 1, any passenger numbers between two stations of less than 200 KM distance[19] were removed from our data. In case 2, the distance filter was set at 150 KM. 200 KM filter was found to be suitable in reducing the possibility of including imbalanced commuter traffic. Hence, that has been used in the analysis. Table 1 shows this Origin Destination dyad matrix for FY 2015-16 with 200 KM distance filter applied.

The Origin Destination dyad matrix was used to calculate the net flows[20] of passengers across different states for all the five years for which data was available. This net flow of passengers for a year can be seen as a proxy for migration[21] between two states[22] as any short term journey for leisure or other purposes than migration is likely to be canceled by a reverse flow in the opposite direction within a year . Table 2 shows this net passenger flows matrix for FY 2015-16. To calculate the aggregate number of inter-state migrants between this period, nets of different years have been added. Robustness check has been performed by aggregating the passenger flow data over multiple time periods of two years, three years and five years. The net flow numbers remain stable across these aggregations. While preparing the district level gross and net passenger flows, 510 districts have been kept in the analysis to create a balanced panel for all the five years. 11 districts (Anantnag, Badgam, Baksa, Baramula, Gajapati, Kulgam, Narmada, Pulwama, Ramban, Reasi, The Dangs) have been dropped in various years for creating balanced panels.

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[17] Passenger flow was very small in comparison to the other states

[18] Telangana has been merged with Andhra Pradesh for the analysis

[19] Great circle distances calculated using the geocoded data

[20] If 100 passengers travel from state A to state B and 80 passengers travel from station B to A then net flow of State A will be 20 (100-80) and net flow of state B will be -20 (80-100)

[21] This measure only captures the unreserved ticketing system train passenger flow nets. It does not capture migration through any other mode of transport. Though for large distances, railways is by far the inexpensive and preferred mode of transportation. Within railways also data for Reserved category travels could have been utilized. The size of the travel there is an order of magnitude smaller than the size for unreserved category and it suffers from supply constraints.

[22] There may be a bias in the origin destination flow numbers between different states if migrants are not travelling directly between two states. Though, it will not affect the net migrant import or net migrant export number for a state.

**Figure 1: Total Net Flows as % of Working Age Population**
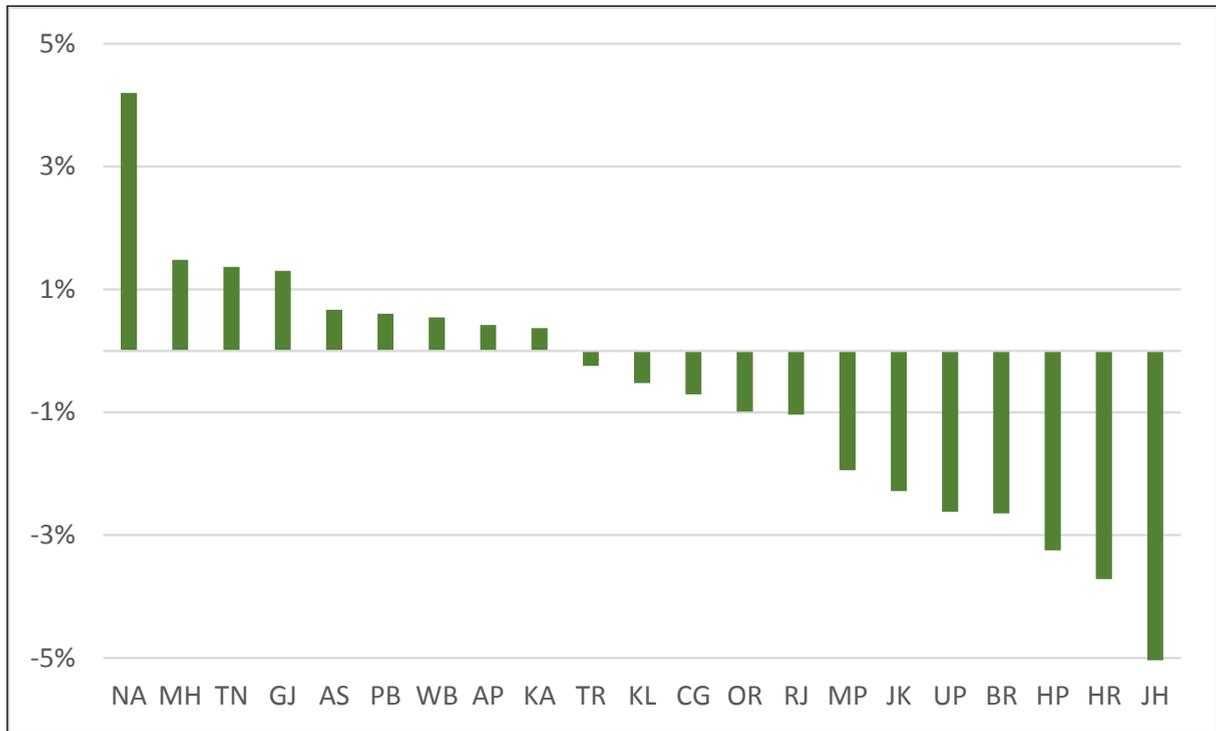
Table 1. States Top routes

Outflow State	Inflow State
Uttar Pradesh	Delhi
Bihar	Delhi
Gujarat	Tamil Nadu
Uttar Pradesh	Maharashtra
Chandigarh	Uttar Pradesh
Jharkhand	West Bengal
Uttar Pradesh	Punjab
Madhya Pradesh	Delhi
Uttar Pradesh	Gujarat
Punjab	Delhi
Maharashtra	Goa
Uttar Pradesh	Bihar
Rajasthan	Delhi
Bihar	Maharashtra
Madhya Pradesh	Uttar Pradesh
Haryana	Punjab
Uttar Pradesh	West Bengal
Bihar	Gujarat
Jharkhand	Uttar Pradesh
Jharkhand	Bihar
Maharashtra	Gujarat
Madhya Pradesh	Rajasthan
Uttarakhand	Delhi
Tamil Nadu	Andhra Pradesh
Jammu & Kashmir	Delhi
Rajasthan	Gujarat
Madhya Pradesh	Gujarat
West Bengal	Delhi
Bihar	Tamil Nadu
West Bengal	Assam

Table 2. Districts top routes

Importing District	Exporting District
Krishna	Chittoor
Ratnagiri	Mumbai
Chennai	Kachchh
Mumbai Suburban	Gorakhpur
Ratnagiri	Thane
Central Delhi	Gorakhpur
Patna	East Delhi
Central Delhi	Gwalior
North Delhi	Shahjahanpur
Sindhudurg	Mumbai
Mumbai	Lucknow
Gwalior	South
Sindhudurg	Thane
Haora	Dhanbad
North Delhi	Azamgarh
Moradabad	Chandigarh
Central Delhi	Jhansi
Vadodara	Mumbai Suburban
Central	Darbhanga
North Delhi	Bareilly
Saharsa	East Delhi
Jhansi	South delhi
Central Delhi	Nalanda
Central Delhi	Lucknow
Central Delhi	Begusarai
Central Delhi	Bhojpur
Ratnagiri	Raigarh
North Delhi	Araria
Saharsa	Amritsar
Mahbubnagar	Guntur

The 'Other Indias': Two Analytical Narratives (Redistributive and Natural Resources) on States' Development

<div style="text-align:right">

13

CHAPTER

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> *"Please understand, Your Excellency that India is two countries: an India of Light, and an India of Darkness. The ocean brings light to my country. Every place on the map of India near the ocean is well-off. But the river brings darkness to India."*
>
> *– "The White Tiger" by Aravind Adiga*

This chapter examines whether the pathologies associated with foreign aid and natural resources internationally also afflict the Indian states. It calculates redistributive resource transfers (RRT) from the Centre and revenue from natural resources for Indian states. There is no evidence of a positive relationship between these transfers and various state outcomes, including per capita consumption, GDP growth, development of manufacturing, own tax revenue effort, and institutional quality. In the case of RRT, there is even suggestive evidence of a negative relationship. The question is whether RRT can be tied more strictly to fiscal and governance efforts on the part of the states as provided for by the Thirteenth Finance Commission. Another idea that merits discussion is providing a universal basic income (UBI) directly to households in states receiving large RRT and reliant on natural resource revenues.

I. INTRODUCTION

13.1 The Indian growth take-off since 1980 is associated with Peninsular India, the states that the narrator in "The White Tiger" astutely associates with better geography-- being close to the ocean--which development experience has long confirmed as conferring special advantages (Sachs and Warner [1997]). These states—Gujarat, Maharashtra, Tamil Nadu, Karnataka, Kerala, and Andhra Pradesh—have indeed grown faster and advanced more rapidly economically.

13.2 As a result, they have also been a greater focus of policy and research attention in comparison to other states- the so called 'Other Indias'. These states include not just hinterland India (the India of rivers) but also the India of forests, of natural resources, and of 'Special Category' status[1]. This chapter is devoted to those states that have not been

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[1] The concept of a 'Special Category' state, first introduced in 1969, sought to provide disadvantaged states (those, due to several factors, were unable to generate enough resources for development) with preferential treatment in the form of central assistance and tax breaks. The states of Assam, Nagaland Arunachal Pradesh, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Sikkim, Tripura, Uttarakhand and Jammu & Kashmir were given special status. Major factors that determined the grant for special status have been: (i) hilly and difficult terrain; (ii) low population density/sizeable share of tribal population; (iii) strategic location along international borders; (iv) economic and infrastructural backwardness; and (v) non-viable state finances.

at the mainstream of India's development narrative. But the analysis is conducted through the lens of broader development experience.

13.3 Successful Peninsular India has offered three interesting and different models of development: the traditional East Asian mode of escape from development based on manufacturing (Gujarat and Tamil Nadu); the remittance-reliant mode of development exemplified by Kerala; and the distinctive, "Precocious India" model based on specializing in skilled services (Karnataka, Andhra Pradesh and Tamil Nadu studied by Kochhar et. al. [2006]).

13.4 Other states have been relatively less successful, and perhaps because of that have received less attention. But they are interesting in their own right because they have conformed to other models of development. This chapter studies two such models of development: those based on "aid" or special status, and those based on natural resources. The definition of natural resources includes coal, onshore oil and natural gas, major and minor minerals but excludes forest cover. Large forest covers can also lead to a "forest curse" but is not analysed in this chapter.

13.5 The "aid" model is most applicable to the erstwhile 'Special Category' states that includes North-eastern states and Jammu and Kashmir; the natural resources model to Jharkhand, Chhattisgarh, Odisha, Gujarat and Rajasthan. This chapter examines in an analytical manner the experience of these states.

II. IMPACT OF REDISTRIBUTIVE RESOURCES

13.6 At the time of India's independence, most economists held a straightforward view of development. According to this view,

developing countries were poor because they lacked capital. And they were unable to overcome this problem themselves, because their people were too poor to save. So the key to development, the only way to solve the conundrum, was foreign aid. There was only one possible exception to this rule. Countries with vast amounts of mineral resources mine and sell them, allowing the proceeds to be invested in physical or human capital. But all others were doomed to rely on aid.

13.7 India was never completely convinced of this paradigm. For many years, it accepted aid, but tried to rely on its resources as much as possible, with the aim of winding down its aid dependence as quickly as possible. This strategy has proved successful, and over time many international economists, starting with Easterly (2003) and Rajan and Subramanian (2007) have begun to realise the virtues of this approach. One reason for the change of heart is that research has found it difficult to identify a robust positive relationship between aid and growth.

13.8 Why so? Several theories have been advanced. One hypothesis is that aid perpetuates resource dependency, in the sense that since revenues flow in from outside, recipient countries may fail to develop their own tax bases or their institutions more generally. And it is institutions, tax revenues, and incentives that have been found to be critical for growth, much more than overall resource availability. Many economists, including Brautigam and Knack (2004), Azam, Devarajan, and O'Connell (1997), and Adam and O'Connell (1999) document such effects.

13.9 Another potential downside of aid is that it could trigger "Dutch disease", named after the impact that discovery of natural gas in the North Sea had on the domestic

economy in the Netherlands. This windfall caused the real exchange rate to appreciate as the extra income was spent domestically, pushing up the price of nontradeables, such as services geared to the local economy. The higher prices for services then eroded profitability in export and import-competing industries, de-industrialising the economy, with the share of manufacturing in the economy falling (Corden and Neary [1982]). Similar effects have occurred in Canada, Australia, Russia, and Africa.

13.10   Despite these international examples and the lessons of India's own experience with foreign aid, when it comes to development within India, the country has followed the path prescribed by the first development economists. It has provided extensive transfers to certain poorer states in an attempt to spur their development. Has this strategy succeeded where others have failed? Could it be that the original development consensus was actually correct? If not, what are the alternatives?

13.11   This section examines the record of Indian states, to try to find an answer – in part so that it can inform the process of reforming the architecture of fund disbursal by the Centre.

III. Redistributive Resource Transfers: Evidence from Indian States

13.12   The first task is to define a concept akin to "aid" in the Indian internal context. State governments up to now have received funds from the Centre via different channels: (i) a share of central taxes, as stipulated by Finance Commissions; (ii) plan and non-

plan grants; and (iii) plan and non-plan loans and advances. These funds constitute "gross devolution to states" and the entire amount is not "aid".[2]

13.13   Gross devolution entails a strong redistributive element. Certain state-specific characteristics (captured in the 'Special Category' status) have determined whether some states are more dependent on such transfers, and particularly concessional assistance (grants). The 'Special Category' states have been heavily dependent on such flows for their developmental needs vis-à-vis other states. However, redistributed resources from the Centre differ from traditional "aid" in two important aspects. First, these are intra-country transfers and do not augment overall national disposable income like foreign aid does; second, the donor-recipient relationship is also very different because states benefiting from transfers are part of national governance structures that determine them. The objective of the chapter is not to argue for the replacement of such transfers, but to examine their effects. The perspective utilized in this chapter does recognize that transfer of resources to states are done to avert regional inequalities and correct fiscal imbalances and are therefore extremely crucial.

13.14   In this light, this chapter utilizes the concept of 'Redistributive Resource Transfers' (RRT). RRT to a state is defined as gross devolution[3] to the state adjusted for the respective state's share in aggregate gross domestic product (definition D1). Thus RRT is not identical to gross devolution. This adjustment is made to ensure that only the portion of resources devolved to the states

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[2]   Some transfers are for schemes devised by the Centre; some are for those designed and implemented by the states themselves; while others are aimed to address specific issues viz. regional backwardness or reconstruction following a natural calamity.

[3]   Fiscal data on states is from the Reserve Bank of India's "State Finances: A Study of Budgets", 2016.

