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India's Growth Story

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Abstract

India has attained much economic success in the past three decades. Yet an economic deceleration in recent years has generated worried commentaries about the country's growth outlook. This paper offers a long-term perspective on India's growth experience. Analyzing the past five decades of data, the paper notes that growth has slowly but steadily accelerated, become less erratic, and been well diversified across sectors and states. A more granular assessment of the period since the early 1990s finds that there were three distinct phases of growth: a period of slow acceleration from 1991 to the early 2000s; a short period of unusually rapid growth, with certain features of unsustainability, during 2004–08; and a corrective slowdown that started with the global financial crisis in 2008. The slowdown has been reflected most profoundly in investment, credit, and exports. Even as the economy has now recovered to a growth rate of 7 to 7.5 percent, durably accelerating it to a higher level will require a concerted policy momentum that succeeds in reversing the slowdown in investment, credit supply, and exports; and support from the global economy. Maintaining the hard-won macroeconomic stability, implementing a definite and durable solution to the banking sector issues, and realizing the expected growth and fiscal dividend from the Goods and Services Tax are some of the other factors that can help attain a higher growth rate.

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Produced by the Research Support Team

India's Growth Story

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1. Introduction

India has achieved much economic success in the last three decades. Since the early 1990s, when reforms began, growth rates have accelerated slowly and become more stable. The economy has become more modern and globally integrated, macroeconomic stability has improved, and the average citizen is better educated and lives longer. Yet an economic deceleration in recent years has generated worried commentaries about India's growth potential. The questions being raised are: Is the deceleration in economic growth structural or cyclical? Is the Indian growth story over? What is the "new normal" for India's growth outlook? What sets of policies, structural or cyclical, might be needed to revive growth?

In this paper, we offer a long-term perspective on India's growth experience. Looking back at the last 50 years, we analyze India's long-term growth patterns in different ways, and compare India's growth experience with that of the other large emerging market economies.[2] We note the following several stylized facts. First, India's long-term economic performance has been impressive. Despite variations around the long-term growth rate, average growth over any continuous 10-year period has steadily accelerated, and has never reversed for a prolonged period. Acceleration in the growth rate is consistent with India's steadily improving proximate determinants of long-term growth. Economic growth has also become more stable—both due to growth rates stabilizing within each sector, and due to the transition of the economy toward the services sector, which has a more stable growth rate.

Second, the long-term growth experience has been balanced and diversified in the sense that acceleration and stability are evident across states; and for most part, growth is not concentrated in a few uses or sectors, but is visible in most of its components- consumption, investment and exports; and across sectors. Growth acceleration has been characterized by productivity gains, and not just by an increase in factor inputs. Productivity gains are reflected in labor as well as total factor productivity. The contribution of productivity gains to growth has increased in recent decades.[3]

Third, we reconcile the long-term growth potential of the economy with the perception of an ongoing slowdown in the economy. We do so by dividing the post-reform period since the early 1990s into three phases and analyzing the growth rate over each phase. The first phase of growth acceleration lasted from 1991 to 2003, when GDP grew at an average rate of 5.4 percent a year. It marked a growth acceleration of 1 percentage point a year over the previous two decades. A short second phase of unusually high growth followed during 2004–08, when growth was aided by rapid global growth and easy global liquidity, and by the impact of important reforms that were undertaken in prior years. During this phase, GDP grew at an average annual rate of 8.8 percent, taking it temporarily above the trend growth rate. The period of growth acceleration was marked by a rapid increase in the rate of investment, financed by high credit growth and a surge in capital flows.

[2] Years refer to fiscal years in the paper unless otherwise indicated. E.g. 2015 refers to fiscal year 2014-15, which runs from April 1, 2014, until March 31, 2015. GDP refers to GDP at market price, unless otherwise indicated.

[3] See Bosworth, Collins and Virmani (2007).

A final phase of growth slowdown then ensued, aligning with the slowdown in the global economy and the onset of the global financial crisis (GFC) in 2008–09, and continuing till date. Growth slowdown reflected most profoundly in investment, credit, manufacturing, construction, and exports. The period was initially marked by worsening macroeconomic stability, due to the fiscal response to the crisis, and the broader macroeconomic management of the economy. Macroeconomic stability has improved since.[4] The slowdown has aligned India's growth rate to the trend growth rate of the pre-boom period.

Fourth, even as the economy has slowly reverted to the trend growth rate and stabilized in recent years, the revival is not yet firmly anchored in investment, exports, and the industrial sector. Recovery in investment and credit has been more protracted in India than in other countries, and India has lost share in the global export market. This may have implications for accelerating growth to India's potential, and for enhancing the potential growth itself.

Finally, the steep growth slowdown in the few quarters during 2018 is not in continuation of the long-term growth dynamics. While the deceleration of growth to about 7 percent in recent years is structural, a further decline to below 7 percent in 2017–18 was an aberration. This additional slowdown can be attributed to temporary disruptions in economic activity due to the twin policy shocks, as businesses prepared for implementation of the Goods and Services Tax (GST), an important indirect tax reform, and as the economy adjusted to demonetization. There are indications that the economy is recovering, with growth accelerating in the last few quarters. Growth steadily accelerated to 7.7 percent in the last quarter of 2017-18, from 5.6 percent in the first quarter of 2017-18.

Analyzing the past episodes of high growth path, we note that there have been six episodes in the last five decades when growth rates exceeded 8 percent, about once in each decade. Most episodes of acceleration lasted only one to two years, and corrected sharply in ensuing years. In some of these, high growth was due to a low base impact of slow growth in previous years followed by an unusually good agricultural output (1976, 1989); in others, it was due to unsustainable macroeconomic policies (such as in 2010–11). The only durable episode of growth sustaining at levels above 8 percent for 5 continuous years lasted from 2004 to 2008.[5] This episode benefited from the combined effect of important reforms undertaken in the 1990s and early 2000s (as highlighted by Acharya 2012, and Panagariya, 2018), and from an unusual buoyancy in the global economy and easy global liquidity, leading to high sustained growth across sectors and components of GDP.[6]

[4] Macroeconomic stability is measured as a period of low inflation, budget deficit and current account deficit.

[5] In two of these years, the growth rate was 7.9 percent each.

[6] The period showed some signs of unsustainably high credit growth, capital inflows and rate of investment.

Attaining a growth rate of 8 percent or higher on a sustained basis will likely require contributions from all domestic sectors and support from the global economy.[7] It will require a concerted reform and policy momentum, wide enough in scope, that succeeds in reversing the slowdown in investment, credit supply, and exports. Maintaining the hard-won macroeconomic stability, a definite and durable solution to the banking sector issues, realization of the expected growth and fiscal dividend from the GST are other key components of attaining a growth rate of 8 percent or higher. As pointed out by the World Bank's Systematic Country Diagnostic for India, a reform focus on moving to a more resource efficient growth path, making growth more inclusive, and enhancing the effectiveness of the Indian public sector can assure that these rates can be sustained in the decades to come, moving more and more Indians into a status comparable to the global middle class.

This paper proceeds as follows. Section 2 focuses on India's long-run growth dynamics. Section 3 summarizes three phases of growth experienced by India since the early 1990s, including the recent rate of growth at high frequency. Section 4 discusses ongoing slowdown in parts of the economy and the policy challenges in reversing the slowdown. Section 5 concludes.

2. India's Long-Term Growth Dynamics

2.1 Accelerating and stabilizing growth rates

Below we look at the trends in the pace of economic growth in India starting in 1971.[8] The long-term average growth rate has accelerated slowly in India, and despite significant variation around the long-term average, the growth rate has never reversed for a prolonged period (Figure 1). We ask whether the growth acceleration is unique to India or if it has also been the experience of other emerging markets. For this we compare the linear trend in India with the trend in seven large emerging economies, Brazil, the Russian Federation, South Africa, Malaysia, Mexico, Turkey and Indonesia, which we refer to as EM7.[9] We estimate regressions of the following form:

$$GDP\ Growth_{it} = \beta_0 + \beta_1 Trend_t + \beta_2 India_i\ x\ Trend_t + \varepsilon_{it} \quad (equation\ 1)$$

[7] Arvind Panagariya has highlighted the importance of reviving bank credit to reach growth rates exceeding 8 percent: https://blogs.timesofindia.indiatimes.com/toi-edit-page/how-to-revive-bank-credit-government-should-to-begin-with-offer-psbs-bonds-in-return-for-equivalent-equity/ . In a recent interview, Arvind Subramanian (Chief Economic Advisor) indicated that reaching growth rates around 8.5 percent is conditional on a reform agenda that addresses banking sector and other issues: http://www.livemint.com/Politics/OUuLehx0uBAO32P1xhSYAN/India-can-return-to-85-growth-rate-Arvind-Subramanian.html.

[8] The source of data is the Central Statistics Office. See Appendix 1 for details on the data used and on how we spliced the GDP series for different base years.

[9] According to the World Development Indicators, these countries accounted for 12 percent of the world population (30 percent when India is included), 13 percent of world GDP (20 percent when India is included), and an average per capita income of $16,678 (in 2011 PPP $) in 2016.

The outcome variable in equation 1 measures the 10-year rolling average of GDP growth in country *i* in year *t*. The coefficient of interest, β_2, measures the difference in the slope of growth acceleration between India and the average EM7 country. We find that, as compared to a significant coefficient of 0.114 for India (Table 1, column 2), the coefficient of a similar linear trend for 10-year average growth rates for other large emerging markets is negative (column 1). Column 3 shows that the difference between trend coefficients is statistically significant, with India having a significantly higher growth acceleration than other emerging market economies.

Table 1: Trend in the pace of long-term growth of India and EM7 countries

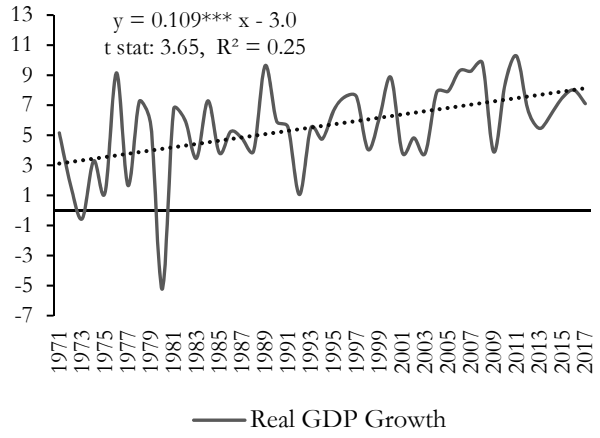
	(1)	(2)	(3)
VARIABLES	GDP growth 10-year rolling averages	GDP growth 10-year rolling averages	GDP growth 10-year rolling averages
Trend	-0.027**	0.114***	-0.027**
	(2.98)	(19.95)	(3.19)
India * Trend			0.142***
			(6.29)
Countries	EM7	India	EM7 and India
Country Fixed Effects	Yes	No	Yes
Observations	240	37	277
R-squared	0.478	0.930	0.550

Note: Robust t-statistics (controlling for country-level clusters in columns 1 and 3) are in parentheses. Columns 1 and 2 present estimates of a regression of real GDP growth, calculated as a 10-year rolling average, on a linear time trend. Ten-year rolling averages of growth rates are for the current year and the preceding nine years. *** p<0.01, ** p<0.05, * p<0.1.

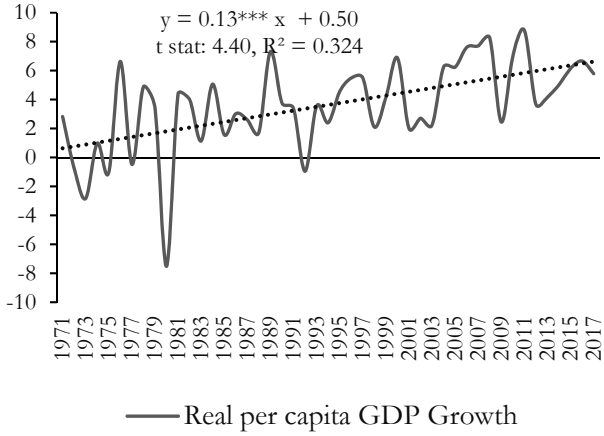
Although the pace of growth acceleration has differed across sectors, India's growth pattern has been broadly diversified. The pace of acceleration has been fastest in services, followed by industry, and there has been no evident pattern of acceleration in agriculture. The most remarkable achievement in agriculture has been the greater stability of growth, but not necessarily a higher average growth rate (Figure 2). Consistent with the experience of other countries, the contribution of agriculture and allied activities in GDP growth has declined, while that of the nonagricultural sectors has increased. The exceptionally fast growth of the services sector in India has been accounted for in a large part by modern services, comprising financial services, communications, and the IT sector, as highlighted by Eichengreen and Gupta (2011).

Figure 1: India's growth rate has consistently accelerated over the long run

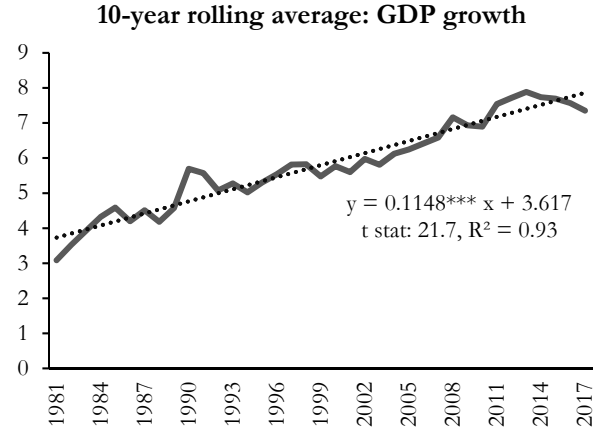
1 A: GDP growth has accelerated over the long run



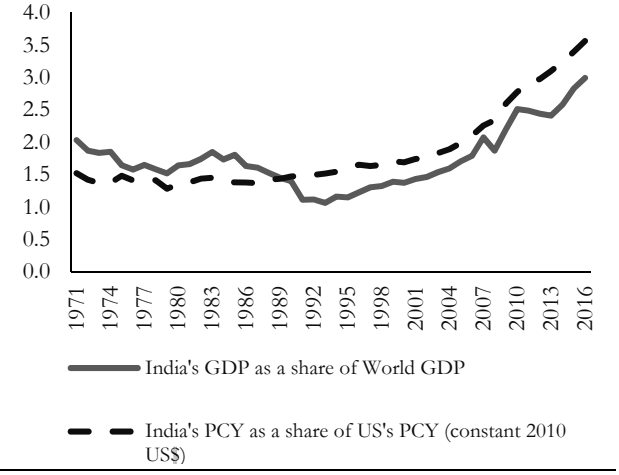
1 B: Per capita income growth has accelerated, too



1 C: A clear trend of growth acceleration over the long run is evident in 10-year averages, too



1 D: In terms of relative prosperity, the Indian economy has shown convergence

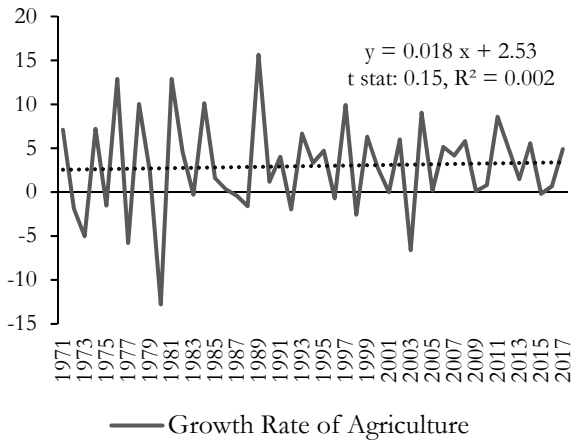


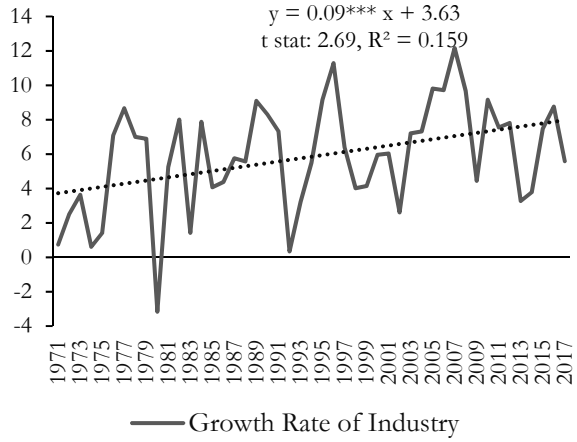
Note: Data are from Central Statistics Office, and World Development Indicators. In panel C, 10-year rolling averages of growth rate are for the current year and the preceding nine years. Years refer to respective fiscal years in Panels A-C and calendar years in panel D. *** p<0.01, ** p<0.05, * p<0.1.

Figure 2: Growth rates have accelerated and become more stable across sectors

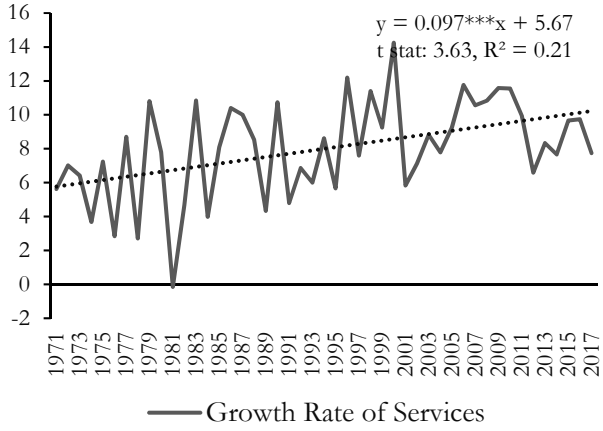
2 A: A consistent acceleration in growth has not been observed in the agriculture sector…

2 B: …but is evident in industry

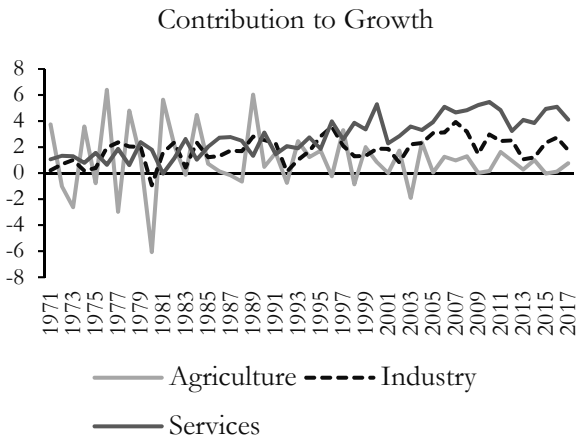




2 C: Acceleration in services has been the fastest



2 D: Services have emerged as the largest contributor to GDP growth, followed by industry



Note: Central Statistics Office data. Years refer to respective fiscal years. Agriculture includes crop, livestock, forestry and fisheries; industrial sector includes mining and quarrying, manufacturing, electricity, gas, water and other utilities, and construction; services include trade, hotels, transport, communication and services related to broadcasting, financial, real estate and professional services, and public administration, defense and other services.

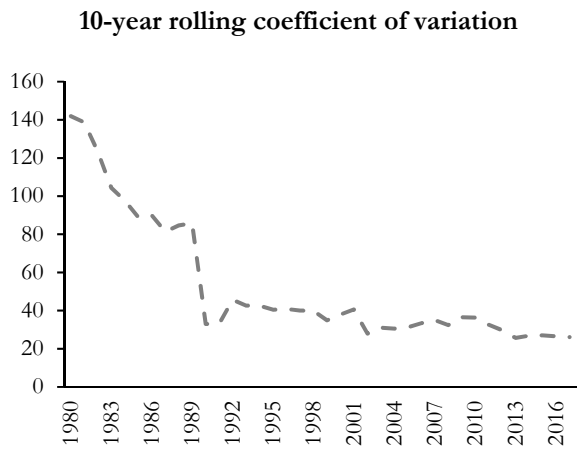
The fact that growth has not just accelerated, but has also become more stable over time is reflected in its steadily declining standard deviation, and a declining coefficient of variation (Figure 3).[10] Particularly remarkable is the sharp increase in the stability of GDP growth in the post-reform period since 1991.[11] Even if growth accelerated episodically in the decades prior to 1991, it was

[10] While the figure only shows the coefficient of variation, the results are very similar for standard deviation.
[11] The figure also documents a decline in the coefficient of variation in the 1980s, coinciding with some acceleration in growth in the 1980s.