**Figure 1. Gross Devolution & RRT per capita (Rs. thousand, annual 2015)**
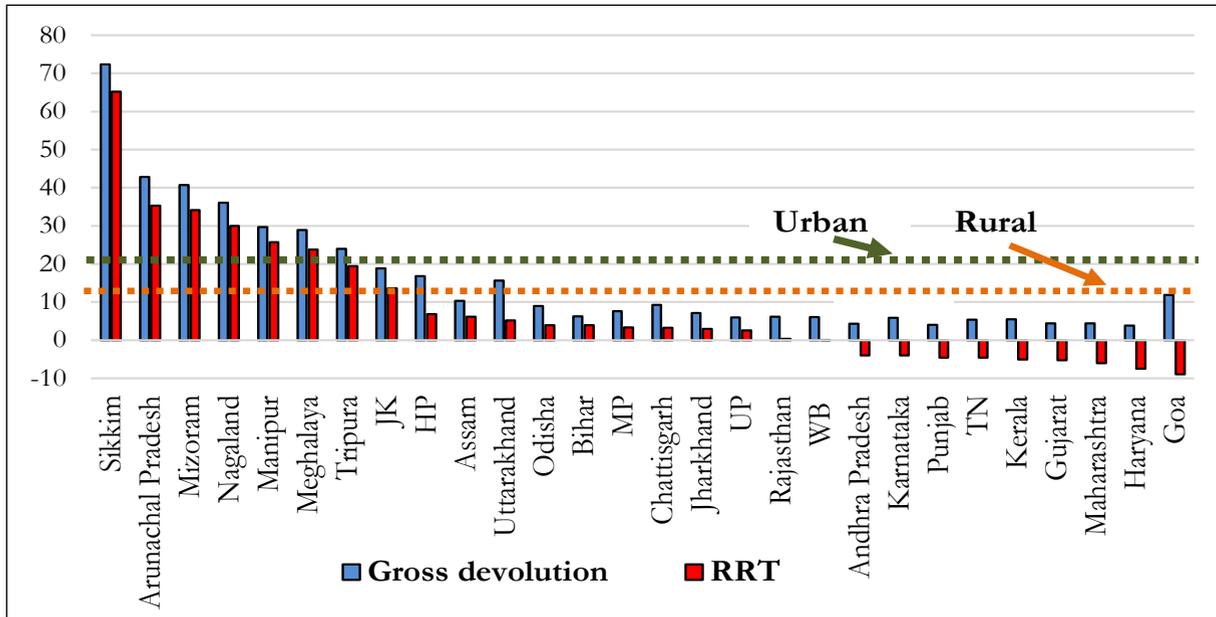
over and above their contribution to Gross Domestic Product is included as RRT. An alternative definition (gross devolution net of the amount the state would have received as per its contribution in the country-wide fiscal effort measured by the state's share in aggregate own tax revenue) is also considered to check whether results obtained using the first definition are robust or not.

13.15   The definition of RRT excludes the impact such transfers have on expenditures undertaken by state governments. It is also essential to note that any redistribution that might occur directly by the Centre's spending is also excluded[4]. Thus, RRT is *one specific* measure of transfers, and is not a definitive metric of redistribution. Gross devolution and RRT as share of GSDP for various states is plotted in the Appendix.

Figure 3a. Per-capita GSDP and per-capita RRT*

Figure 3b. Per-capita Consumption (MPCE) and per-capita RRT
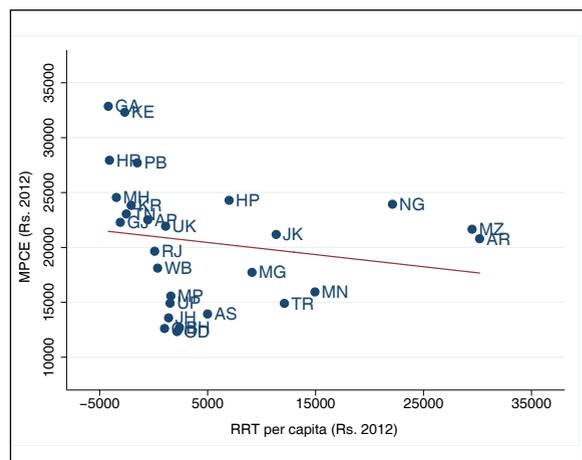
*: Robust to outliers. Chart 2a excludes Goa and Sikkim. Downward slope in chart 3b is preserved if Goa is excluded.

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4   This chapter excludes those transfers between 2005-06 to 2013-14, that went from the Centre directly to implementing agencies (district) for schemes like MGNREGA, SSA, etc.

13.16   Figure 1 shows the ranking of states, in 2015, in the descending order of RRT received in *per capita terms* and also per-capita gross devolution. The top 10 recipients are: Sikkim, Arunachal Pradesh, Mizoram, Nagaland, Manipur, Meghalaya, Tripura, Jammu and Kashmir, Himachal Pradesh and Assam (all 'Special Category' states). Gross devolution per-capita per annum is at Rs. 32000 on average for the top 10 recipients of which Rs. 26000 (81 per cent) is estimated as RRT in 2015.

13.17   The yellow and green dotted lines in figure 1 show the all-India rural and urban annualised per-capita poverty lines for 2015

respectively[5]. 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.

13.18   Figures 3a and 3b plot the levels of per capita GSDP (for 2013-14) and monthly per capita expenditure (as reported in the 68th round of the National Sample Survey Office [NSSO],2011-12) against RRT per capita (for 2013-14 and 2011-12 respectively). A negative relationship is obtained, slightly stronger in case of the level of per capita GSDP. In other words, poorer states receive

Figure 4a. Per-capita Growth & RRT*

*: Robust to outliers. Excludes Uttarakhand and Sikkim.

Figure 4b. Manufacturing Share & RRT

Figure 4c. Fiscal Effort and RRT
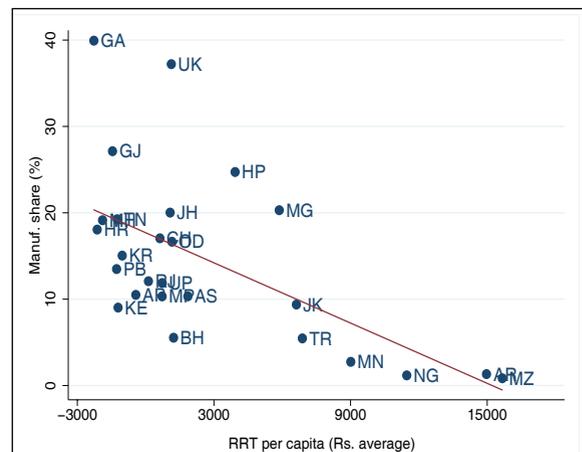
Figure 4d. Governance and RRT
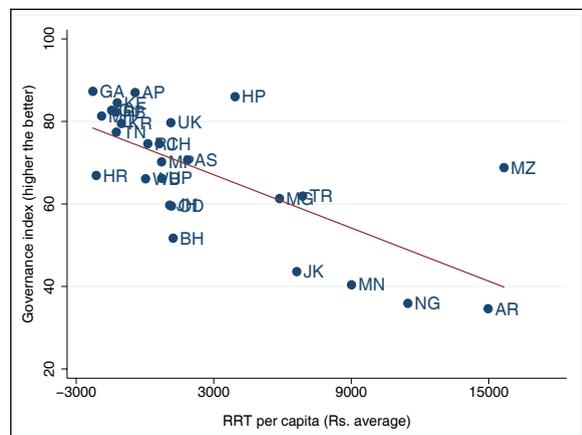
[5]   The erstwhile Planning Commission calculated these poverty lines for 2011-12. The poverty line for 2011-12 is adjusted by the change in CPI (IW) and CPI (RL) for urban and rural respectively to bring them to 2015 prices.

the highest transfers, exactly as one would expect. However, despite such flows over the past few decades most of the high RRT recipient states (excluding Himachal Pradesh and Uttarakhand) are at lower levels of per-capita GSDP. Some of these states have significant catch-up to do vis-à-vis the average (denoted by the red line). These states also spend less on average on consumption. There are some notable exceptions. Nagaland and Mizoram, in particular, have significantly larger-than-average per-capita GSDP and consumption. Also, Jammu and Kashmir has relatively high consumption for a state receiving significant RRT.

13.19   Has RRT helped states perform better? Figures 4a-4c plots RRT against per capita GSDP growth, share of manufacturing in GSDP, and fiscal effort (defined as a share of own tax revenue [OTR] in GSDP). All of this data are shown as averages over 1993-94 to 2014-15 for states in existence prior to 2000-01, and 2000-01 to 2014-15 for the states created in 2000-01.[6]

13.20   The results are striking. The higher the RRT:

• The slower is growth.

• The smaller is the share of manufacturing in GSDP.[7]

• The lower is own tax revenues.

13.21   What about the quality of overall governance? This can be seen by relating RRT flows to a suitable indicator of the quality of governance. As Kochhar *et. al.* (2006) argue, transmission and distribution (T&D) losses in the distribution of power can be taken as a reasonably robust indicator

of governance. Such losses reflect the quality of both infrastructure and institutions in a given state. In this section, a slightly broader concept - the aggregate technical and commercial (ATC) losses (capturing commercial losses over and above technical losses and power theft that get captured in T&D losses as per cent of net power input energy) - is taken to define the index[8]. Figure 4d plots this index against RRT. Again it emerges that the highest RRT recipient states have lagged behind on overall governance. In the northeast Mizoram stands out as a significantly better performer.

13.22   All of this suggests there might be an "RRT curse". But suggestion is far from proof. To go from one to the other, there is a need to examine whether the trends are robust to alternative definitions of RRT. Indeed, they are. They hold even if RRT is defined as the gross devolution to the state net of the amount it would have received if the state was given its share in aggregated states' own tax revenue. Interestingly, these trends are preserved even if gross devolution of the centre to states is considered without any adjustments.

13.23   The next issue that needs to be addressed is causality. After all, poor performance is not necessarily the consequence of RRT. The causation could go the other way round, with greater transfers given in response to the observation that performance has been lagging. This issue needs to be addressed before formal statistical tests (regressions) are performed, since otherwise the estimated impact of RRT will be biased.

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[6]   These states are Jharkhand, Chhattisgarh and Uttarakhand.

[7]   The share of manufacturing to GSDP is the average over the years 2011-12 to 2014-15 as per the 2011-12 series of the CSO. The negative relationship is robust to the average RRT to GSDP ratio taken excluding the last ten years (2005 to 2015).

[8]   The index is defined as i = 100-[ATC loss] to ensure that a higher value of the index indicates better governance.

**Figure 5a. Per-capita GSDP growth and per-capita RRT controlling for landlocked nature**
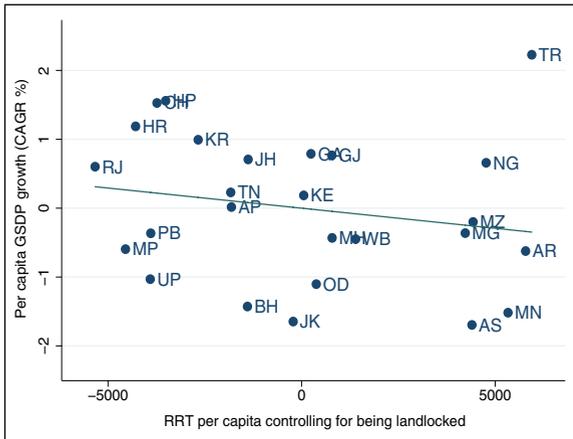
Figure 5b. Manufacturing share and per-capita RRT controlling for landlocked nature
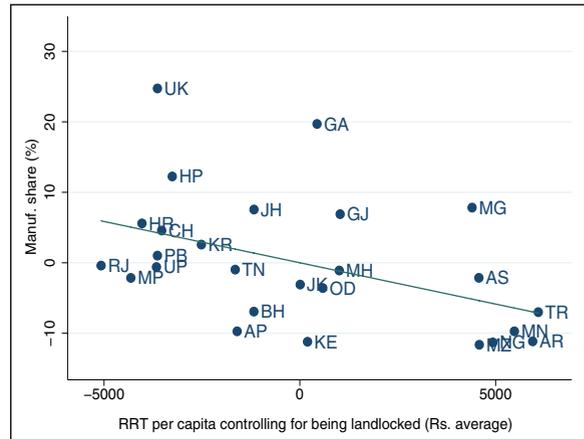

**Figure 5c. Fiscal effort and per-capita RRT controlling for landlocked nature**
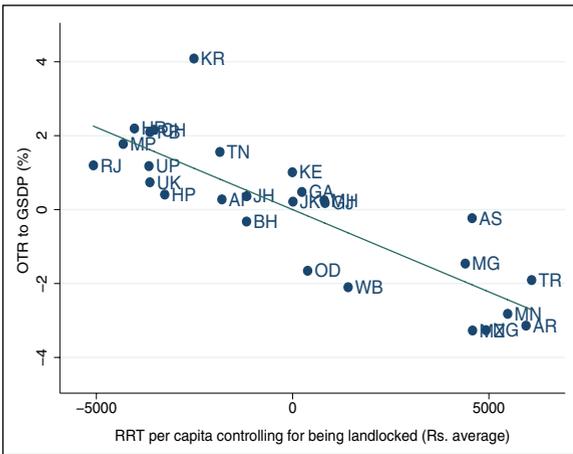
Figure 5d. Governance index and per-capita RRT controlling for landlocked nature
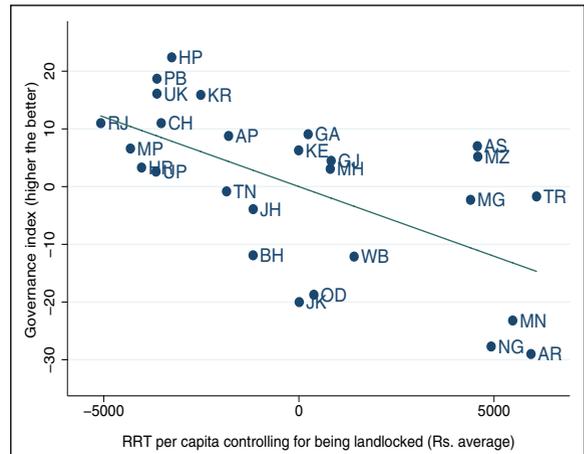
13.24 To get a reliable estimate of the effect of RRT, one needs to separate out that part of these transfers that is unrelated to economic outcomes considered in this chapter (growth, manufacturing share, fiscal effort) and governance. One way address this issue is to identify an instrumental variable (IV) for the explanatory variable (i.e. RRT) which is strongly correlated with RRT but not with economic outcomes or governance. The impact of RRT on each of the variables

of interest can then be estimated using the IV regression. The IV methodology is outlined in the Appendix.

13.25 The trends emerging from the new regressions seem to reinforce the relationships reported earlier. Figures 5a-5d plot the findings. Controlling for whether a state is landlocked or not[9], larger RRT inflows seem to have no positive impact on per capita GSDP growth, and may negatively impact manufacturing share, fiscal effort and governance.

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[9] This is important as being landlocked implies that additional transaction costs will be incurred for conducting international trade, which will damage the prospects for developing manufacturing and generating growth. As Sachs and Warner (1997) estimated- a landlocked country's growth is likely to be lower by 0.58 percentage points vis-à-vis one with access to the sea.

IV. Impact of Natural Resources

13.26   There is another way that the original development view has been overturned. Initially, economists saw natural resources as a way out of the low saving-low capital development trap. But with the benefit of hindsight it has become clear that economies with abundant natural resources have actually tended to grow less rapidly than resource-scarce economies. Economic geographer Richard Auty coined the phrase "resource curse" in 1993 to describe this phenomenon; since then, it has been analysed in a number of studies such as Sachs and Warner (1995,1999), Sala-i-Martin and Subramanian (2003) and Ross (2014).

13.27   As with foreign aid, the negative association between resource abundance and growth poses a conceptual puzzle. In the literature, three possible channels of causation have been identified. First, the exploitation of natural resources generates rents, which lead to rapacious rent-seeking (the voracity effect) and increased corruption. Second, natural resource ownership exposes countries to commodity price volatility, which can destabilise GDP growth. Finally, natural resource ownership – like foreign aid -- makes countries susceptible to "Dutch Disease".