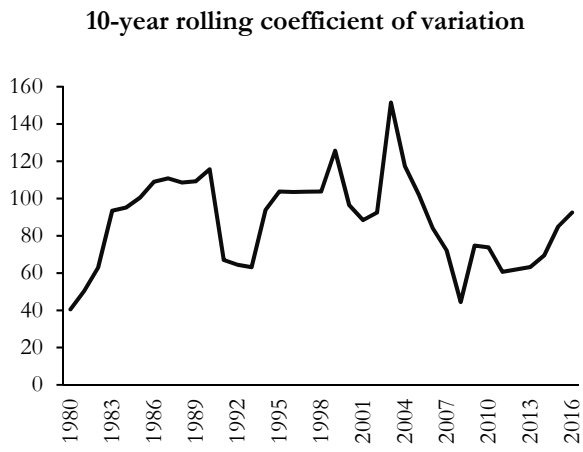
punctuated by large annual variations, and often failed to sustain. Thus, growth has not just accelerated post-liberalization, but has also become more stable.

Figure 3: India's long-term growth rate has become increasingly more stable

3 A: Coefficient of variation, GDP growth, India



3 B: Coefficient of variation, GDP growth, EM7 median



Note: World Development Indicators data. Coefficient of variation is calculated as the standard deviation divided by the mean for rolling 10-year periods. For EM7, it is the median of the cross-country series for every year.

2.2 Spatial Trends in growth

Next, we examine growth patterns at the state level.[12] For this we estimate the trend coefficient of Gross State Domestic Product (GSDP) growth for annual data since 1981. We use the following regression equation, where the subscripts *s* and *t* denote variation at the state and year level, respectively:

$$GSDP\ Growth_{st} = \beta_0 + \beta_1 Trend_t + \gamma_s + \varepsilon_{it} \quad (equation\ 2)$$

To control for level differences in growth across states, we include state-level fixed effects in the regressions, denoted by γ_s. A positive and significant coefficient estimate for β_1 presents evidence of growth acceleration. We also allow the trend coefficient to vary by state characteristics (equation 3). The characteristics we consider are the share of agriculture/non-agricultural sectors in the state

[12] The states included in this analysis are Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal. We construct a back casted panel on annual real gross state domestic product growth for the years 1981 to 2016.

economies; and an indicator for whether a state's per capita GDP is above the median per capita GDP across all states. All characteristics are measured for the initial year 1981 and thus are time invariant.

$$GSDP\ Growth_{st} = \beta_0 + \beta_1 Year_t + \beta_2 Characterstic_s\ x\ Year_t + \varepsilon_{it} \quad (equation\ 3)$$

The coefficient β_2 measures the differential growth acceleration between states with and without a given characteristic. Table 2 below highlights that India's growth acceleration is reflected in the growth of an average state. On average, state level growth accelerated by 0.09 percentage points per year between 1981 and 2016, column 1. Our analysis does not detect differences in growth acceleration across agricultural and non-agricultural states, and across income levels.

We further examine whether the growth stabilization documented at the national level is visible at the state-level, by estimating regressions similar to above, but replacing the outcome variable with a 10-year rolling coefficient of variation for each state.[13] The last two columns in table 3 confirm that the variability in state-level growth has consistently declined over time, and that there is no statistically significant difference in the pace of increased growth stabilization between richer and poorer states.

Table 2: Trend in the pace of long term growth at the state level

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Growth Rate	Growth Rate	Growth Rate	Coefficient of Variation	Coefficient of Variation
Trend	0.089***	0.099**	0.089***	-2.96***	-3.56***
	(9.27)	(2.47)	(5.99)	(4.53)	(3.22)
Ag. Share (1981) X Trend		-0.0002			
		(0.251)			
GDP per capita > Median x Trend			-0.0012		1.28
			(0.064)		(1.03)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	734	734	734	567	567
R-squared	0.062	0.063	0.063	0.628	0.636

Note: In column 3 we allow the linear trend coefficient to vary between richer and poorer states, with richer states defined by an indicator variable that takes the value one if a state has above median per capita GSDP in the initial year 1981.

[13] The coefficient of variation is calculated as the standard deviation of GSDP growth over rolling 10-year periods (the year of observation and the nine years preceding it), divided by the sample average of GSDP growth over the same period.

2.3 Composition of GDP

Looking at the composition of GDP on the uses side, the main trend that emerges is that of a consistently declining share of consumption in GDP, particularly the share of private consumption, while the share of investment and exports has increased (Figure 4). While private consumption accounted for nearly four-fifths of GDP in the early 1970s, this share declined to about three-fifths in 2017.[14] After a small increase over recent decades, government expenditure has stabilized at nearly 12 percent of GDP. Equally salient is the steady increase in the rate of investment until the mid-2000s. The rate of investment peaked at nearly 36 percent in 2007–08, but in the last few years it has declined to a rate more aligned with the long-term trend rate.

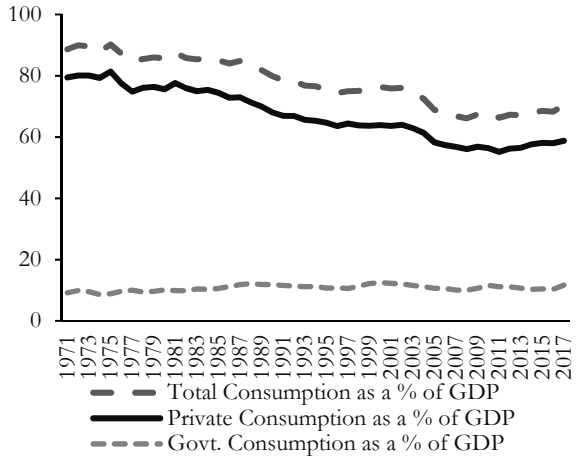
Historically, public and private investment contributed approximately about an equal amount to total investment, but the role of public investment in growth has diminished over time. After peaking at nearly 13 percent of GDP in 1986–87, public and private investment started to diverge, with public investment accounting for only approximately a quarter of total investment in recent years.

India has also become more integrated into the global economy, with its trade ratio—the ratio of exports and imports to GDP—adding up to about 40 percent of GDP in 2017, five times the ratio of 7.6 percent in 1971, yet lower than its peak value of 57 percent in 2014. Exports as percent of GDP tripled from 7.3 percent in 1991 to 22 percent in 2007, and were 25.5 percent of GDP in 2014. The contribution of net exports to growth has been muted, with import growth exceeding export growth in the majority of years.

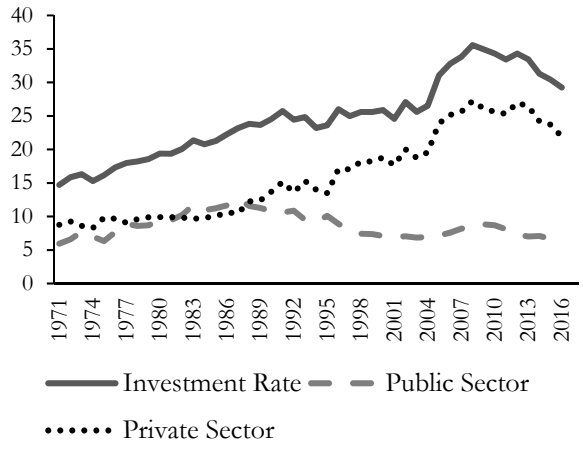
Figure 4: Consumption's share in GDP declined, while the share of export and investment has increased

4 A: Share of private consumption in GDP has declined; government consumption has been stable	4 B: Share of private investment in GDP has increased while that of public investment has declined

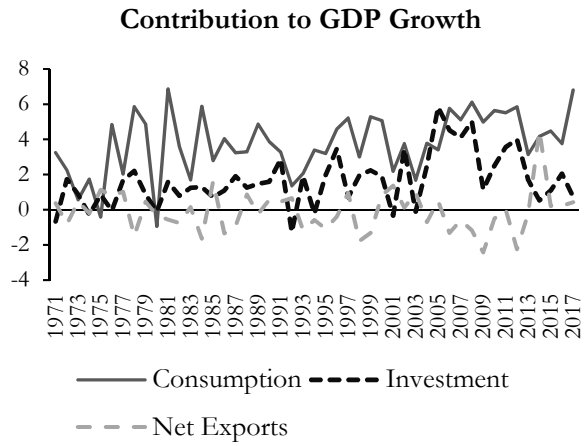
[14] Despite its declining share, consumption growth has been a key driver of aggregate GDP growth, contributing on average 3.76 percentage points to growth annually between 1971 and 2017.



4 C: Share of exports and imports in GDP has increased as the economy has progressively opened up



4 D: Consumption growth remains a key contributor to growth, followed by investment



Note: Years refer to respective fiscal year. Investment rate is defined as gross fixed capital formation as a percentage of GDP. Net exports are the difference between exports and imports of goods and services.