13.28   While most of the research concerning resource curse effects is pursued in a cross-country set up, it is intriguing to employ the framework for the states of India, which are heterogeneous in terms of their natural resource endowments, especially mineral wealth. This approach seems particularly fruitful, since some Indian states were bifurcated in 2000 – Chhattisgarh was split off from Madhya Pradesh, Uttarakhand from Uttar Pradesh, and Jharkhand from Bihar. In this process, mineral wealth was reallocated in favour of the newly created states (nearly all of Bihar's mineral wealth going to Jharkhand, for example), creating a natural experiment that can be studied profitably.

V. Natural Resources and Evidence from Indian States

13.29   Mindful of this bifurcation, the analysis utilizes two time periods (1981-2000 and 2001-2014), to discern the impact, if any, of the "resource curse" on the new states (Jharkhand, Chhattisgarh and Uttarakhand). For this analysis the key variables are the same as identified in the earlier section on RRT. Figure 6 shows the share of minerals (in value terms) *per capita* in 2014. The value of

Figure 6. Per-capita value of minerals (Rs. Thousand, 2014)
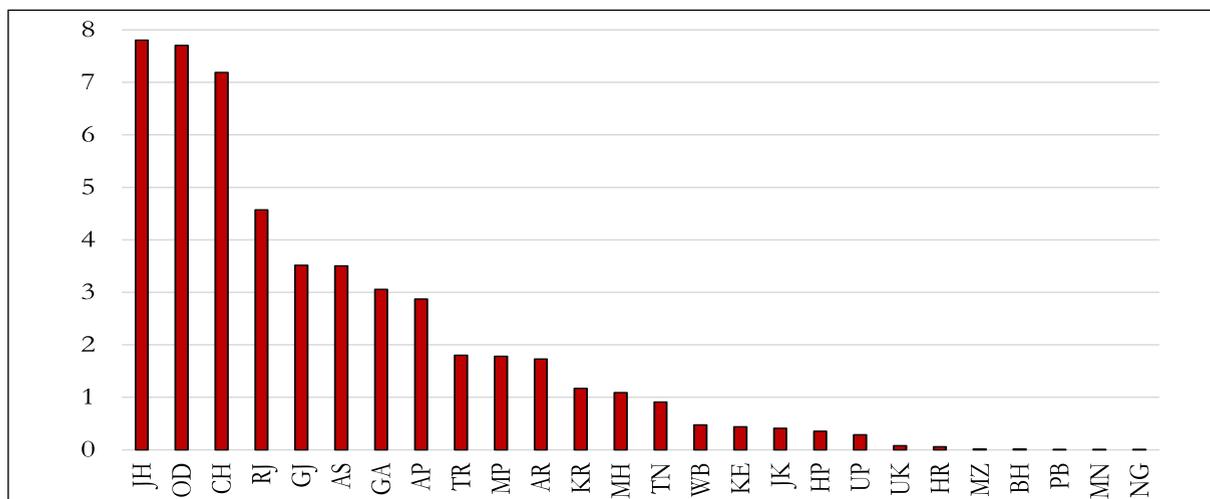
minerals is the sum total of fuels (coal, lignite, crude petroleum [onshore only] and natural gas)[10], all metallic minerals, non-metallic minerals as well as other minor minerals. As per this definition the mineral resource rich states are: Jharkhand, Chhattisgarh, Odisha, Rajasthan and surprisingly Gujarat[11].

13.30   One way to motivate the impact of natural resource availability is to estimate whether populations in mineral rich areas have emerged out of poverty better than other areas. To this end, poverty trends[12] for the mineral-rich states with other states is contrasted between 1993-94 and 2011-12, the latest year for which NSSO data is available (Table 1). At first blush, the mineral-rich states seem relatively successful. Their poverty ratio fell by around 31 percentage points over nearly two decades, compared with 28.5 percentage points in the other states.

Table 1. Comparison of poverty decline

	1993-94		2011-12	
	ST	**All**	**ST**	**All**
Mineral Rich states	70.5	48.0	53.7	17.1
Other states	57.6	39.5	35.1	11.0

Source: **Calculated from NSSO unit level data. Poverty line from erstwhile Planning Commission and Tendulkar Committee Report.**

13.31   Viewed from a different perspective, however, the mineral states seem less successful. Table 1 shows the gains were not passed on equally to all sections of the population. In particular, the Scheduled Tribes (ST) population of the mineral-rich states, which actually forms the predominant population in these areas, saw only a 17 percentage point decline in poverty, smaller than the 22 percentage points fall in the other states.

Figure 7a. Per capita GSDP and per capita mineral value (2014)*

Figure 7b. MPCE and per capita mineral value (2012)*
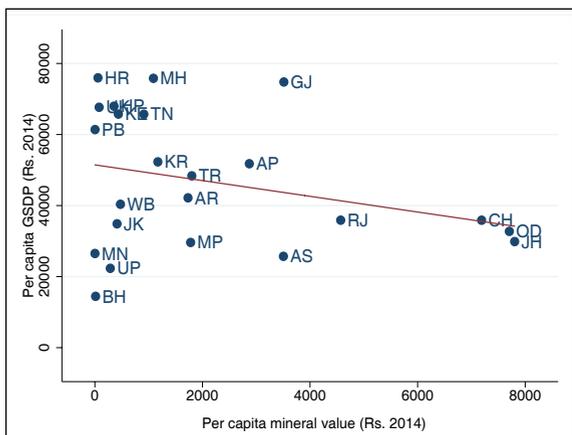
*Robust to outliers. Charts without Goa and Meghalaya.

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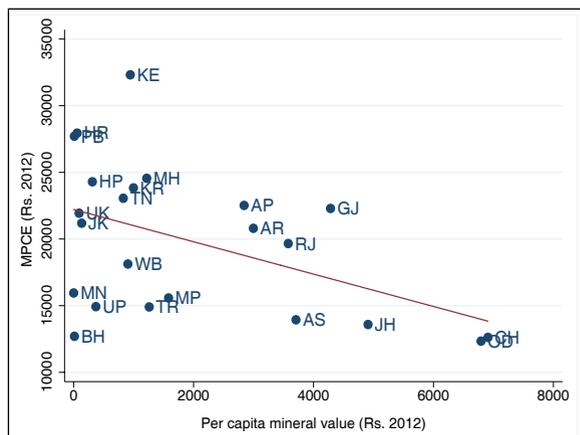
[10]   The data have been collated from 'Statistical Abstract India" published by the CSO for various years. Data in figure 6 excludes Meghalaya.

[11]   It may seem surprising that Rajasthan and Gujarat have a higher per capita mineral value as compared to a mineral rich state like Madhya Pradesh. However, this result is because Gujarat has a very high value of on-shore petroleum (crude), natural gas and lignite. Rajasthan, on the other hand, has very high value for natural gas and metallic minerals like copper ore, lead and zinc.

[12]   Defined as proportion of people below poverty line to total population; for poverty analysis the mineral rich states include Madhya Pradesh, Chhattisgarh, Jharkhand, Odisha and West Bengal.

13.32   The same "two-handed" assessment is evident when resource values are correlated with economic outcomes. On the one hand, Figures 7a and 7b suggest a negative correlation. They plot per capita mineral value against the levels of monthly per capita expenditure (for 2012) and per capita GSDP (2014). It is clear that resource-rich states, especially Jharkhand, Chhattisgarh and Odisha (with the exception of Gujarat) are at low levels of per-capita GSDP, with low levels of monthly per-capita expenditure. As figure 7a shows, the negative relationship is being driven by the top four mineral rich states Jharkhand, Odisha, Chhattisgarh and Rajasthan.

13.33   On the other hand, figures 8a and 8b show this relationship has not held more recently. In these figures, the time period is divided in two, in order to capture the bifurcation of Madhya Pradesh, Bihar and Uttar Pradesh in 2000. Figure 8a shows that the relationship between per capita mineral production and average per capita GSDP growth (CAGR)[13] was negative during 1981-2000. But the relationship for the period 2001-2014 (Figure 8b) is inconclusive.

**Figure 8a. Per-capita GSDP growth and per-capita mineral value(1981-2000)***

***Robust to outliers; excludes Goa and Meghalaya.**

Figure 8b. Per-capita GSDP growth and per-capita mineral value(2001-2014)

Figure 9. Share of Manufacturing and per-capita mineral value (2001-14)
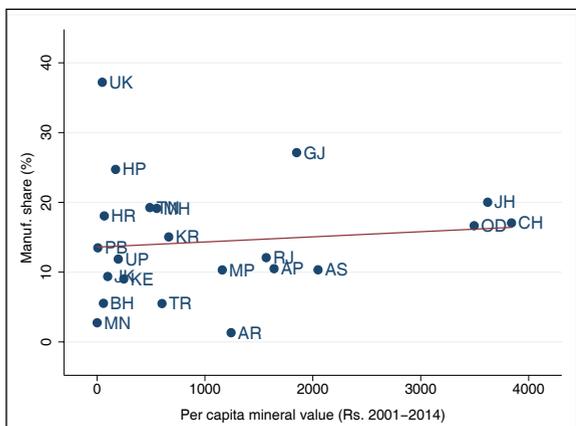
13.34   If the development experience of the resource-rich Indian states is really characterised by a "resource curse", an important indicator of the same will be a decline in the share of manufacturing in GSDP (the "Dutch disease"). Figure 9 shows the relationship between the value of resources and the average share of manufacturing to GSDP.[14] It is observed that the relationship is, once again, rather weak.

13.35   Another indicator that can identify resource curse is the extent of fiscal effort made by respective states (captured by the

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[13]   Goa and Meghalaya which turn out to be an outlier in this regression, have been dropped.

[14]   The share of manufacturing to GSDP is the average for 2011-12 to 2013-14 as per the 2011-12 series of CSO.

share of OTR in GSDP as in the earlier section), which is expected to decline over time in the wake of excess reliance on non-tax revenue from natural resources. As expected, figure 10a shows that for the period 1981-2000, the relationship is mildly negative. Once again, the result breaks down in the more recent period (2001-14).

13.36   Finally, figure 11 plots the index of governance defined in the earlier section, showing no evidence that resource value has a negative impact. Interestingly, a resource-rich state, viz. Chhattisgarh (apart from

Gujarat), seems to be doing above average on governance.

13.37   Based on the above, there seems to be no concrete evidence either in favour or against a "resource curse" in the context of Indian states. The results are, however, relatively strong for levels of per capita GSDP and consumption. With regards to manufacturing share and governance, even though there is no negative correlation, it must be emphasized that there is *no strong positive relation* either. This implies that the resource rich states need to bolster efforts to

**Figure 10a. Fiscal effort and per-capita
mineral value (1981-2000)**
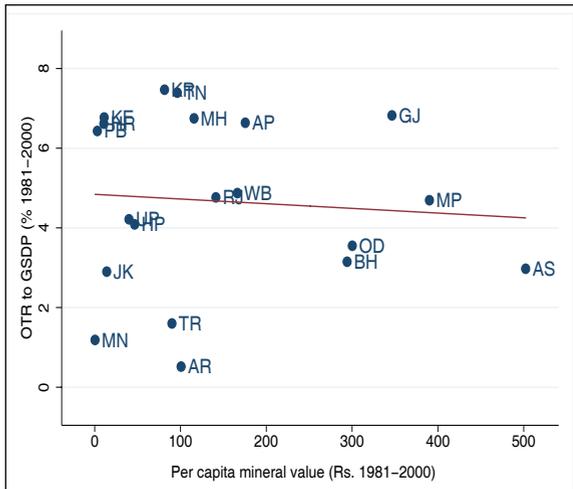
**Figure 10b. Fiscal effort and per-capita
mineral value (2001-2014)**
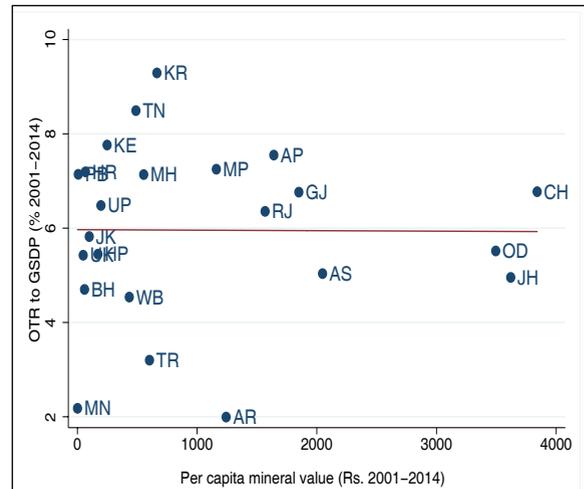
**Figure 11. Governance index and per-capita
mineral value (2013-14)**
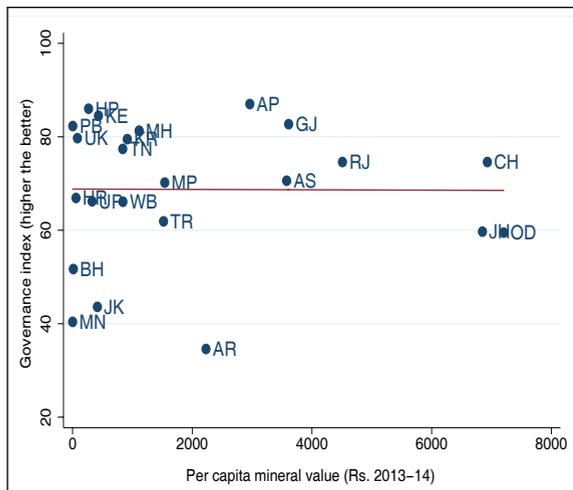
counter any possible downsides of a "resource curse" that may emerge in the future. As is clear from the diagrams above, despite significant resource endowments, some states, most prominently Gujarat, has performed better than average on many indicators.

VI. Conclusion

13.38   **Infrastructure and Connectivity:** It is, of course, possible, that the "RRT curse" and "natural resource curse", to the extent they are valid, could be a result of poor connectivity in particular and poor infrastructure - physical, financial, and digital-in general that most of these states suffer

from. This is clearly true of the north-east but also true of many parts of resource-rich India. Enhancing connectivity - financial and physical - on a war footing (as the government has attempted for financial inclusion with the Pradhan Mantri Jan Dhan Yojana (PMJDY), expediting the optical fibre network, etc.) will have a moderating effect. However, despite the above observations some simple but important policy recommendations can be considered.

A. Redistributive Resource Transfers

13.39   In sum, it seems as if the new view of development economics may be right. There may well be some version of the phenomenon referred to internationally as the "aid curse".

13.40   If so, how should this view inform policy? Clearly, the answer cannot be to dispense with RRT altogether, since in a federal system the Centre must play a redistributive role: it will always have to redirect resources to under-developed states. Rather, the Centre will need to find ways of ensuring that the resources it redistributes are used more productively.

13.41   There are, in fact, a number of factors that can be taken in the account while determining the quantum and architecture of redistributive resource flows to the states. In the spirit of cooperative federalism these proposals can be suitably modified to address the priorities and concerns of various states. For example:

Redirecting flows to households: One possibility would be to redirect a certain portion of RRT and channel the resources directly to households as part of a Universal Basic Income (UBI) scheme. As chapter 9 shows, targeting issues plague existing development interventions and transfers directly to households could eliminate some of these problems.

Conditioning transfers on fiscal performance: Another possibility would to find ways to offset the fiscal bias uncovered by the above analysis, in which higher resource flow leads states to relax their own tax effort. Perhaps future Finance Commissions could revert to the practice of the 13th FC of conditioning transfers on the tax effort of states; in fact the weightage could be even greater than suggested by the 13th FC.

Making governance- contingent transfers: Given that some high RRT recipient states have performed better than others, it is possible that the capacity of states to utilize funds optimally plays an important role. To encourage better governance and sound institutional practices, the fund transfer mechanism could explicitly include a few monitorable institutional indicators as criteria for receiving transfers.

B. Natural Resource Revenues

13.42   Based on the assessment in this chapter, there is little evidence to suggest that a "resource curse" exists in India, of the kind that economists have found in other countries. Indeed, the fact that negative correlations tend to break down after 2000 implies that the new mineral-dependent states created post bifurcation have managed natural resources less inefficiently than their forbears.

13.43   But equally there is no evidence to suggest that mineral wealth has been a boon, as the earliest development economists had hoped. This suggests that there is a need to improve governance, to ensure a more productive use of the resources, especially in the states that are relying so heavily on them.

13.44   The structure of revenue administration as it stands today is such that the government receives royalty from the mining of mineral resources. However, in the present system there is further scope

to bolster citizen engagement in sharing the fruits of resource extraction. Robust mechanisms of citizen engagement will act as a constraint on large scale corruption and over-exploitation of resources.

13.45   With the intention of ensuring that the revenue from minerals are utilized for the development and welfare of the citizens of the concerned states, the Mines and Minerals (Development and Regulation) Amendment Act, 2015 included the following in the Act:

- Establishment of a trust, to be called the District Mineral Foundation (DMF) for districts affected by mining related operations.

- The composition and functions of DMF are to be prescribed by the respective State governments. The foundation shall work for the benefit and interest of persons affected by mining related operations.

13.46   One way to increase citizens' participation is via creation of a dedicated Fund to which all mining revenue must accrue. The assumption here is that minerals are part of the commons, owned by the state as trustee for the people – including

future generations. Therefore, the revenue from the natural resources should be saved in a non-wasting asset- in a Permanent Fund. The real income accrued by the Fund can be redistributed to citizens affected by and having a stake in the extraction of the resource. **(Box 1)**

13.47   The proposal to create a Fund at the district level in laudable and is a recognition of the state being cognizant of the possible ill-effects of a "resource curse" at some point in future. There are however other approaches that may be considered to ensure more integrated and active participation of the citizens who are directly affected by mining operations.

13.48   An alternative structure would be to redistribute the gains from resource use directly into the accounts of the concerned citizens as part of a UBI. However, to make this income transfer effective and to make the citizens feel invested in the management of the resources, the state could impose a nominal tax on the post - UBI disposable income of citizens and use this revenue for development purposes. Correspondingly, it is also likely that this arrangement (UBI

Box 1: Supreme Court of India Judgement on Goa Mining

The judgment of the Supreme Court of India in WP 435/2012 (*Goa Foundation vs UoI & Ors*, the Goa mining case), was the culmination of a series of landmark judgements on the subject of managing natural resources in public domain. In this case, the apex court ordered a cap on mining as well as the creation of a Goan Iron Ore Permanent Fund to meet the ends of inter-generational equity and sustainable development. When considered along with earlier SC judgments on the public trust doctrine, notably CA 4154/2000 (*Fomento Resorts & Anr vs Minguel Martins & Ors*), and on the disposal of natural resources, notably WP 423/2010 (*CPIL & Ors vs UoI & Ors, the 2G spectrum case*), a new picture emerges for minerals.

What implications does the SC judgment carry for natural resource management?

Natural resources, including minerals, are a shared inheritance that needs to be preserved for future generations. As sub-soil minerals are largely owned by the States, and offshore minerals by the Centre, the states are the trustees on behalf of the people. The cap on mining in Goa is to ensure the availability of minerals over several generations as well as to limit the environmental damage from permitted extraction.

The proposal for exploring the creation of a Goan Iron Ore Permanent Fund is notable for being the first that has potential to be established by judicial action. Norway and over 50 other countries / sub-nations have created Permanent Funds based on extracting economic rent from oil or other natural resources. The oldest of these funds, in Texas, dates back to 1876.

and tax) may lead to citizens having a more benign view of taxation, since they will see the social contract as tangibly affirming their wellbeing.

13.49 These measures have never been tried in India. But permanent funds have been utilised effectively in many other countries, while pilot projects for UBI are beginning. Introducing these mechanisms in India could be contemplated, if only because their risks seem small compared with the costs that would accrue if the "natural resource curse" materialised on Indian soil, as it has in so many other countries around the world.

13.50 In sum, large bounties-either in the form of redistributed resources or natural resources- can create surprising pathologies, even in democratic India. Recognizing and responding to them creatively will be important to avoid making the errors of history.

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1. The figure below shows gross devolution and RRT flows (as per the first definition), in each case as share of GSDP of the state concerned (averages over the period 1993-94 to 2014-15). Under the D1 definition 10 states have near zero or negative RRT (West Bengal, AP, Goa, Kerala, Karnataka, Tamil Nadu, Punjab, Gujarat, Haryana and Maharashtra).

Figure A1. Gross Devolution & RRT as percent of GSDP
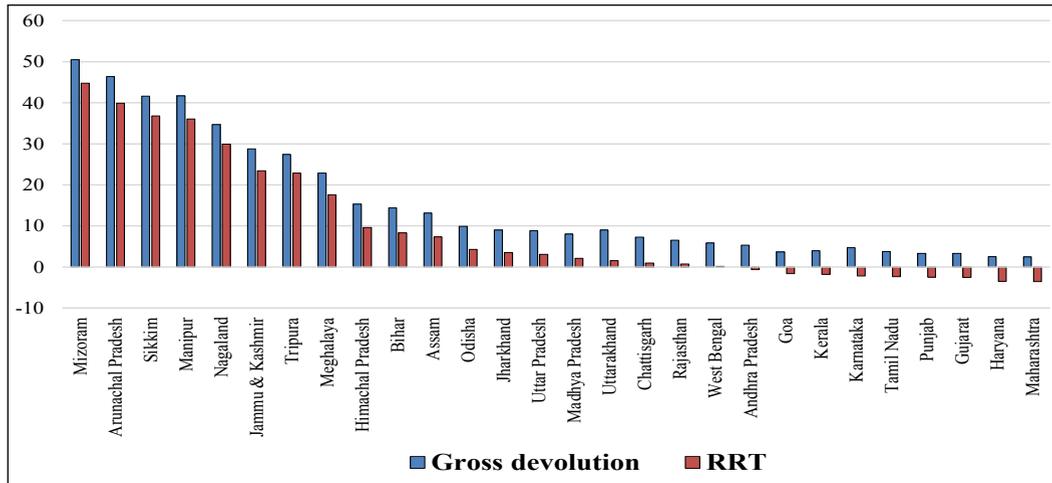
2. **Instrumental Variable (IV) Regression:** For the regression two IVs are proposed:

    (i)   the distance of the state capital from New Delhi, and

    (ii) the distance of the state capital from the nearest international border.

    These measures should not be interpreted literally. Rather, they proxy for non-economic factors that might influence resource transfers. For example, distance from international borders proxies for any strategic considerations underlying resource transfers. Are these good proxies? Figures A2 and A3 plot the RRT against these IVs (this is the so-called first stage of the IV regression). The figures show a very strong, statistically significant relationship and with the expected sign: the further away from the nearest international border the lower the RRT (Figure A2). All the regressions exclude Sikkim.

### Figure A2. RRT and distance from international border
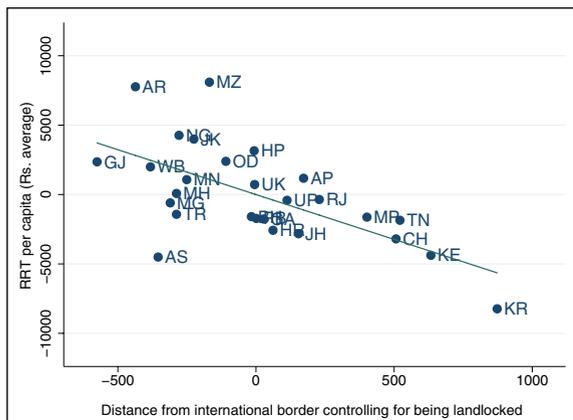
Figure A3. RRT and distance from New Delhi
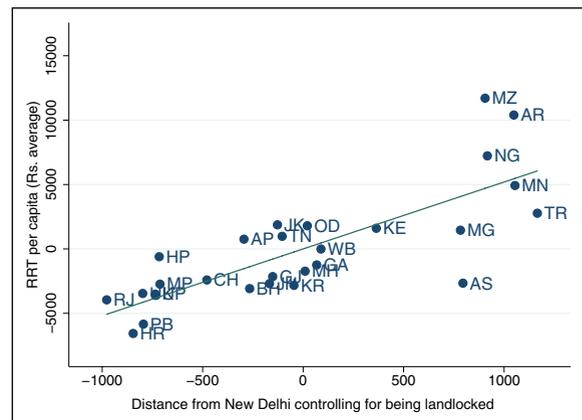
From Competitive Federalism to Competitive Sub-Federalism: Cities as Dynamos

14

All through organized history, if you wanted prosperity you had to have cities. Cities are places that attract new people with new ideas.

– Jane Jacobs, author of "Cities and the Wealth of Nations"

Everyone wants decentralisation, but only until his level.

– Quote attributed to Professor Raja Chelliah

New analysis of recent data for 21 Indian cities suggests a strong correlation between the capacities–resource and people–of urban local bodies (ULBs) and their service delivery. ULBs could clearly raise more resources even allowing for constraints that straitjacket them. Technology, especially satellite imagery, can play an important role. Empowering cities will be critical but the political economy challenges from state governments are considerable, raising interesting questions for Finance Commissions. It may well be that a few successful models will provide the impetus for wider change. Cities, like states, must compete with each other to unleash dynamism. To competitive federalism India must add competitive sub-federalism.

I. INTRODUCTION

14.1 The great and perceptive documenter of cities, Jane Jacobs, argued that cities are complex, organic, humming entities that tend to defy the attempts of planners and architects to impose order. But that should not lead to fatalistic inaction because for India, urbanisation is rapidly on the rise. As recently as 1991, there were only 220 million Indians living in cities, equivalent to about one-quarter of the population. By 2011, there were no less than 380 million, living in around 8,000 cities/towns[1], at least 53 of which were home to over 1 million people. Urban Indians now form about one-third of the population – and they produce more than three-fifths of the country's GDP.

14.2 By all accounts, urbanisation will define the trajectory of Indian development. The exodus of rural Indians into the cities over the coming decades will pose tremendous challenges for government, particularly the municipalities who will be primarily responsible for providing the services that the new migrants – and established residents – will need. Success in overcoming these challenges will be vital if the nation is to seize the opportunities that migration to the centres of economic activity can create. But how have Indian Urban Local Bodies (ULBs)

[1] Includes 4041 statutory towns and 3892 census towns.

performed and what are the tools needed for them to succeed? This chapter attempts a preliminary assessment.

14.3 What is clear is this: just as with competition between states is becoming a powerful dynamic of change and progress, that dynamic must extend to competition between states and cities, and between cities. Cities that are entrusted with responsibilities, empowered with resources, and encumbered by accountability can become effective vehicles for unleashing dynamism so that to competitive federalism India can add, and rely on, competitive sub-federalism.

II. BACKGROUND

14.4 Contrary to perception, India's urbanisation rate appears to have been similar to that in other countries. Figure 1 plots the latest urbanisation rate against per capita GDP for a group of emerging and developing countries. India is not far away from the average positive relationship. Similarly the evolution of the urbanisation rate for India is also not unusual. Figure 2 plots the urbanisation rate for three countries at different levels of per capita GDP. It can be seen that countries have followed a pattern of urbanisation where the level of

urbanisation has increased with the per capita GDP. Therefore a large part of the difference in the levels of urbanisation seen between India and China can be mainly attributed to the different levels of development of each country. Contrary to perception, India and China have had very similar trends of urbanisation.

14.5 If the magnitude of Indian urbanisation is not special, the patterns of urban size seem to be, in the sense of not adhering to Zipf's Law. The law claims that the city with the largest population in any country is generally twice as large as the next-biggest; three times the size of the third biggest, and so on. In other words, the nth ranked city would be $1/n^{th}$ the size of the largest city. This has been shown to hold true for many countries but not so for India.

14.6 A plot between the logarithms of city rank and city population illustrates the point. Figures 3a to 3c present plots for the United States, Brazil and India, along the lines set out by Chauvin et. al. (2016). For countries where Zipf's Law holds, the plot should be a straight line with a slope coefficient of -1. The results for the US and Brazil are indeed close to this Law, as their coefficients are -1.4 and -1.28, respectively, with an R^2 around

**Figure 1. Per capita GDP and Urbanisation (2015)**
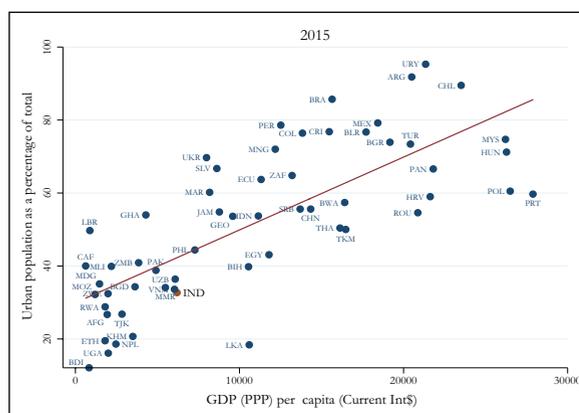
Source: **World Development Indicators and United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanisation Prospects: The 2014 Revision.**

Figure 2. Per capita GDP and Urbanisation
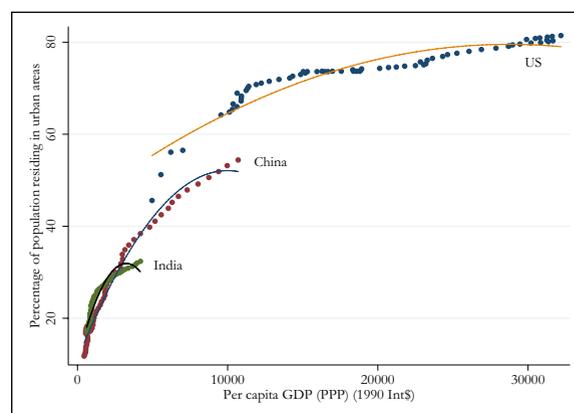
Source: **Maddison Project database, Penn World Tables and United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanisation Prospects: The 2014 Revision.**

Figure 3 . Zipf's Law: City/UA population and city/UA population ranks

(3a) United States of America

Regression: Log(rank-1/2) = 21.9 - 1.4 Log(population) (N=302, Rsq = 0.9966)

(3b) Brazil

Regression: Log(Rank-1/2) = 20.49 - 1.28 Log (Population) (N = 304, Rsq = 0.9942)