2.4 Sources of Growth: Inputs and Productivity Growth

To understand the underlying determinants of India's growth trend, one may decompose GDP growth into input usage and total factor productivity (TFP). A common and simple growth accounting exercise decomposes GDP growth into use of labor and capital and total factor productivity using a Cobb-Douglas production function. Total factor productivity is estimated as the residual after accounting for labor and capital:

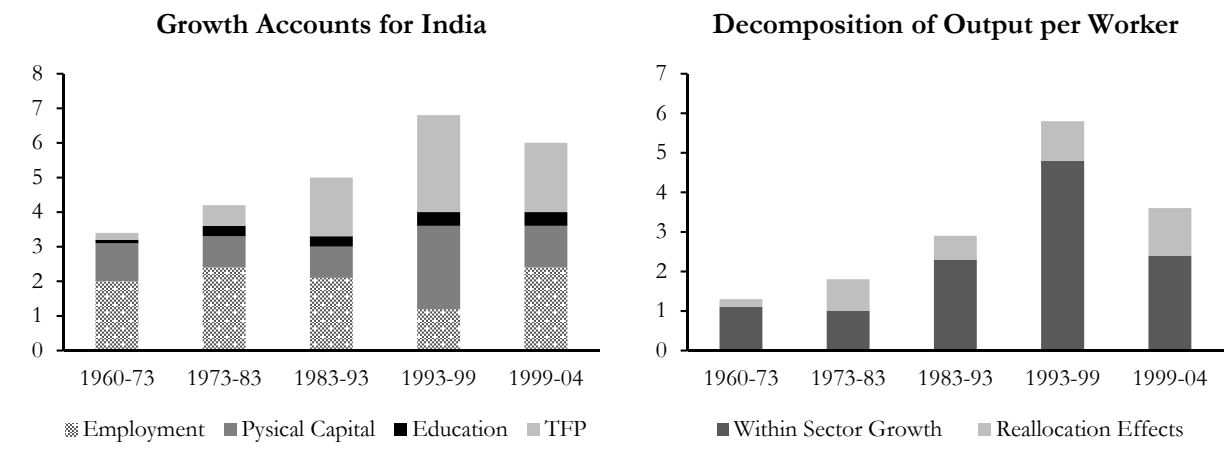
$$\frac{\Delta A_t}{A_t} = \frac{\Delta Y_t}{Y_t} - \alpha \frac{\Delta K_t}{K_t} - (1-\alpha)\frac{\Delta L_t}{L_t}$$

More recent growth accounting exercises have extended this framework by considering other forms of the production function, a richer set of factor inputs, allowing not just for the quantity of inputs but also adjusting for differences in input quality. For example, Bosworth, Collins and Virmani (2007) allowed for time varying factor shares and non-unit returns to scale in the production function. Caselli and Coleman (2004) considered a Constant Elasticity of Substitution (CES) production function. Hall and Jones (1999) augmented labor inputs for human capital, traditionally measured as the working population, by defining labor input as a function in the years of schooling. Further extensions have attempted to account for differences in schooling quality (e.g. Klenow and Rodriguez-Clare (1997) and Bils and Klenow (2000)) and differences in the quality of the physical capital stock (e.g. Bosworth and Triplett (2007)). Finally, various contributors have argued that TFP might differ across sectors, calling for the need to obtain estimates at the sectoral or industry level. For example, Bosworth and Triplett (2003, 2007) account for industry-level growth in the US.

Empirical estimates for India highlight an acceleration of TFP growth in the early 1980s, followed by a further acceleration in the post-reform period. Bosworth, Collins, and Virmani (2007) construct growth accounts for India for the period from 1960 to 2004 and find evidence for a strong acceleration in TFP growth (figure 5). The contribution of TFP growth was highest in the post-reform period, and remained a significant contributor to GDP growth until 2004, the latest year included in their analysis. They also find that India's growth since 1980 was fueled by a rapid expansion of TFP in services, while productivity increases in Indian agriculture were modest, and industrial growth relied on employment increases and experienced comparatively low TFP gains. In addition, decomposing improvements in output per worker, Bosworth, Collins and Virmani (2007) find that the reallocation of workers from less to more productive sectors contributed approximately 1 percent per year to output growth in the 1990s, but gained importance in the 2000s.[15]

Figure 5: Decomposition of growth into factor inputs and total factor productivity

[15] Bosworth and Collins (2008) compare the Indian growth experience with China, and highlight the more significant role of TFP increases in the early years of growth for India, as growth in China depended more on capital accumulation. See also Young (1995) and Young (2003), who argue that accounting for biases in official deflators and the measurement of human capital, productivity growth in China was muted; and Brandt and Zhu (2009) for a more recent update of Young's (2003) calculations.



Source: Bosworth, Collins and Virmani (2007)

The analysis by Bosworth, Collins and Virmani (2007) is insightful. While an extension of the analysis for more recent years would be very useful, we are constrained by the scope of this paper, and the effort involved in constructing comparable data. We however decompose GDP growth using the simple Cobb-Douglas production function with capital and (unskilled) labor as inputs, and a constant capital share of 0.3: $Y_t = A_t K_t^{\alpha} (L_t)^{1-\alpha}$, where α is assumed to be 0.30, and TFP is estimated as the Solow residual. Consistent with Bosworth, Collins, and Virmani (2007), the results further highlight that the growth momentum in India since the 1990s has been fundamentally supported by increases in TFP, which on average accounted for 60 percent of overall growth between 1990 and 2011 and, has since again emerged as a key driver of growth.

Our growth accounts also reflect that investment rates in India have slowed more recently, which has reduced the role of capital accumulation in driving growth. In addition, increases in labor inputs have only been a modest driver of aggregate growth in recent years, as the contribution of employment growth stabilized at around 1 percent a year after the financial crisis. Both the diminishing role of capital accumulation and the comparatively limited importance of human capital in driving growth contrast the Indian growth experience to East Asia, as especially China relied on strong investment and capital accumulation.

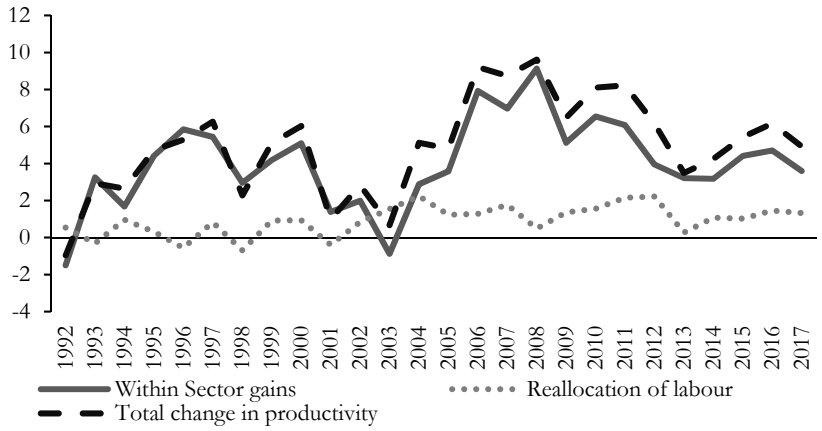
Turning to the sources of labor productivity, India has experienced two significant boosts to labor productivity, the first one commencing in 1993 and the second one in 2003 (Figure 6). The rate of productivity increase during these episodes is larger than that experienced by the East Asian countries during the periods of very high growth, but is smaller than the labor productivity increases realized in China, which increased output per worker by 8.5 percent between 1993 and 2004, compared to 4.6 percent in India.[16]

[16] See Bosworth and Collins (2008) for a discussion.

Gains in labor productivity may be attained due to the reallocation of labor toward sectors with higher productivity. Such reallocation can help overcome the misallocation of factor inputs to comparatively unproductive sectors and firms.[17] Alternatively, labor productivity gains may occur due to workers becoming more productive within their sectors, e.g. due to labor-augmenting capital accumulation or technology improvements.[18]

We compare the contribution of labor reallocation across sectors and the within-sectoral productivity gains to explain aggregate improvements in labor productivity for data extending until 2015. Over India's two phases of high labor productivity growth, within-sector productivity improvement has been the key driver of growth in labor productivity (Figure 6). Until the early 2000s, reallocation contributed only approximately 1 percentage point to annual growth. Even though productivity increases driven by labor reallocation have grown in importance since the early 2000s, the contribution of labor reallocation to total labor productivity gain has remained relatively modest, at around 1.5 percent.[19]

Figure 6: Labor Productivity Growth in India: Reallocation and within Sector Gains



Note: Central Statistics Office data. Employment statistics are estimates provided by the International Labor Organization, available for 1991 to 2017. Years refer to respective fiscal year.

2.5 Long-term Proximate drivers of growth

In this section we discuss the proximate factors that have likely contributed to India's steady economic growth. The Growth Commission (2008) identified the following factors as the correlates of high and

[17] See Hsieh and Klenow (2009) for a discussion of the potential magnitude of these effects in manufacturing.

[18] Within sector productivity gains are likely to be substantive on aggregate, as evidence from development accounting exercises points to the fact that cross-country differences in income levels are more likely to be explained by sectoral productivity differences instead of the sectoral composition of the economy (Caselli 2005).

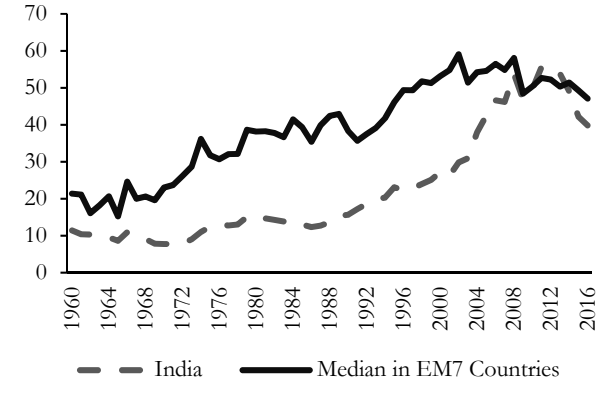
[19] This contrasts with earlier periods, for which the literature estimates that reallocation contributed approximately 1 percentage point to annual growth until 2001 (Bosworth, Collins, and Virmani, 2007).

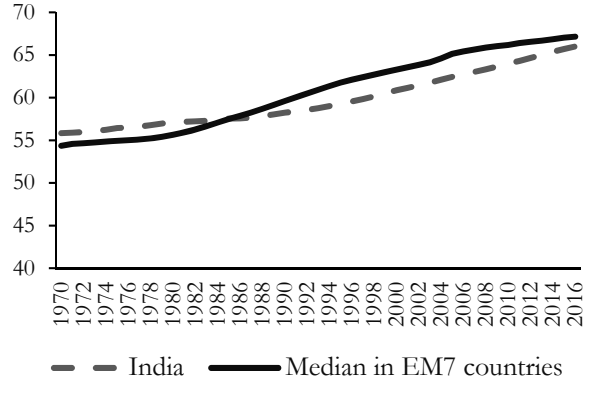
sustained growth: openness to trade and knowledge, macroeconomic stability, high investment and saving rates, efficient market allocation wherein prices guide resources and resources follow prices, and an enabling institutional, administrative and governance environment.