(3c) India

Regression: Log(Rank-1/2) = 14.58 - 0.78 Log(population); (N=479, R sq = 0.95)
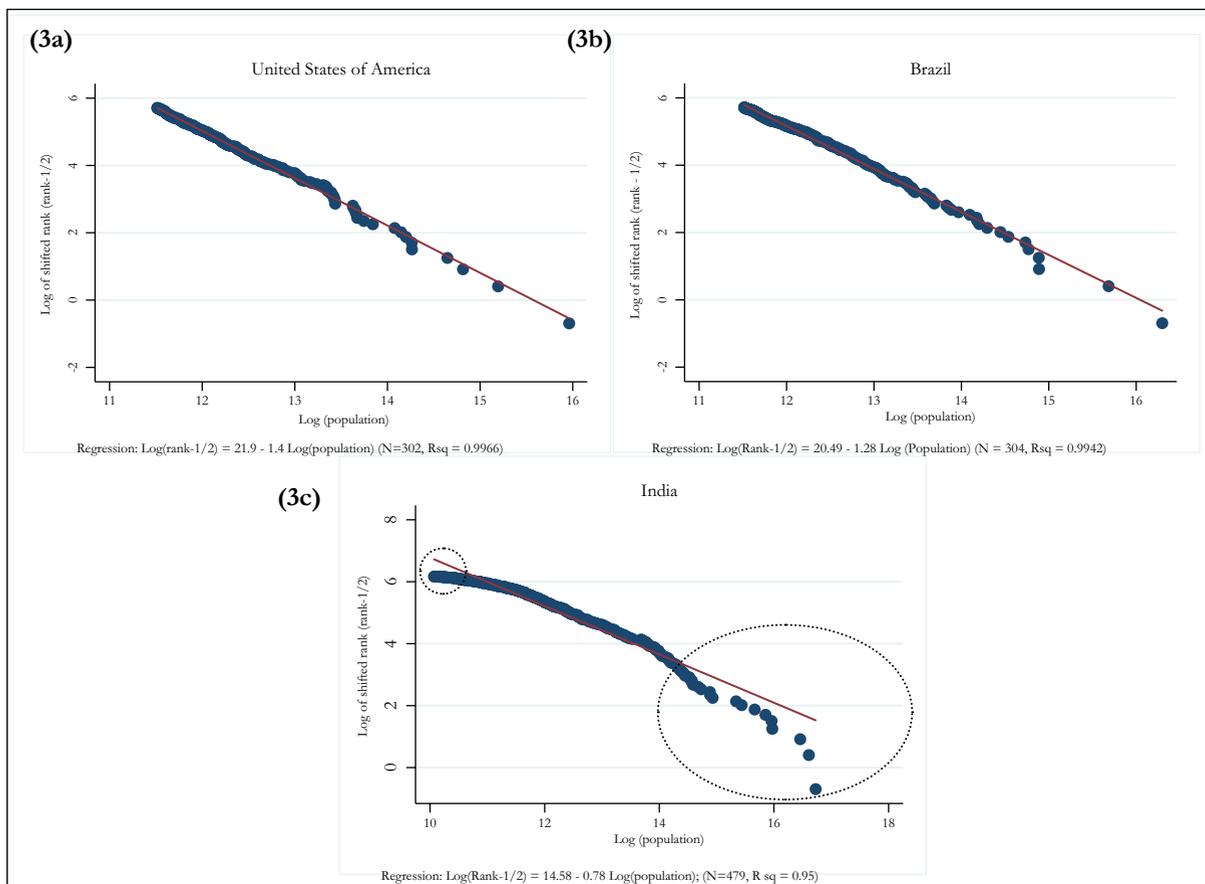
***Source:* (Figure 3a to 3c): Urban Agglomeration (UA) population for India from Census 2011, City population for US and Brazil from United Nations Statistics Division, Demographic Yearbook 2015.**

0.99 in both cases. But the plot for India is concave, with a slope coefficient of -0.78 and an R^2 of 0.95. This implies that many of the smaller cities are unusually small (they lie below the line of best fit in Figure 3c). And contrary to what one might think, so are the bigger ones.

14.7 There are many reasons why the large cities are unusually small. One explanation might be that their infrastructure is overburdened. Another is that India is land-scarce relative to most countries, discouraging migration particularly because distorted land markets render rents unaffordable. By 2050, its land-to-population ratio will have declined fourfold relative to 1960, and India will be amongst the most land-scarce countries in the world (Kapur et. al., 2014). Further mobility in India is limited by strong place-

based preferences embedded in deep social networks in India (Chauvin et. al., 2016).

14.8 In the coming years, these anomalies are likely to be rectified. That is, India's urbanisation rate should begin to converge with those in similar emerging markets, rising to 40 per cent by 2030. And much of this urban growth is likely to take place in the bigger cities, possibly bringing the country in line with Zipf's Law. This will create opportunities – and risks.

III. KEY CHALLENGES

14.9 The primary responsibility for development of urban areas lies with the state governments and the municipal corporations, municipalities and *nagar panchayats*, commonly known as urban local bodies (ULBs). These levels of government face

major and inextricably linked problems: poor governance capacities, large infrastructure deficits and inadequate finances.

14.10   ULBs face a governance challenge. Cities do not have a single city government or a local self-government, leading to functional overlap. There is a significant fragmentation of responsibilities and service delivery across a gamut of institutions: the municipality, state departments (Police, PWD, Health, Education, Housing), and parastatal agencies or civic agencies reporting directly to the state government. There are also transparency/ accountability issues, as even the most basic information on ULBs finances and quality of basic services is lacking in many cities, in part because implementation of the e-Governance initiative has also not been uniform.

14.11   The second challenge is the infrastructure deficit. Productive and healthy urbanisation requires efficient public services delivery. But every Indian city faces serious challenges related to water and power supply, waste management, public

transport, education, healthcare, safety, and pollution. To take just one example, the report based on the WHO/UNICEF Joint Monitoring Programme (2015 report and MDG Assessment) on access to sanitation shows that as against the Millennium Development Goal (MDG) target of 77 per cent, India has managed to provide access to only 63 per cent of the population by 2015. As per the ranking of global cities based on urban infrastructure (State of World Cities 2012/13), New Delhi and Mumbai are placed at 47th and 50th positions, respectively (Figure 4), showing comparatively lower levels of infrastructure in these cities.

14.12   According to the High Powered Expert Committee (HPEC) appointed by the Ministry of Urban Development (MoUD), about ₹ 39 lakh crore (at 2009-10 prices) was required for creation of urban infrastructure over the next 20 years. Out of this total, about ₹ 17 lakh crore (44 per cent) was needed for roads and ₹ 8 lakh crore (20 per cent) for services such as water supply, sewerage, solid waste management and storm water

Figure 4. Ranking of select cities as per Infrastructure Index
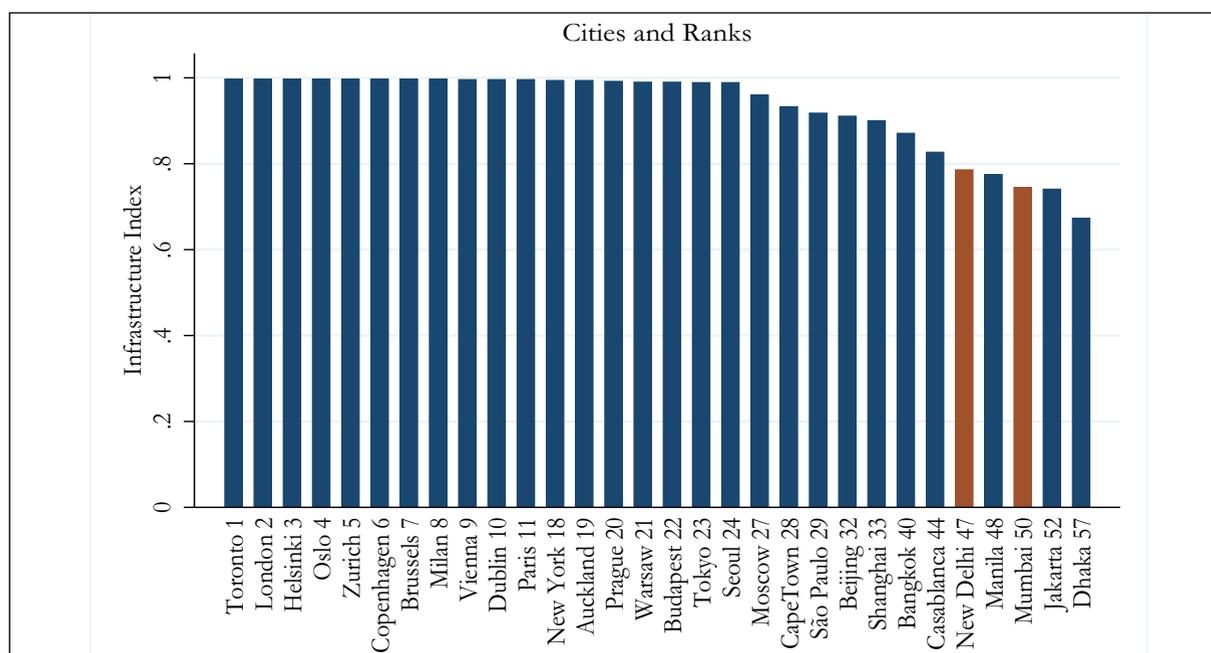
Source: **State of the World's Cities 2012/13 - Prosperity of Cities, UN-Habitat.**

drains. In addition to these investments, the requirement for operation and maintenance (O&M) was separately estimated to be ₹ 20 lakh crore.

14.13   Addressing this infrastructure deficit will require resources, some of which could come from the Centre and the states. The Fourteenth Finance Commission (FFC) has recommended a grant of around ₹ 87,000 crore to the municipalities for the period 2015-20, constituting assistance of around ₹ 500 per capita per annum on average.

14.14   The rest of the required funds would have to come from local resources. But raising sufficient resources has not proved easy. The 74th Constitutional Amendment Act of 1992 provides for the ULBs as the third tier of government and 'recommends' that state governments assign them a set of 18 functions under the Twelfth Schedule. The amendment, however, leaves it to the discretion of state legislatures to devolve finances so that ULBs can fulfil these functions. Twenty-five years on, there are glaring inter-state disparities in terms

of devolution of functional and financial powers to the ULBs. Some states have not even allowed the municipalities to levy property taxes.

14.15   Figure 5 shows the problem this has created. In principle, one would expect a clear relationship between expenditures of state governments and local bodies. If their respective roles were well-defined, both types of spending would rise together as incomes increased; if their roles were changing, spending would be inversely related, as one level of government substitutes for the other in providing services to the population. The figure shows that neither relationship really holds. There is much greater variation across states than across cities in expenditure per capita. What is most striking is the low level of ULB per capita expenditure as compared to state per capita expenditure, with a few exceptions such as Mumbai, Kanpur, and Kolkata. Either states are not devolving adequate financial resources to ULBs or ULBs are not raising these resources on their own.

Figure 5. State per capita expenditure and ULB per capita expenditure
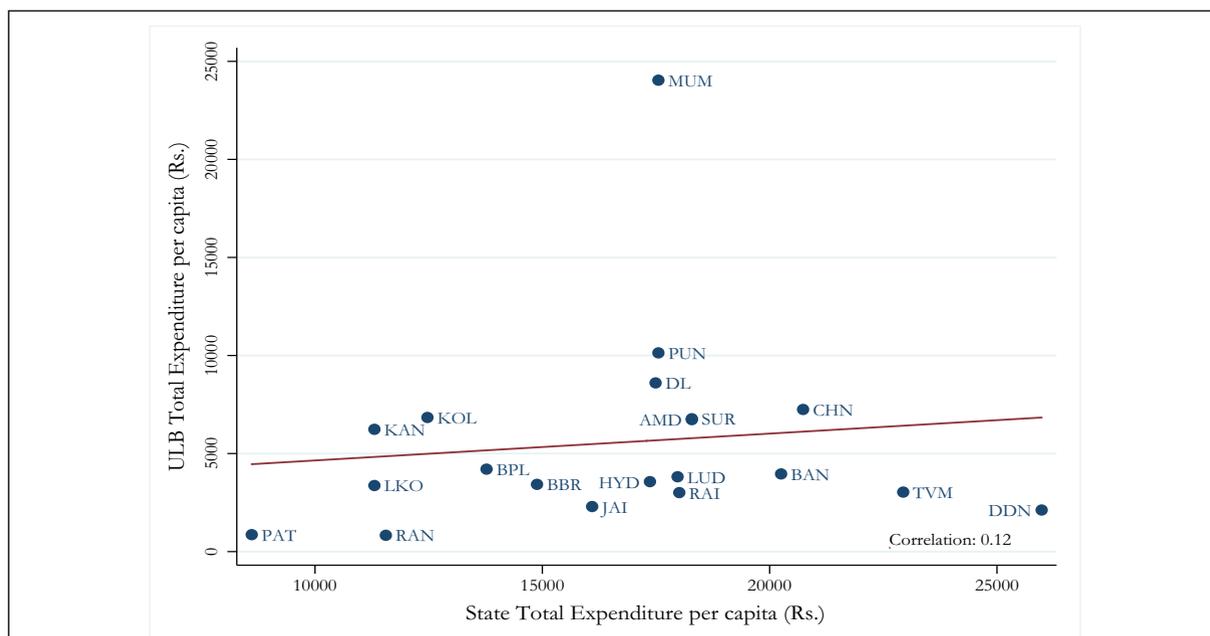
Source: **State Government Budget 2016-17 and Annual Survey of India's City-Systems 2015, Janaagraha**

14.16 Moreover, even when powers have been devolved, exercising them has proved difficult. Municipal own income comes from taxes; user fees; and domestic borrowing:

• While property tax is the most important constituent of own revenues, there are problems of low coverage, low rates, low collection efficiency, and lack of

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Box 1. Recent initiatives by the Government provide opportunities for urban rejuvenation

The Fourteenth Finance Commission (FFC) grant to ULBs for 2015-2020 is almost 277 per cent higher than the grant recommended by its predecessor. With the higher devolution of taxes to the states and grants to the ULBs, the overall public funds available for urban rejuvenation have increased. As a follow to the flagship programme (JNNURM) started by the Centre in 2005 across 65 cities, the Government has launched several new initiatives to rejuvenate urban areas. Some of the key schemes are - Smart Cities Mission, AMRUT, Swachh Bharat Mission (SBM), HRIDAY, Digital India, Skill development, Housing for All, Metro transport etc. The emphasis is now laid on strong convergence between area based and project-based schemes so as to exploit synergy and optimize benefits while avoiding costs overlap.

Smart Cities Mission

Smart Cities Mission (SCM) is a holistic city rejuvenation programme for 100 cities in India, The SCM initially covers five years (2015-16 to 2019-20) and may be continued thereafter based on an evaluation. Under the SCM, the core infrastructure elements in a smart city include: i) adequate water supply, ii) assured electricity supply, iii) sanitation, including solid waste management, iv) efficient urban mobility and public transport, v) affordable housing, especially for the poor, vi) robust IT connectivity and digitalization, vii) good governance, especially e-Governance and citizen participation, viii) sustainable environment, ix) safety and security of citizens, particularly women, children and the elderly, and x) health and education. The strategic components of area-based development in the SCM are city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development) plus a pan-city initiative in which smart solutions are applied covering larger parts of the city.

AMRUT

Atal Mission for Rejuvenation and Urban Transformation (AMRUT) was launched on 25.06.2015 to improve basic urban infrastructure in 500 cities/ towns which would be known as Mission cities/ towns. The Mission is being operated for five years from financial year 2015–16 to 2019–20 and aims to cover all cities and towns with a population of over one lakh with notified Municipalities, including Cantonment Boards (civilian areas) and certain other cities like capital towns, some cities on stem of main rivers and tourist and hill destinations. The components which are to be covered under the Mission are: water supply, sewerage, septage, storm water drains, urban transport, in particular, with the focus on facilities for non-motorised transport and development of green space and parks with special provision for children-friendly components in 500 cities & towns.

HRIDAY

The Government launched the National Heritage City Development and Augmentation Yojana (HRIDAY) scheme on 21st January, 2015, with a focus on holistic development of heritage cities. The scheme aims to preserve and revitalise soul of the heritage city to reflect the city's unique character by encouraging aesthetically appealing, accessible, informative and secured environment. With a duration of 27 months (completing in March 2017) and a total outlay of ₹ 500 crore, the scheme is being implemented in 12 identified cities namely, Ajmer, Amaravati, Amritsar, Badami, Dwarka, Gaya, Kanchipuram, Mathura, Puri, Varanasi, Velankanni and Warangal. The scheme is implemented in a mission mode.

Swachh Bharat Mission

The Swachh Bharat Mission (SBM) was launched on 2nd October, 2014, with a target to make the country clean by 2nd October, 2019. All 4041 statutory towns as per census 2011 are covered under SBM. The programme includes elimination of open defecation, conversion of unsanitary toilets to pour flush toilets, eradication of manual scavenging, municipal solid waste management and bringing about a behavioural change in people regarding healthy sanitation practices. Under the solid waste management state/cities are being encouraged to come out with innovative solutions and MoUD supports them technically and financially. Some of the initiatives being taken are waste to energy, composting plants, capping of the dumpsites. All the initiatives are being supported by capacity building efforts to empower the Municipal Authorities to carry out their functions properly.

indexation of property values, making it a non-buoyant source of revenue. The study on municipal finances conducted by the FFC indicated that per capita revenue from property taxes was ₹ 1677 at most, with a low of just ₹ 42.

- ULBs by and large have not been able to levy adequate user charges to cover even the operation and maintenance costs.

- Issuing municipal bonds has been challenging owing to the poor state of ULB finances and governance.

14.17 As a result of these challenges, cities face grave difficulties in securing sufficient revenues. Own revenue as a share of total expenditure is low. Per capita expenditure is too low in most of the ULBs with few exceptions such as Mumbai and Pune which have per capita expenditure more than ₹10,000.

IV. Lessons from Across India

14.18 The scope for learning from the experience across cities is limited, because the data on municipalities is poor and partial. Still, an attempt is made, using data provided by Janaagraha Centre for Citizenship and Democracy, Bengaluru, and the 2011 Census. Janaagraha in its Annual Survey of India's City System 2015 (ASICS-2015) has compiled data from different sources like municipal corporation budgets from 2013 to 2016, town and country planning acts, metropolitan/municipal master plans, municipal corporation acts, government reports, other acts & rules and websites of municipal corporations. Different indicators on urban resources and capacities like those on revenue generation, borrowing, expenditure, investment, budgets and auditing and indicators on transparency, accountability and participation like Public Disclosure Laws (PDL) and internal audits

were extracted from these data sources and aggregated to compute scores of "Urban Capacities and Resources" and "Transparency, Accountability and Participation". They range from 0 (poor) to 10 (good). Scores for service delivery have been constructed on the basis of data extracted from Census 2011. Data on four services were used for the analysis. These are access to treated tap water, connection to piped sewer system, accessibility to public toilets and waste water outlet connected to closed drainage. Figures show:

- Chennai, Pune, and Chandigarh score relatively well in the provision of basic services, with Bhubaneswar, Raipur and Ranchi lagging farthest behind (Figure 6).

- Hyderabad scores highly both in terms of the degree of transparency/accountability, enacting and complying with a Public Disclosure Law (PDL) and putting in place internal audit units (Figure 7).

- Figure 8 shows that Pune, Hyderabad and Mumbai have the highest scores for own revenue as a percentage of total expenditure while Dehradun and Kanpur have a low share of own revenue in total expenditure showing their greater dependence on grants and other sources for financing their expenditures.

- In terms of capital expenditure per capita, we can see that Mumbai, Pune and Kanpur have spent relatively more than the rest of the ULBs while Patna, Ranchi and Bhubaneswar have lagged behind the rest (Figure 9).

14.19 With these indices, we can now examine the links between service delivery and fiscal strength, with the latter measured in four different ways. Greater service delivery is correlated with more:

- Staffing (Figure 10)

**Figure 6. Ranking of ULBs on the Availability
of Services**
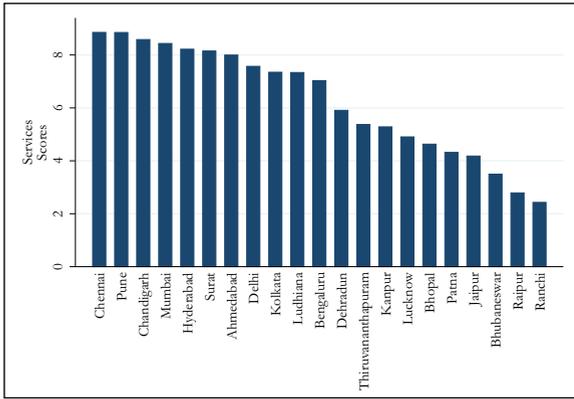
**Figure 7. Ranking of ULBs on Transparency,
Accountability and Participation**
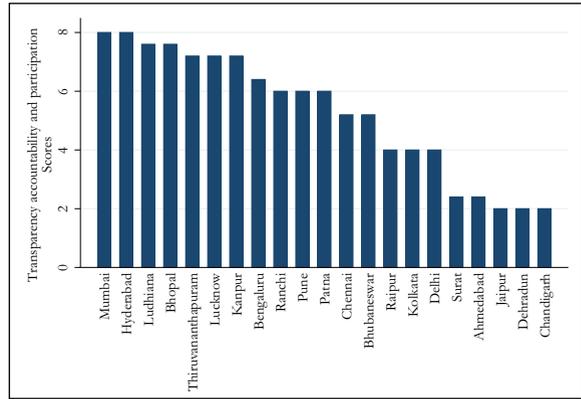
**Figure 8. Ranking of ULBs on Own Revenue
as a Percentage of Total Expenditure**
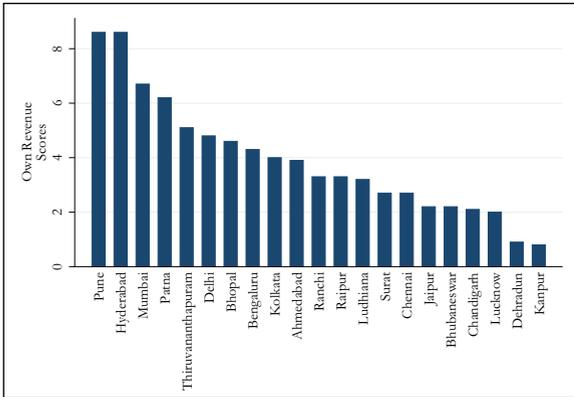
**Figure 9. Ranking of ULBs on Capital
Expenditure per Capita**
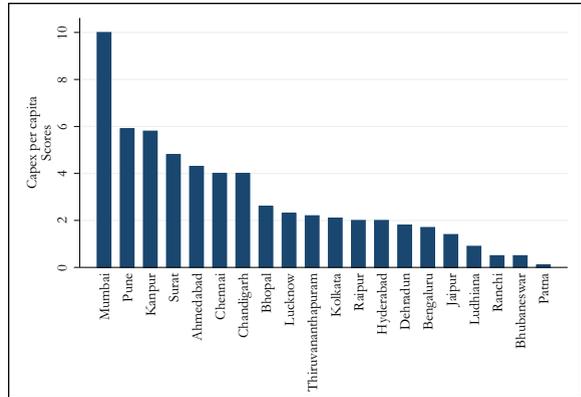
**Source (Figure 6 to Figure 9): Census 2011 and Annual Survey of India's City-Systems 2015 (ASICS-2015),
Janaagraha.**

- Capital expenditure per capita (Figure 11)

- Resources (Figure 12)

- Own revenue (Figure 13)

The correlation is especially strong with
staffing and expenditures. A clear conclusion
is that more resources seem to be associated
with better outcomes.[2]

Figure 10. Adequate Staff and Services

**Figure 11. Capital Expenditure per capita and
Services**

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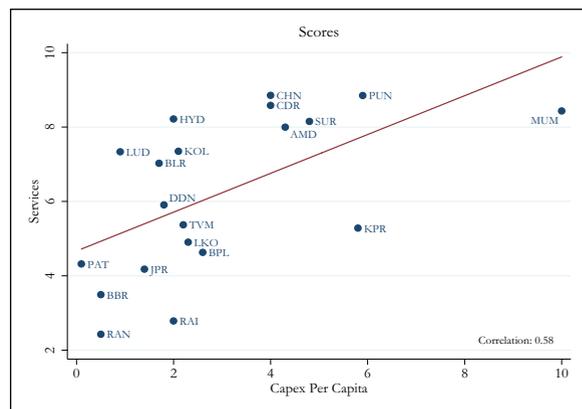
[2] Though the direction of causality remains unclear; the data is too weak to investigate this further.

**Figure 12. Urban Capacities & Resources and Services**
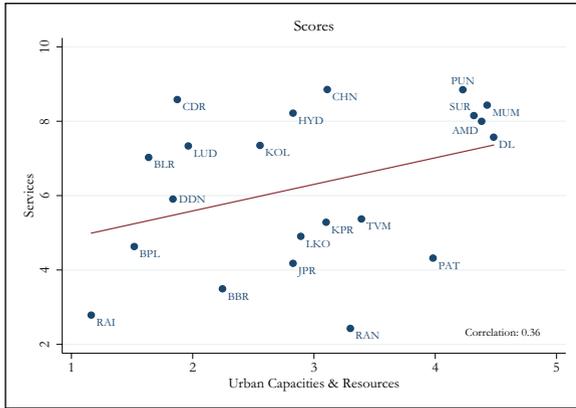

Figure 13. Own Revenue and Services
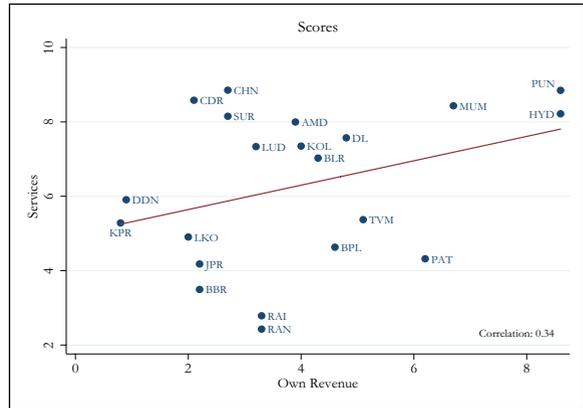
Source (Figure 10 to Figure 13): Census 2011 & ASICS-2015.

14.20   In contrast, it is difficult to find a relationship between service delivery and governance. Figure 14 shows there is no relationship at all between services and transparency/accountability. Figure 15 indicates there is actually a negative relationship between having a directly elected Mayor and the availability of services. There also does not seem to be a strong correlation between mayoral tenure and outcomes (Figure 16). One possible reason could be that a directly elected Mayor can function

Figure 14. Transparency, Accountability & Participation and Services
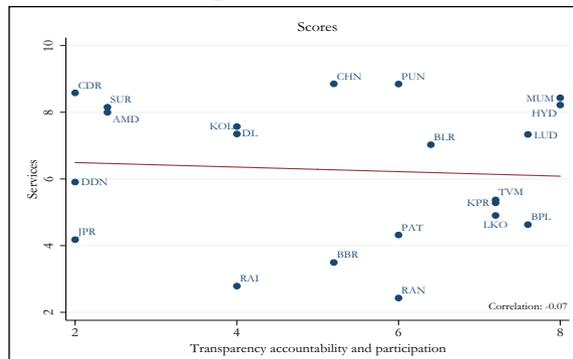

Source: **Census 2011 & ASICS-2015**

Figure 15. Direct Election of Mayor and Services
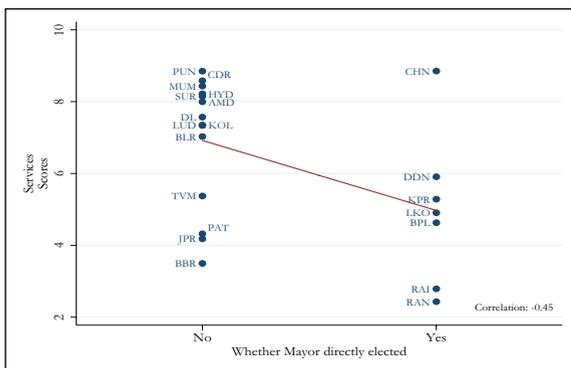
Source: **Census 2011 & ASICS-2015**

Figure 16. Mayoral Tenure and Services
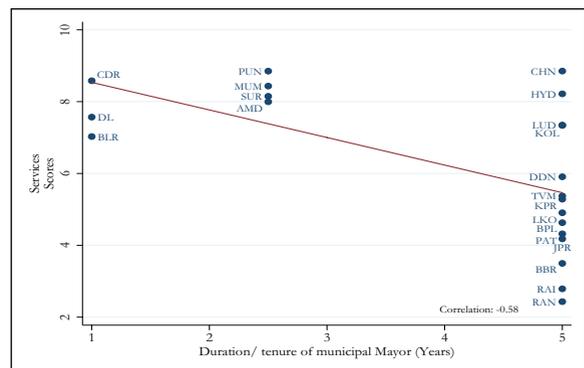
Source: **Census 2011 & municipal corporations**

effectively only if he/she has the support of majority members of the municipal council, which is not always the case. Considering this fact, two state governments namely, Rajasthan and Tamil Nadu, have amended their respective municipal act to provide for indirect mayoral elections.

V.   MOBILISING RESOURCES

14.21   One striking correlation (or its absence) is between formal taxation powers and actual mobilisation of resources (Figure 17). One would expect that giving greater taxation powers to ULBs should lead to greater revenue generation. ULBs like Mumbai and Pune even with low scores on taxation powers do very well in own revenue while, at the same time, ULBs like Kanpur, Dehradun etc. even with relatively higher taxation powers perform badly in terms of own revenue. At first, this may seem counter-intuitive, which, at closer inspection would reveal that it is not the case. This is because having the powers to impose a greater number of taxes do not necessarily mean greater revenues for an ULB. Many other factors are important for being able to collect greater revenues such as the size of the tax base, the efficiency in tax collection and the level of economic activity in the city area.

14.22   If better service delivery requires more resources, where can they be found? Perhaps the greatest immediate scope for revenue comes from the property tax. Property tax as a share of own revenue is above 50 per cent in Kanpur and Lucknow, but it is less than 15 per cent in Bhopal and Ranchi (Figure 18). So, the problem is not necessarily that ULBs cannot raise resources because they are prevented from doing so.

14.23   The major factors contributing to poor realisation from property tax are the poor assessment rate, weak collection efficiency, flawed methods for property valuation, loss on account of exemptions, and poor enforcement. In an exercise done for the Survey an attempt has been made to assess the property tax potential of Bengaluru and Jaipur using the latest satellite-based imagery. The results estimate that currently Bengaluru and Jaipur are collecting no more than 5 to 20 per cent of the property tax potential (Box 2). Put differently, cities could increase their resources five to twenty fold. All efforts must be directed at realising potential of property taxes.