A review of the literature indicates that several of these factors have likely been instrumental in India's growth experience. First, even though India's trade to GDP ratio was persistently low for a few decades after independence, it experienced unprecedented growth from the early 1990s until the global financial crisis (Figure 7 A). Second, India has benefited, and will likely continue to benefit from a growing working age population, with the share of the population of working age having increased by more than 10 percentage points between 1970 and 2016. Third, India has benefitted from an increase in the savings and investment rates, which continued until the late 2000s. Fourth, evidence indicates that financial development is not only a by-product of growth, but can also foster growth and development through its effect on factor accumulation and productivity. After independence, India started off with comparatively low levels of financial development as measured by its credit to GDP ratio. It has since, however, experienced two significant and stable phases of growth, one ranging from approximately 1960 to 1980 and the other from the early 2000s until the global financial crisis (Figure 7 B). Financial development is also evident in financial access to individuals: While the country retains a relatively low rank among the EM7 with regards to the coverage of bank accounts in the population, it experienced among the highest expansion rates of bank account coverage between 2011 and 2014. Fourth, India is considered to have strong and reliable institutions and a comparatively effective bureaucracy. Building on the institutional view of economic development, India's growth has likely been aided by its institutional base.

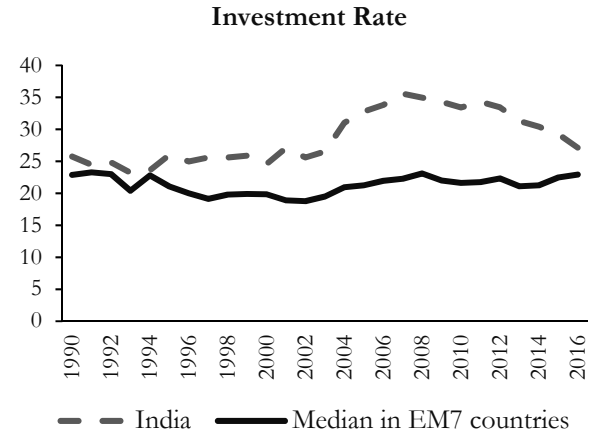
Figure 7: Proximate determinates of growth in India

7A: India has become more integrated with the global economy	7B: India's working age population continues to grow

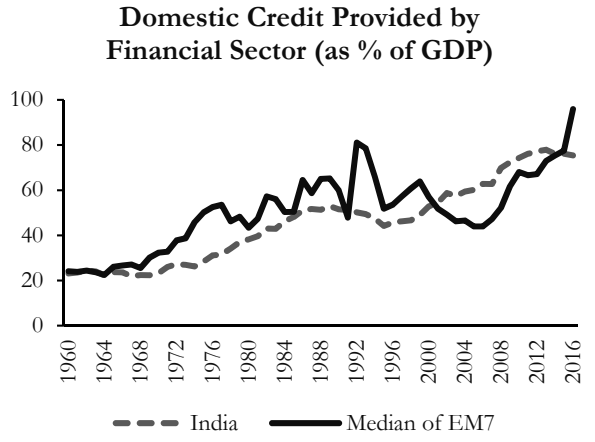




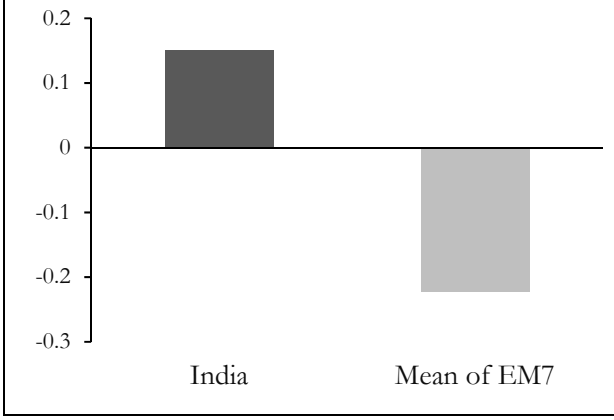
7C: Investment rate has increased over the years

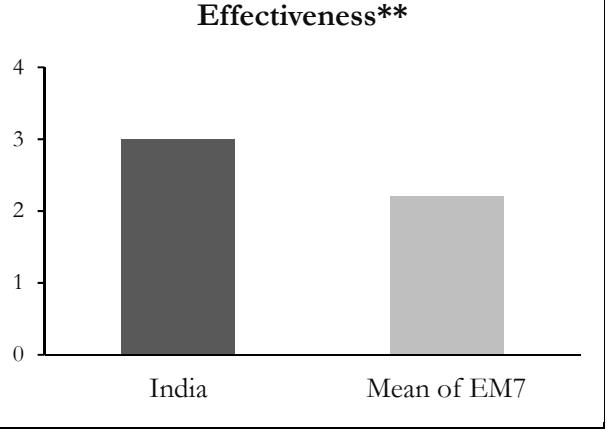


7D: Financial development in India has increased over the years[20]



7E: India has strong and reliable institutions





Note: Data is from World Development Indicators and IMF International Financial Statistics. The latter's date range is 1960 to 2011. *: World Bank Worldwide Governance Indicators, Kaufmann et. al. 2002. Rule of Law Index (Value between -2.5 and 2.5). Date Range: 1996 to 2016 (with gaps); **: Political Risk Service (values between 0 and 4, 4 being the best). Date Range: 1984 to 2014. Bars show average over time and, in the case of EM7, across countries

Below we look at India's growth record since the early 1990s more granularly, in order to reconcile its positive long-term growth trend with the perceived growth deceleration in recent years.

3. Three Phases in India's Growth Trajectory Since the Early 1990s

[20] Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The financial sector includes monetary authorities and deposit money banks, as well as other financial corporations like finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies.

Economic growth in India since the early 1990s has been characterized by the pace of domestic reforms, the global economic environment, and the stance of macroeconomic policies. We divide the record of the Indian economy in the last two-and-a-half decades, into three phases. These phases are defined broadly by India specific and global events. We identify a first phase of growth from 1991 to 2003, when GDP grew at an average rate of 5.4 percent a year, marking a growth acceleration of 1 percentage point a year over the previous two decades. A short phase of unusually high growth followed during 2004–08, when growth was aided by rapid global growth and excess global liquidity, and by the impact of important reforms that were undertaken in previous years. GDP grew at an average annual rate of 8.8 percent during these five years. A third phase of growth slowdown then ensued, aligning with the slowdown in global growth rates and the onset of the global financial crisis in 2008–09.

3.1 The phase of rapid growth acceleration

Watershed reforms were undertaken in India starting in the early 1990s after the balance-of-payments crisis in 1991. These reforms changed the economic structure and the regulatory framework of the economy in a profound way, and helped accelerate annual GDP growth to 5.4 percent a year, marking a growth acceleration of 1 percentage point a year over the previous two decades (Figure 8).[21] Starting with the devaluation of the rupee, reforms in the 1990s included industrial deregulation; opening of the economy to foreign direct investment and eventually also to other forms of capital flows; trade liberalization; tax reforms; reduction in financial repression through deregulation of interest rates and reduction in the statutory preemption of bank credit; and continued evolution and modernization of monetary policy, while reducing fiscal dominance.[22]

A short phase of unusually high growth followed during 2004–08, when growth was aided by rapid global growth and excess global liquidity, and by the impact of these important reforms. GDP grew at an average annual rate of 8.8 percent during these five years. Indications of high growth were visible in all major sectors of the economy, and in the sources of financing. Manufacturing growth was robust, the investment rate peaked at 36 percent, export volume increased rapidly, and India increased its share of the world exports markets for both goods and services to levels higher than ever before. Even though an impressive feat on growth, the period was characterized by an unusually high credit growth; and, in sync with other emerging markets, an unprecedentedly large volume of capital flows.

A third phase of growth slowdown then ensued, aligning with the slowdown in global growth rates and the onset of the global financial crisis in 2008–09.[23] During this period, global growth turned

[21] For a growth narrative of the decades prior to 1991, see Panagariya (2004) and Mohan (2011).

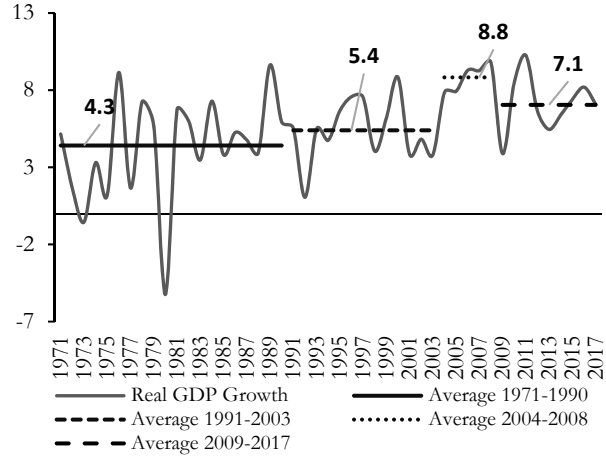
[22] See Mohan and Kapur (2015) for a discussion of these reforms.

[23] Mundle, Rao, and Bhanumurthy (2011) and Mohan and Kapur (2015) point out that the pace of economic growth in India had started drifting down even before the GFC manifested itself fully with the collapse of Lehman in September 2008.

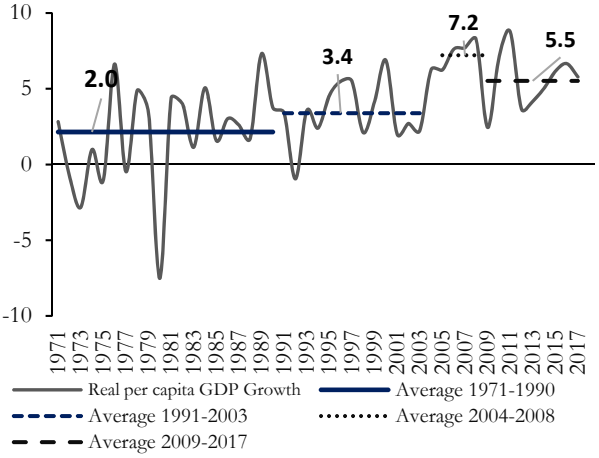
negative, global trade volume declined and remained suppressed for years thereafter, and global liquidity froze temporarily. Indian growth adjusted to a lower level. After the global financial crisis, India's growth drifted down to about 7 percent, and some of the same drivers of growth that had played a prominent role during the pre-crisis boom were the ones that accounted for the slowdown. Slowdown has been most pronounced in investments and exports, both of which more than halved their contribution to growth.