Figure 17. Taxation Powers and Own Revenue

Source: **ASICS-2015**

Figure 18. Property Tax of ULBs as a Percentage of Own Revenue
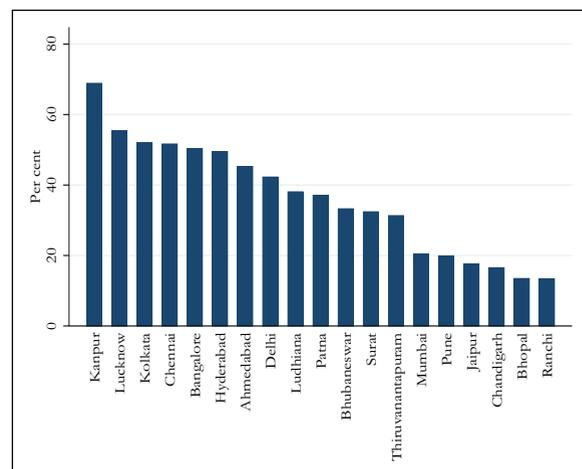
Source: **ASICS-2015**

Box 2. Estimation of Property Tax Potential from Satellite Imagery

The primary source of own revenue for urban local bodies is the property tax. Based on assessment of 36 cities, the 13th Finance Commission affirmed that by increasing the compliance to even 80-85 per cent, the current property tax (₹ 4400 crore) could be increased to as much as ₹ 22000 crore. Challenges to the property tax collection include inaccurate enumeration and likely under-valuation. Collection is also hampered by lack of adequate staff in the revenue department in many ULBs. Geographical Information System (GIS) technology based Big Data solutions can greatly help in assessing the total built-up area in a city and in estimation of the property tax potential and its valuation for each city.

Building Density from Satellite Imagery

This study has attempted to estimate the property tax potential of Bengaluru (Figure 2A) and Jaipur (Figure 2B) by using satellite imagery from LANDSAT program from joint National Aeronautics and Space Administration (NASA) and United States Geological Survey (USGS).

The satellite based raw data has been geo-processed to identify built-up area, including everything from an independent housing unit to apartments as well as urban slums. Since the built-up wavelength bandwidth picks associated noise from road surface reflectance, we develop a net built-up density measure to correct it (details described in Appendix). Using the information from net building data density, this study on Bengaluru and Jaipur extracts building agglomerations across the city to arrive at an aggregate built-up estimate for the city. The building density on the ground provides an estimate of total build-up area (in square feet/km), which when interacted with zone specific guidance value of property tax per unit area gives an aggregate sum of potential property tax to be collected. Usually, a city is classified by different guidance values zones, depending on factors such as construction material, type of roof /floor, nature of occupancy (tenanted or self-occupied), and depreciation. Consider Koramangala (one of the localities in Bengaluru) illustrated in figure 2C. It can be seen that the processed image can distinguish the built-up (commercial/residential) regions from green and barren regions.

Figure 2A
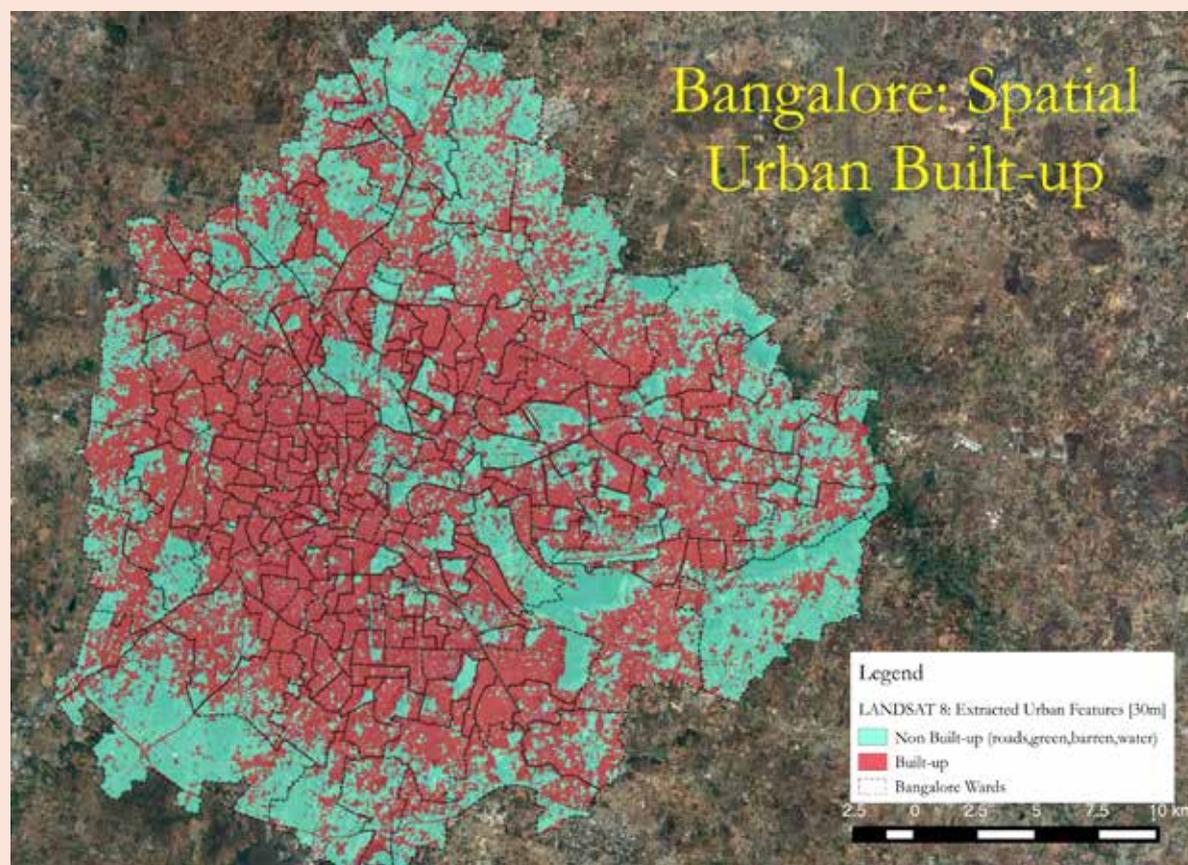
Figure 2B
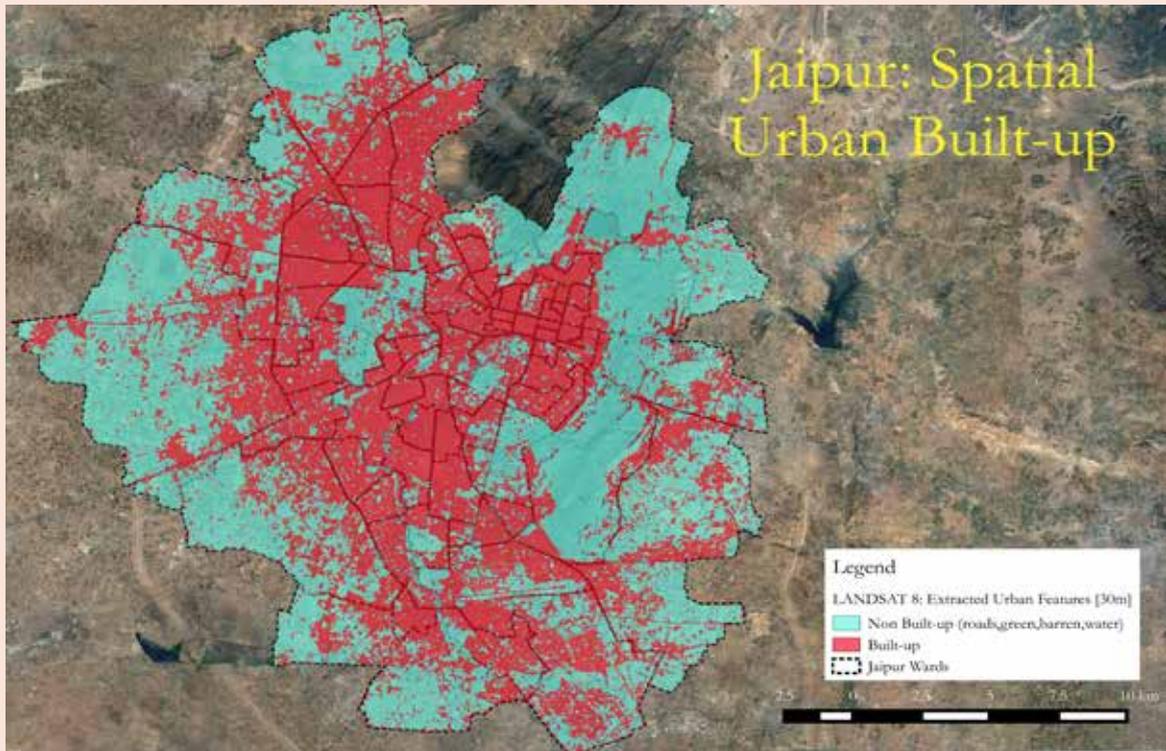
Figure 2C
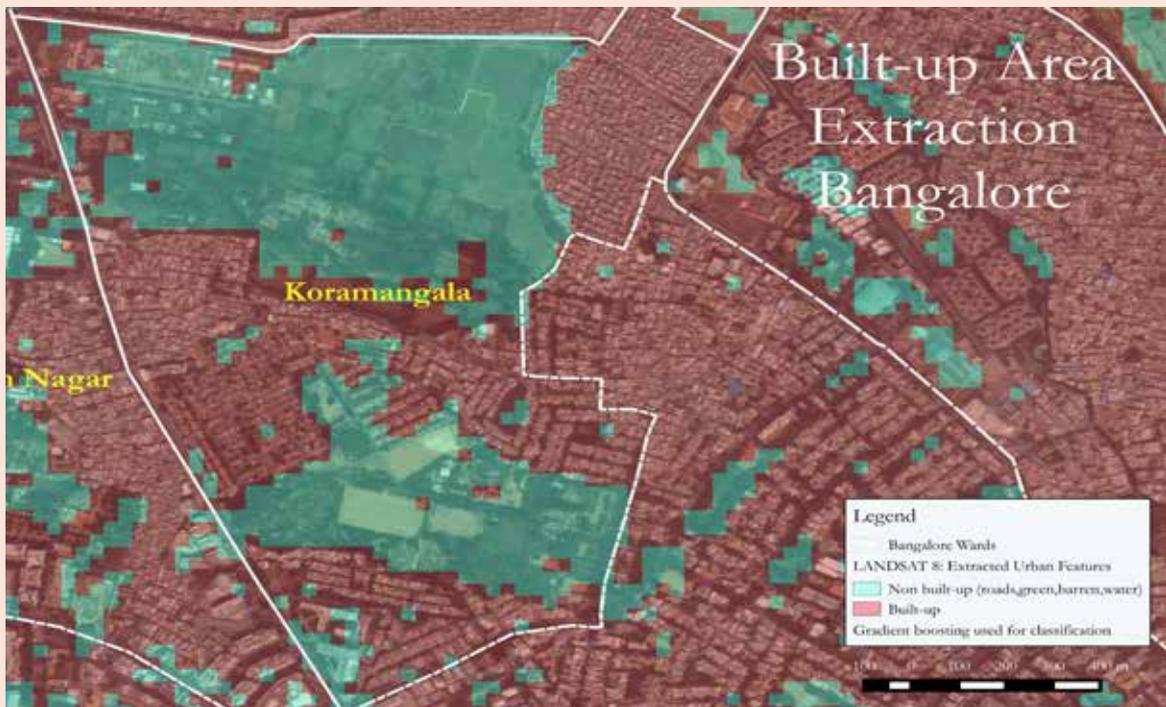
**Building Elevation from Floor Area Ratio| Floor Space Index**

Since satellite imagery (LANDSAT) cannot help identify the height of building (other satellite based DEM elevation models only provide height from mean sea level), the prospective height of buildings has, therefore, been estimated, using unified development codes, Floor Area Ratio (FAR) and Floor Space Index (FSI). Both the ratios regulate the

permissible extent of build-up area of a building by the total size of the plot. Higher value of FSI implies dense construction, an FSI of 2.0 implies that total floor areas is twice the gross area of the plot suggesting a multiple-store building. This ratio varies according to development plans and zoning laws of individual states. For instance the Bruhat Bengaluru Mahanagara Palike (BBMP) has classified the city by 12 zones including Residential (Main), Residential (Mixed), Commercial and Industrial categories. Jaipur Development Authority's Development Plan 2025, on the other hand define broad level FSIs, ranging from 0.1 (amusement park), 0.2 (resort) to 2.25 (residential/commercial). Based on the ranges we have developed separate minimum, maximum and average value scenarios for the respective cities (calculation in appendix).

Estimation of property tax potential for Bengaluru

As seen in the image above (Figure 2A), spanning 784 square km, satellite imagery of Bengaluru indicates near 50 per cent built-up area. The potential property tax is estimated by fixing a ward as the basic unit for identifying net built-up area, property tax unit (guidance values) and FSI ratio. There are 198 wards within BBMP jurisdiction; properties in these wards have been classified in 6 zones (A to F) based on the streets they are on, which determines the guidance value. This classification determines the Unit Area Value (UAV) used for calculation of property tax. The average age of properties has been assumed to be around 10 years, based on which a depreciation rate of 10 per cent is applied in the computations. The street wise guidance values are clipped by respective wards and the net built-up density is aggregated to the ward boundary. To accurately capture FSI ratio values across establishments we have considered three scenarios (min, max and average value) based on their respective values by the 12 zones as given below (Table 2A). The estimate indicates Bengaluru has potential of collecting upto 4 to 7 times of its current property tax revenue.

Table 2A. Tax Potential by Building Density for Bengaluru city			
FSI Scenario (Residential|Commercial)	MIN[1.8|1.5] (Cr.)	MAX[3.3|3.3] (Cr.)	AVG[2.5|2.4] (Cr.)
Collected	1031.8	1031.8	1031.8
Potential	4359.5	8693.8	6526.7
Proportion	23.7%	11.9%	15.8%

Source: **Budget Documents – BBMP**

Estimation of property tax potential for Jaipur

In line with the steps taken to estimate the property tax potential of Bengaluru city, property tax potential has been estimated for Jaipur. The city has a total area of 484 sq km with 39% built up area. Unlike Bengaluru the guidance values for property tax in Jaipur, are constituted at colony level. Built-up density was aggregated over 2534 colonies to arrive at a guidance value per ward (Table 2B). In the absence of official FSI data for Jaipur, elevation and non-elevation scenarios are considered. The estimate indicates Jaipur has potential of collecting upto 10 to 20 times of its current property tax revenue.

Table 2B. Tax Potential by Building Density for Jaipur city			
FSI Scenario	No Elevation (Cr.)	Min [1.5] (Cr.)	Max [2.0] (Cr.)
Collected	41.2	41.2	41.2
Potential	380.0	599.7	799.7
Proportion	10.8%	6.8%	5.1%

Source: **Budget Documents – Jaipur Nagar Nigam**

Conclusion

Satellite imagery can be a useful tool for improving urban governance by facilitating better property tax compliance. The exercise has shown that Bengaluru and Jaipur are currently collecting no more than 5 to 20 per cent of the potential for property tax. Bengaluru and Jaipur can collect five to twenty times their current property tax collection. Revenue self-sufficiency can significantly enhance the ULBs capacity to invest in much needed infrastructure and services to improve the quality of life of their citizens. Adopting modern techniques, along with other measures, can enable the urban local bodies mobilize untapped potential.

Box 3. The role of private sector in urban development - lessons from Gurgaon and Jamshedpur*

Gurgaon was mainly an agricultural wasteland and not categorised as an urban area until 2001. The population of the city exploded after the Haryana government removed restrictions on the land acquisition process, empowered Haryana Urban Development Authority (HUDA) to convert the agriculture land for developing township and simultaneously granted licenses to private developers to develop townships from large parcel of contiguous land. The city did not have a municipal body responsible for urban planning and public goods till the Municipal Corporation of Gurgaon (MCG) was created in 2008 with control over limited pockets of the city. The three areas of Gurgaon, therefore, are controlled by HUDA, the MCG, and private developers, respectively.

In Gurgaon, the private sector has stepped in to address many of the failings of the public sector, with mixed success. Private suppliers have responded to the failure of the public sector by creating private sewage, water, electricity, security and fire prevention. The new Rapid Metro in Gurgaon was built by DLF and Infrastructure Leasing & Financial Services Limited (IL&FS), with HUDA providing the requisite land. Within privately developed enclaves, roads are of good quality. The shortfall in transport facilities is covered by the private modes of transport. In short, private builders/firms have addressed most challenges but they have been unable to provide services beyond their own property line for want of cooperation amongst builders and the authorities. The authorities, on the other hand, have had limited success in providing the city with large scale infrastructure.

Gurgaon city's failures are well known but not put into context. The city has suffered from lack of cohesive urban plan and its explosive growth has outpaced the planning efforts like in any other Indian cities. On top of that, after development has begun, multiple layers of local and higher authorities, having greater power to extract rents, have increased the transaction costs for the private builders. Different private builders have to seek different political patronage as otherwise none would manage to function.

In theory, water, sewage, roads, and electricity could be provided at scale by private, natural monopolies – albeit at potentially high prices. But instead of natural monopolies, Gurgaon has developed a competitive system of private suppliers. Competition among private suppliers has produced two failures. First, prices of water, electricity, sewage, and so forth are close to marginal cost but average cost is far too high because of the failure to exploit economies of scale. Second, competitive suppliers have produced negative externalities such as excess pollution with diesel fumes, over used common resources by dumping sewage waste and, groundwater dissipation leading to unsustainable level of water table.

Jamshedpur is a private township and one of the best-governed cities in India. Jamshedpur Utilities and Services Company Ltd. (JUSCO), a wholly-owned subsidiary of Tata Steel, is responsible for provisioning of the basic services to the city population. Jamshedpur is widely regarded as having some of the best urban infrastructure in the country and JUSCO is considered a model provider. Jamshedpur was rated the second best in the country by ORG Marg Nielsen, the worldwide market research firm, on its quality-of-life index in 2008, and in 2010 the city was ranked seventh of 441 cities and towns in India on sanitation and cleanliness by MoUD.

The three lessons from Gurgaon and Jamshedpur experience are:

i)   A system of proprietary, competitive cities can combine the initiative and drive of private development with the planning and foresight characteristic of the best urban planning. A handful of proprietary cities built within a single region would create a competitive system of proprietary cities that build, compete, innovate, and experiment.

ii)   The private sector has to bear the burden of higher transaction costs, if the city is managed by multiple authorities, each having greater power and competing to extract rent. The transaction costs would also be higher if initial cohesive development plan for the city is not put in place. Post-growth infrastructure development costs are much higher and at times prohibitive.

iii) The active role of civil society can prevent excessive exploitation of resources and reduce the impact negative externalities associated with rapid urbanisation. In Gurgaon, there has been a slow emergence of citizens groups, environmental groups, and resident welfare associations to monitor the commons.

* Rajagopalan, S. & Tabarrok, A. (2014). *Lessons from Gurgaon, India's private city*, in D. Anderson & Moroni, S (Ed.), Cities and Private Planning. Cheltenham, UK: Edward Elgar.

VI. CONCLUSION

14.24   Urbanisation will pose considerable challenges for municipalities over the coming decades. But these challenges can be – indeed, must be – overcome, and the analysis in this chapter points to some priority areas.

14.25   The first task is empowering ULBs financially.

- The analysis shows that municipalities that have generated more resources have been able to deliver more basic services. The states should, therefore, empower cities to levy all feasible taxes.

- Municipalities also need to make the most of their existing tax bases. There is a need to adopt the latest satellite based techniques to map urban properties. The Government should leverage the Indian Space Research Organization (ISRO)/ National Remote Sensing Agency (NRSA) to assist ULBs in implementing GIS mapping of all properties in the area of a ULB. Property tax potential is large and can be tapped to generate additional revenue at city level.

14.26   It is true but tiresome to repeat that ULBs need to be empowered but the political economy challenges—higher level bodies (state governments) needing to cede power and sharing resources--are daunting. The big question here is whether Finance Commissions should take cognizance of this political economy challenge identified by Professor Chelliah and allocate even more resources to ULBs or whether to respect the sovereignty of states and hope that they will themselves be forthcoming in decentralizing down – fiscally and goverance-wise – commensurate with the needs of urbanisation.

14.27   Finally, data and transparency can play an important role here.

- MoUD should give greater priority to compile and publish comprehensive data on ULBs and urban sector. Perhaps, grants to ULBs should be more tightly linked to comprehensive and updated data disclosure and transparency by ULBs.

- NITI Aayog should compile comparative indices of municipalities' performance annually based on the actual accountability and administrative capacity to deliver the core public services.

14.28   Competition between states is becoming a powerful dynamic of change and progress, and that dynamic must extend to competition between states and cities and between cities. Cities that are entrusted with responsibilities, empowered with resources, and encumbered by accountability can become effective vehicles for competitive federalism and, indeed, competitive sub-federalism to be unleashed.

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APPENDIX: BUILT-UP DENSITY EXTRACTION AND PROPERTY TAX EVALUATION METHODOLOGY

Section I: Built-up Density Extraction from Satellite Imagery

Remotely sensed satellite imagery is a powerful tool for assessing the spatial distribution as well as growth of urban built-up areas that can be used to gather strategic planning information at a very micro level. Satellite imagery data records information in an image pixel form, which is further cleaned, processed and fine-tuned with local specification of the sub-geography. Data from satellite is composed of reflected light wavelengths. Taking advantage of the unique spectral response of built-up areas and other land covers, these wavelengths can be logically trained to represent distinctive land use features, like green cover, barren regions, water bodies, roads and buildings.

The study uses 30m resolution LANDSAT-8 Operational Land Imager (OLI) raw imagery from NASA with 0% cloud cover, where each pixel records wavelengths of visible, infra-red and thermal radiations by 11 bands (Figure A). Built-up areas are conventionally mapped through arithmetic manipulation of re-coded Modified Normalized Difference Water Index (MNDWI), Normalized Difference Built-up Index (NDBI) and Soil Adjusted Vegetation Index (SAVI) derived from OLI imagery. But often they are fraught with noise from the other bands.

To ensure optimal accuracy of built-up density detection and considering non-gaussian distribution of wavelengths and components, the analysis attempts a novel methodology framework by applying Principal Component Analysis (PCA) in conjugation with an ensemble of machine learning based Gradient Boosting Model (GBM) algorithm and multinomial classification regression.

Source: **The Atlas of the Human Planet GHSL**

The raw wavelength bands are first classified into specified MNDWI, NDBI and SAVI indices. Since the Landsat TM/ETM+/OLI images are highly correlated between the adjacent spectral bands, PCA is applied to transform highly correlated bands into an orthogonal subset. After performing PCA, the original correlated bands are transformed into independent components by unique land use types.

Figure A. Satellite Imagery Band Variation
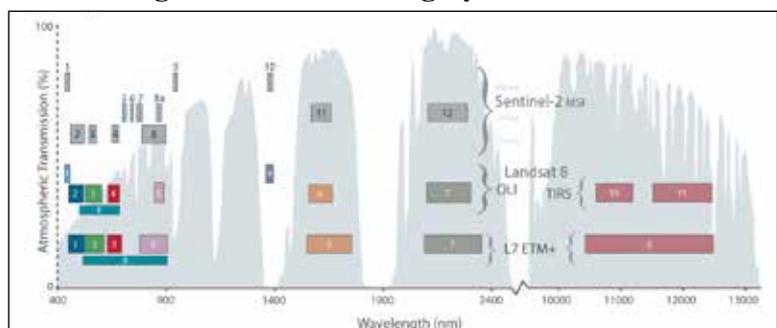
Source: **NASA**

This is followed by a subjective pixel level study of the components to identify optimal thresholds for the geography in question (Bengaluru and Jaipur). Since the variation of wavelengths (and of the components) confirming to a specified land use class differs for each sub-geography, a customized supervised classification algorithm is developed with an ensemble of decision trees, GBM (using Greg Ridgeway's R package) with multinomial classification. The final classification performs reasonably well when validated with specified land use polygons, aerial imagery mapping and ground level checking for sample built up units.

Section II: Estimation of potential property tax from extracted built-up units

Bengaluru

i. **Classification in Zones:** There are 198 wards within Bruhat Bengaluru Mahanagara Palike (BBMP) jurisdiction; properties in these wards have been classified in 6 zones (A to F) based on the streets they are on, which determines the guidance value as per the notification dated 9th March, 2016, by the BBMP. This classification determines the Unit Area Value[1] (UAV) used for calculation of property tax. The buildings that fall into these zones have been assigned a UAV based on criteria such as construction material, nature of roof, flooring, whether self-occupied or Tenanted, etc.

ii. **Unit Area Value:** In order to arrive at a hybrid UAV to cover all properties within a zone, the following assumptions have been made:

   (i) Under Residential category:

- 100 % of properties were assumed to be falling under *RCC or Madras terrace Buildings.*

- 70 % of properties were assumed to self-occupied and 30 % tenanted.[2]

   (ii) Under Non-Residential category

- 100 % of properties were assumed to fall under category V (highest) since the UAV did not vary significantly across categories.

- 75 % of properties were assumed to be tenanted.

- 25 % of properties were assumed to be self-occupied.

   (iii) Keeping in mind (i) and (ii), a weighted average hybrid (WAH) UAV was arrived at as below:

Zone	Residential								Non residential						
	A	B	C	D	E	F	Mix		Mix	A	B	C	D	E	F
UAV	6	4.8	4.3	3.8	3	2.4	30%	Tenanted	75%	25	18	13	10	7.5	3.8
UAV	3	2.4	2.2	1.9	1.5	1.2	70%	Self-occupied	25%	13	8.8	6.3	5	3.8	1.9
Weighted Average Hybrid Rate	3.9	3.1	2.8	2.5	2.0	1.6				21.9	15.3	10.9	8.8	6.6	3.3

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[1] The Unit Area Value system is another variant of the earlier Annual Rateable Value (ARV) system. While the ARV was based on the expected rent from the property, the Unit Area Value is based on the expected returns from the property depending on the location and usage of the property. Since the unit of calculation is based on per square foot per month (UNIT) and for a particular location, street, (AREA) and multiplied by a rate (VALUE), this method of assessment of property is called "Unit Area Value" method.

[2] http://www.livemint.com/Opinion/a5jnMOHQsHEk47Rr9mUWPI/Five-charts-on-the-state-of-Indias-housing-sector.html

iii. **Property tax computation:** As per the Property Tax Handbook by BBMP, property tax is to be calculated as below:

For residential properties:[3]

Built up area x UAV x 10 months = Total_1 (T_1)

T_1 - Applicable Depreciation = T_2 (Taxable Annual Value)

T_2 x 20% = T_3 (Property tax)

T_3 x 24 % = T_4 (Cess)

T_3 + T_4 = T_5 (Gross Property payable)

T_5 x 5% = T_6 (Rebate for early payment)

T_5-T_6= Net property tax payable,

Which is: {[(Sqft * UAV*10 months) - depreciation] *20%}*1.248

For Non-residential properties:[4]

Built up area x UAV x 10 months = T_1

T_1 – Applicable Depreciation = T_2

T_2 x 25 % =T_3 (Property tax)

T_3x 24% = T_4 (cess)

T_3+T_4= Tax payable

Which is: {[(Sqft * UAV*10 months) - depreciation] *25%} *1.31

Depreciation for the purpose of property tax calculation is based on the age of the building.[5] We have an average age of 10 years for all properties in Bengaluru, and a rate of 10% has been used in the calculations.

iv   **Factor for computing Property tax value:** Based on the above, the factors for each zone under residential and non-residential have been calculated as below:

Residential:

A	B	C	D	E	F
8.7	6.9	6.2	5.5	4.4	3.5

Non-residential:

A	B	C	D	E	F
61.0	42.7	30.5	24.4	18.3	9.3

Other key Assumptions

(i)   All streets assumed to have the same number of properties.

(ii) The split between residential and non-residential has been assumed as 80:20 based on the land use for Bengaluru Metropolitan Area 2015[6] .

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3   http://218.248.45.169/download/ptax/annexure_I.pdf

4   http://218.248.45.169/download/ptax/annexure_II.pdf

5   http://218.248.45.169/download/ptax/annexure_III.pdf

6   https://www.scribd.com/document/4993129/Report-of-The-Advisory-Committee;   https://www.scribd.com/document/4993118/Cabinet-Note

Jaipur:

I.   The land and building tax (popularly known as house tax) has a chequered history in Rajasthan. Land and Building Tax was abolished by the State Government vide its Notification dated 24.2.2007. Even prior to its abolition, this tax was not levied and recovered by as many as 60 urban local bodies. The situation even prior to abolition of house tax was not at all satisfactory in Rajasthan. The urban local bodies either did not recover house tax or recovered it with great reluctance. As a result the recovery even against assessed tax did not go beyond 40 percent. Having remained abolished from 24.2.2007 to 28.8.2007, this tax was re-imposed under the nomenclature of urban development tax with effect from 29.8.2007 with reduced revenue potential.

   a. (http://www.sfc.rajasthan.gov.in/includes/study_report_24009013.pdf)

II. Even at present, only institutional/commercial buildings above 100 square yards and residential buildings above 300 square yards are subject to this tax.

III. During the course of eight years, from 2007 to 2015, the number of properties billed for tax has increased by a mere 2% (1,19,680 properties in 2007 to 1,21,498 properties in 2015).

IV. Jaipur at present does not have an online portal for property tax payment by its citizens.

V.   For the purpose of property tax computation, Jaipur follows rates prescribed by the District Level Committee (DLC), which can be accessed here:

   a. http://epanjiyan.nic.in/FindDlcRate.aspx

VI. Property tax is calculated by multiplying the area of the property (in square yards) to the prevalent DLC rates for the area, and the product obtained divided by 2000.

VII. DLC rates can be viewed colony/ zone/ SRO wise and are classified based on:

   (a) the location of the area - (i) interior or (ii) exterior

   (b) the type of property - (i) residential (ii) commercial (iii) agricultural (iv) industrial

VIII. For the above calculation, a few assumptions were made as below:

   (i)   For location of property, an average of interior and exterior rates was taken per colony.

   (ii) For type of property, agricultural and industrial properties were not considered.

   (iii) A simple average was arrived at considering the interior and exterior rates.

   (iv) It was observed that the simple average rates were repeated in some colonies, and the repeating rates were multiplied by the number of colonies per rate.

The above calculation was then aggregated under residential and commercial properties and divided by the total number of colonies in that zone, to arrive at a weighted average rate per zone for residential and commercial properties.