Figure 8: Three Phases of Growth

8 A: Growth accelerated to an average rate of 5.4 percent during 1991–2003, followed by 8.8 percent during 2004–08, and a slowdown thereafter



8 B: Real per capita GDP growth followed the GDP growth trajectory



Note: Central Statistics Office data. Years refer to respective fiscal years.

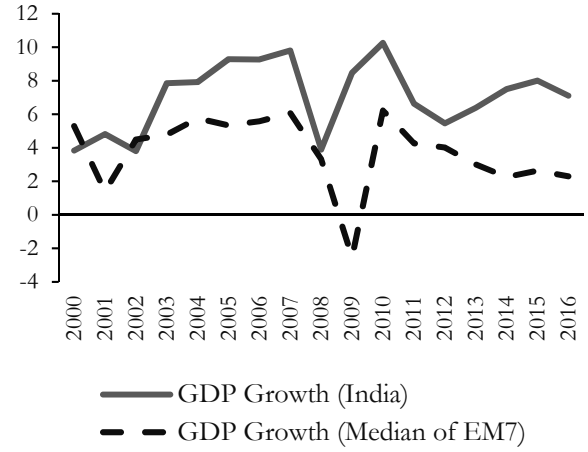
Below we analyze the period of economic boom and the succeeding period of deceleration, situating it in a global context. We compare the Indian experience with that of the other large emerging markets, and track its constituents. Comparing growth acceleration in 2004-2008 with that of other emerging countries, we note that the spurt in growth rate that India experienced during this period was larger than in many other emerging countries (Figure 9). Starting from a modest level, its credit-to-GDP ratio increased rapidly, surpassing the levels in EM7 countries. The rate of investment in India also outpaced the rate in EM7 countries, and India's share in world export markets increased at a pace faster than in other emerging markets. The growth exuberance and the "credit bubble" were partly financed by large capital inflows during this period.[24]

[24] Gupta (2016) notes a rapid pickup in capital inflows to India starting in the early 2000s. The surge in capital inflows during 2003–04 to 2007–08, was prominently evident in all forms of capital inflows—portfolio flows, FDI flows and other flows. Capital inflows accelerated to an average $44 billion a year during 2004 and 2008, compared to $10 billion a year in the three prior years. At their peak in 2007–08, capital flows exceeded $100 billion in one year. The pace of capital inflows mirrored global trends and was thus vulnerable to reversal. There was a sudden stop of capital flows in 2008–2009, when capital flows declined precipitously to $7 billion.

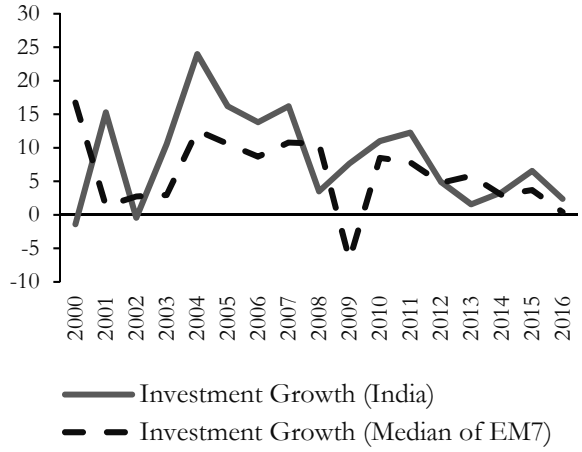
In econometric analysis (nor reported for brevity), we find that investment growth had a sharper correction in India, and picked up in the years when government expenditure grew, which is indicative of a boost through public rather than private investment. While credit to the private sector as a percent of GDP remained resilient to the GFC in the initial years after the crisis, it has since declined, and the growth rate of private sector credit has been consistently lower than in comparator countries. Interestingly, as credit growth slowed in other countries in 2008 itself, in India it remained high until later. As we discuss below, export growth slowed in India, due to the global slowdown in trade, and India's decreasing share in world exports.[25]

Figure 9: India grew faster prior to the GFC, and the correction was sharper after the GFC

9 A: GDP growth was far more rapid in India prior to the GFC



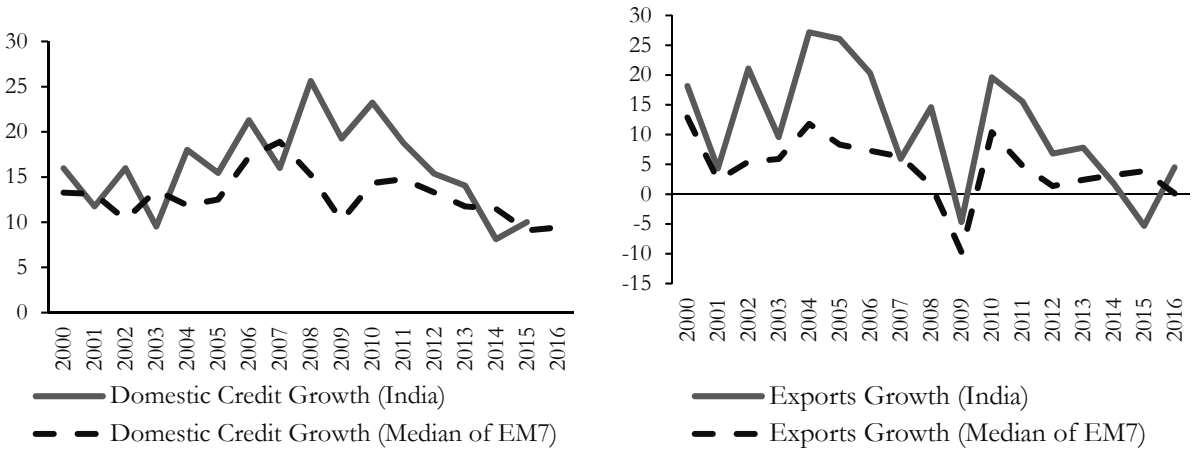
9 B: Investment growth in India outpaced growth in the EM7 before the GFC, and the correction was sharper…



9 C: …as was also the case with credit growth

9 D: …and growth of exports

[25] Some features of the economy during this period look similar to those pointed out in the literature as being associated with a credit boom, surge in capital flows and in investment levels. A significant percentage of such episodes result in growth slowdown (see for example, Dell'Ariccia et al. 2011).



Note: Central Statistics Office, and World Development Indicators. Data in the figures are for the respective calendar year. Credit growth is nominal.

3.2 Interstate Patterns of Growth during and after the GFC

To further identify the characteristics of the slowdown after the global financial crisis, we analyze how economic growth across Indian states was impacted by the GFC.[26] Unsurprisingly, we see exactly the kind of economic cycle in economic growth, credit growth, investment, and manufacturing sector at the state level as is evident at the national level.[27] The average (mean as well as median) growth rates of all of these variables increased prior to the crisis, during 2004–08, followed by a correction that started with the global economic slowdown in 2007–08; and precipitated when the GFC took hold, with the collapse of Lehman Brothers in September 2008. While GSDP growth recovered in the post-crisis years, credit growth, investment, and manufacturing growth remained subdued.

We ask whether there were any specific state-level characteristics that correlated with the impact of the GFC on the states. We define the states' dependence on agriculture, the relative importance of manufacturing in economic activity, and the credit-to-GSDP ratio as an indicator of the states' dependence on credit, and the rate of credit growth prior to the GFC (between 2004 and 2008) as an indicator of the prevalence of a credit boom in states in years prior to the GFC. While in our main specifications we compare states above and below median for these characteristics, in

[26] Data on Gross State Domestic Product are from the CMIE's states of India database. While India has a total of 36 states and union territories, we restrict our analysis to the 20 large states, including Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand, and West Bengal. Our sample covers the years 1990 to 2015 for all states except the younger states Jharkhand, Chhattisgarh, and Uttarakhand, for which credit data are only available from 2001 onward.

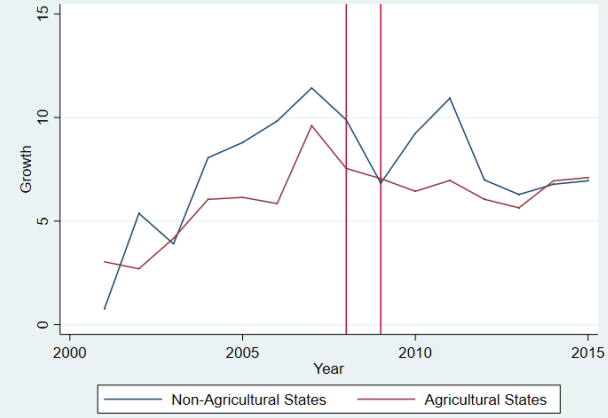
[27] Due to the unavailability of data for exports for each state, we cannot confirm the patterns in exports.

robustness tests we also define the states that are in the top one-third or bottom one-third of the respective state characteristics, or include the continuous measure of these characteristics.

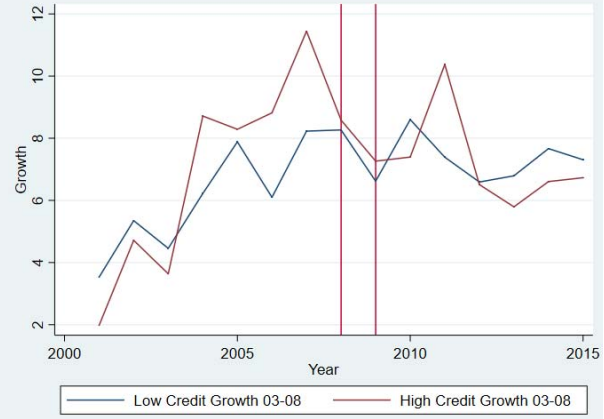
We note that the growth cycle around the GFC was more pronounced in states less dependent on agriculture.[28] Similarly, comparing states across different manufacturing shares indicates that the states with a larger manufacturing sector experienced a sharper growth slowdown (the figure is not shown for brevity). The dynamics of growth and investment also correlate with the states' credit dependence, or the pace of credit growth prior to the crisis. During the GFC, growth and investment were impacted less adversely in states with less dependence on credit (Figure 10).

Figure 10: Differential Impact of the GFC Across States

10 A: Growth cycle around the GFC was more pronounced in nonagricultural states



10 B: Growth was resilient in states that were less dependent on credit



Note: Outcome variables are measured as medians across states with the relevant characteristic. All years are fiscal years. Agricultural and credit dependency are defined with reference to fiscal year 1999/2000. Credit growth refers to the period between 2002–03 and 2007–08.

To investigate these relationships more systematically, we test whether the GFC caused differential disruptions in growth across states with higher and lower credit dependence and credit growth. In the spirit of a difference-in-difference approach, we estimate the following regression model:

$$GDP\ Growth_{it} = \beta_0 + \beta_1 State\ Type_i\ X\ Post\ GFC_t + \gamma_t + \mu_i + \varepsilon_{it} \quad (equation\ 4)$$

γ_t and μ_i denote year and state-level fixed effects, respectively. The coefficient of interest, β_1, captures the differential effect of the global financial crisis on states with a certain credit-related characteristic,

[28] See also Kumar and Subramanian (2011).

i.e., it measures the difference in GDP growth before and after the GFC in states with a given characteristic, minus the difference before and after the GFC in states without the characteristic.

Table 3 presents the results. Column 1 shows that states with credit growth above median prior to the GFC had on average a 1.45-percentage-point larger decline in GDP growth per year afterwards, compared to states with below median credit growth. Similarly, column 3 shows that the growth slowdown in states in the top tercile of the credit growth distribution was 2.39 percentage points larger than for those in the bottom tercile. The estimates are statistically significant at the 10 and 5 percent level, respectively. As a further robustness check on this result, we estimate equation 4 using the continuous variable measuring credit growth between 2003–04 and 2007–08 as the state-level characteristic. Our estimates imply that GDP growth reduced by 0.45 percentage points after the GFC for every additional percentage point increase in credit growth (column 5). Similarly, the level of credit dependence of a state's economy was negatively correlated with the effect of the GFC on growth: column 6 shows that states that had an above median credit-to-GDP ratio in 2000 experienced slower GDP growth after the GFC, compared to states with a below median credit-to-GDP ratio.

Table 3: Impact of GFC on states with varying credit growth and credit dependence

	(1) GDP Growth	(2) GDP Growth	(3) GDP Growth	(4) GDP Growth	(5) GDP Growth	(6) GDP Growth
High Credit Growth x Post-GFC (Median)	-1.449*					
	(1.854)					
High Credit to GDP x Post-GFC (Median)		-1.26				
		(1.485)				
High Credit Growth x Post-GFC (Tercile)			-2.39**			
			(2.268)			
High Credit to GDP x Post-GFC (Tercile)				-0.620		
				(0.710)		
Credit Growth 2003-08 x Post-GFC (Continuous)					-0.448**	
					(2.584)	
Credit to GDP x Post-GFC (Continuous)						-0.053*
						(2.026)
Observations	320	320	208	224	320	272

R-squared	0.312	0.311	0.281	0.379	0.318	0.289

Notes: The above table presents regression estimates of equation 4. We include state level fixed effects in the regressions to account for time invariant state characteristics. We estimate the regression using data from 1999–2000 onward for the sample of the large Indian states. All specifications are estimated with heteroskedasticity robust standard errors.

3.3 Policy response to the GFC and macroeconomic stability

The impact of the GFC on different countries and the pace of recovery depended both on the preconditions, such as the pace of GDP growth, and credit and investment growth in the years prior to the crisis, and on the policy response to the crisis. The initial impact of the crisis is considered relatively mute on India (see Acharya 2012), largely due to a prompt and rather large policy response to the crisis, including monetary policy easing, a large fiscal stimulus, and regulatory forbearance on banks (or what some have referred to as the "evergreening of loans").[29] Mohan and Kapur (2015) and Mundle et. al. (2011) have persuasively argued that in the run-up to the 2009 general election, the fiscal stimulus in fact started prior to the GFC. The excessively stimulative policy response and the subsequent macroeconomic management of the economy however worsened macroeconomic stability and possibly prolonged the slowdown. The slow and delayed recognition and resolution of stressed bank assets subsequently added to the issues with impaired balance sheets.

A fallout of these policies was that some of the macroeconomic indicators reached crisis proportions by 2013, as the general government deficit touched nearly 10 percent of GDP; inflation reached double-digit levels; the current account deficit increased to 5 percent of GDP; and the quality of public expenditure possibly worsened due to a decline in the share of capital expenditure. Hence, it is unsurprising that as the market sentiment turned against emerging markets in summer 2013, during the "tapering talk," India was one of the most impacted economies.[30]

The tapering talk episode started on May 22, 2013, when Federal Reserve Chairman Ben Bernanke first spoke of the possibility of the U.S. central bank reducing the pace of its security purchases. Even though this announcement had a sharp negative impact on many emerging markets, market commentary focused most on five countries, Brazil, Indonesia, India, Turkey, and South Africa, christened as the "Fragile Five." Within this group, India had the second-largest exchange rate depreciation and the second-largest decline in reserves. With the rupee depreciating by 18 percent at one point, bond spreads increasing, and equity prices falling, some were concerned that the country was heading toward a financial crisis.[31]

[29] Repo rates dropped from 9% in Sept. 2008 to 3.25% in April 2009 and the center's fiscal deficit increased by 5 ½ percentage points of GDP.

[30] The period of the tapering talk is generally referred to that between May 22, 2013, and September 18, 2013.

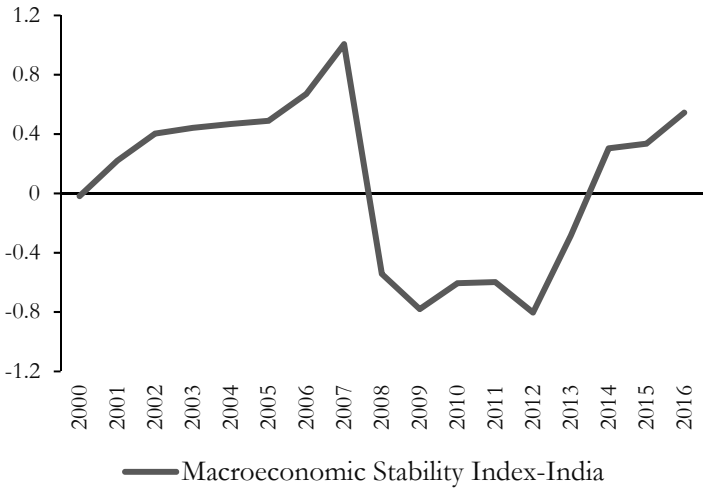
[31] See e.g. "India in crisis mode as rupee hits another record low," http://money.cnn.com/2013/08/28/investing/india-rupee/; "India's Financial Crisis, Through the Keyhole," http://www.economist.com/blogs/banyan/2013/08/india-s-financial-crisis.

Eichengreen and Gupta (2014) show that the emerging markets that allowed their real exchange rate to appreciate and the current account deficit to widen during the period of quantitative easing experienced a larger impact of the tapering event. Basu, Eichengreen, and Gupta (2015) show that India had received large capital flows in prior years and had large and liquid financial markets that were a convenient target for investors seeking to rebalance away from emerging markets; and its macroeconomic conditions had weakened in prior years, which rendered the economy vulnerable to capital outflows and limited the policy room for maneuverability. India's current account deficit increased from about 1 percent of GDP in 2006 to nearly 5 percent in 2013, and its real exchange rate appreciated markedly. Furthermore, the fiscal deficit increased, and inflation at about 10 percent was stubbornly high. The policy interest rate was already high, the RBI having raised it from 3.25 percent in December 2009 to 8.5 percent in December 2012.[32]

The underlying drivers of India's reduced macroeconomic stability, specifically the factors contributing to the high fiscal or current account deficit, also contributed to increased economic and financial vulnerabilities. The increase in fiscal deficit was due to an increase in current expenditure, rather than to a pickup in public investment; while the increase in expenditure was due to increased subsidies (on energy, food, and fertilizer) that added up to 2.3 percent of GDP in 2008–09, (an increase of nearly 1 percentage point of GDP over the previous year); as well as debt waivers, pay commission awards, and expansion of the National Rural Employment Guarantee Act from 200 districts to 600 districts. Some of the increase in its current account deficit, largely a mirror image of the increased current expenditure, was due to the diversion of private savings into the import of gold. This reflected a dearth of attractive domestic outlets for personal savings in a high-inflation environment, where real returns on many domestic financial investments had turned negative.

Figure 11: Macroeconomic Stability deteriorated significantly during and after the Global Financial Crisis

[32] If the increase in the fiscal deficit was in response to the GFC, India seemingly overreacted. Its deficit increased by more than in many other large emerging markets, a corollary of which is that inflation also increased by more than in other countries.



Note: Data is from World Development Indicators. Years refer to respective Calendar Years. Index is constructed as an average of the standardized indexes of inflation (CPI inflation), current account deficit (percent of GDP), and fiscal deficit (percent of GDP).

These results highlight the importance of having in place a policy framework that limits vulnerabilities, and maximizes policy space for responding to shocks. Elements of such a framework include maintaining a sound fiscal balance, a sustainable current account deficit, an environment conducive to investment, managing capital flows so as to encourage relatively stable longer-term flows and discouraging volatile short-term flows, avoiding excessive appreciation of the exchange rate, holding a large stock of reserves, and preparing banks and corporates to handle greater exchange rate volatility.

3.4 Current Cyclical Dynamics

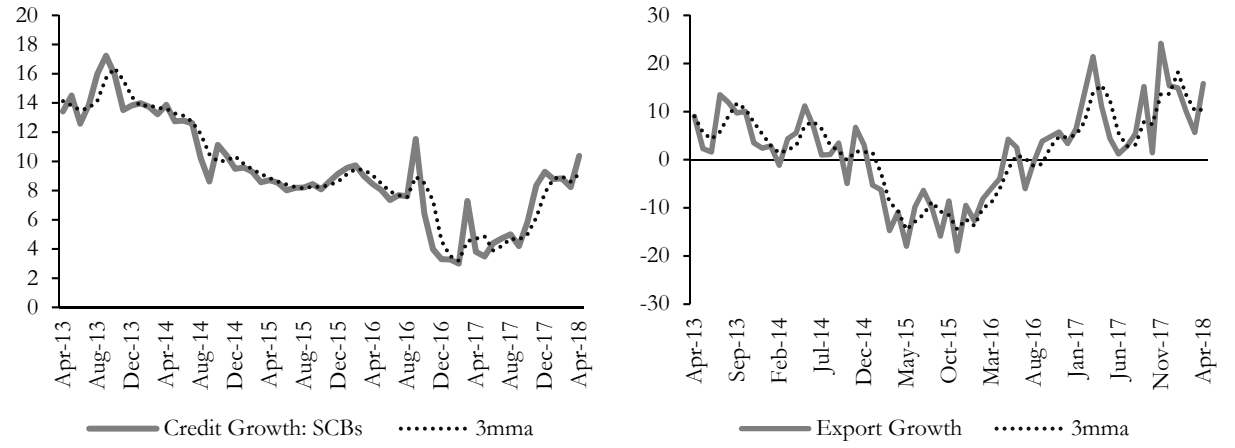
Next, we analyze the dynamics of the Indian economy in the last few quarters and put them in context with the long-term experience discussed above. Most recent commentaries on the Indian economy focused on an ominously declining growth rate over a five-quarter period, from 9.3 percent in Q4, 2015–2016, to 5.6 percent in Q1, 2017–18. Below we analyze the growth rate of quarterly GDP and its decomposition for the period starting 2013–14 through 2017–18 (Figure 13 and Figure 14).

Two points are noteworthy. First, growth in the two quarters of Q1, 2016–17, and Q2, 2016–17 averaged 7.9 percent, higher than the average growth rate in recent quarters, or recent years. It would be erroneous to treat these as a part of the deceleration phase. Hence the discussion around a five-quarter phase of deceleration should really center only around the three quarters during Q3, 2016–17 through Q1, 2017–18, when growth rates at 6.8, 6.1, and 5.6 percent, respectively, deviated significantly from the trend. Incidentally, these quarters coincided with the twin policy shocks consisting of demonetization and the implementation of the GST. Sectors such as manufacturing and construction were reportedly most affected by the implementation of the GST and demonetization;

in addition, an investment slowdown and increase in imports also impacted growth during the three quarter deceleration period of Q3, 2016–17 through Q1, 2017–18.[33]

Second, many economic indicators now firmly point that these events had a transient impact as the economy has been slowly recovering from them.[34] Growth has since steadily accelerated to 6.3, 7.0, and 7.7 percent in the last three quarters spanning Q2, 2017–18 to Q4, 2017-18. Economic revival is also evident in high frequency indicators such as the Purchasing Manager Index (PMI) and the Index of Industrial Production (IIP). Both of these confirmed a sharp slowdown in the months surrounding the introduction of the GST, but have recovered and have registered a consistent expansion in recent months. While consumption and services continue to be the main drivers of growth in the last three quarters of 2017-18, the contribution of the public sector to GDP growth has declined, and growth in the manufacturing and construction sectors has accelerated. Even as the investment rate broadly remains burdened by stressed balance sheets of banks and corporates (twin balance sheet issues), investment growth has picked up in recent quarters. Credit growth, and to a lesser extent exports growth, has also recovered in recent months after a protracted period of deceleration (Figure 12).[35]

Figure 12: High frequency data suggests some uptick in credit growth and exports



Note: Credit data is from the Reserve Bank of India; Exports data is from Ministry of Commerce and Industry. 3mma refers to three months moving average.

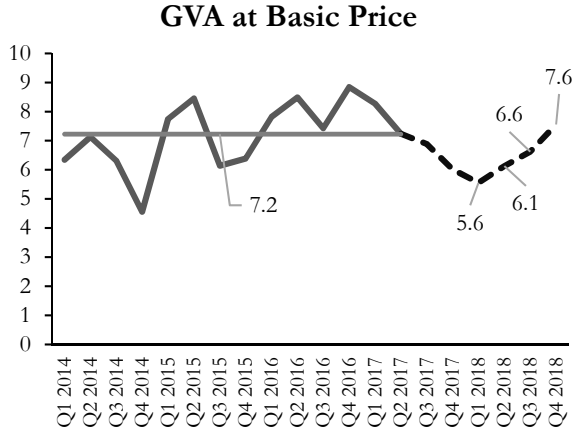
[33] Due to the GST-related uncertainties, producers destocked their existing inventories, while exports declined, and gold imports nearly doubled, as buyers front-loaded their purchases. Once the initial uncertainties abated, economic activity recovered, and new orders, including in manufacturing, reportedly picked up.

[34] In our analysis we see the transient impact of demonetization on financial, real estate and professional services, and on construction, but not so much on other sectors of the economy. On the uses side, deceleration was more evident in an already slowing rate of investment; and in an escalated level of import of gold (possibly due to capital flight).

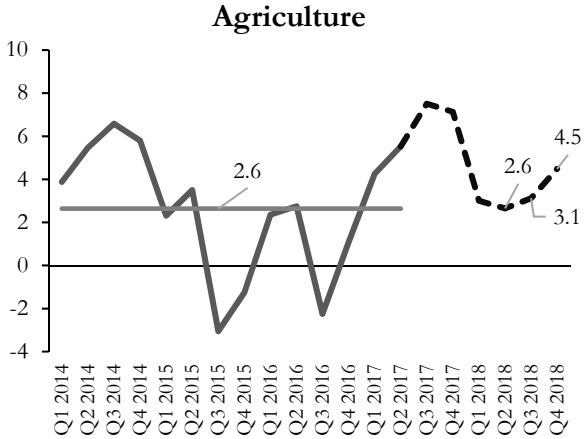
[35] Outstanding credit by only Scheduled Commercial Banks; we do not consider credit by non-scheduled banks or other financial corporations. The same applies to the discussion of bank credit under section 4.3.

Figure 13: Growth recovered across sectors during Q2, 2017-18 to Q4, 2017-18

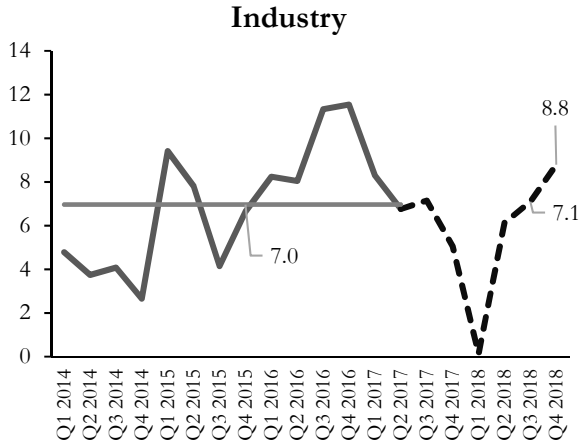
13 A: Growth slowdown has likely bottomed out…



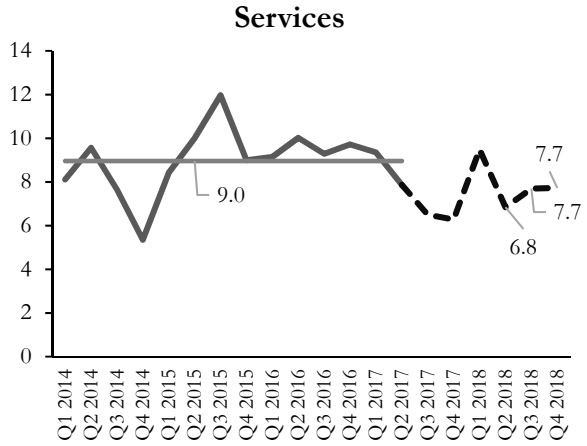
13 B: …as agricultural growth has picked up



13 C: Industrial growth has revived…

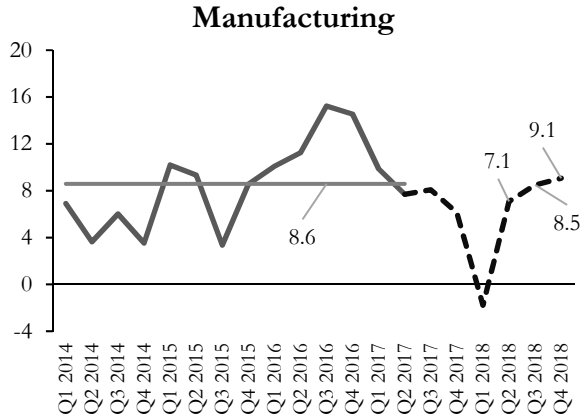


13 D: …and services continue to do well



13 E: Manufacturing has picked up

13 F: Construction sector activity has revived


Manufacturing
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4
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7.1
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Q2 2014
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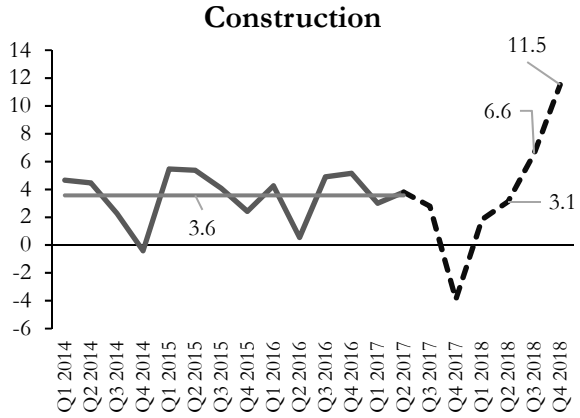
Q4 2018


Construction
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-4
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Q4 2014
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Q2 2015
Q3 2015
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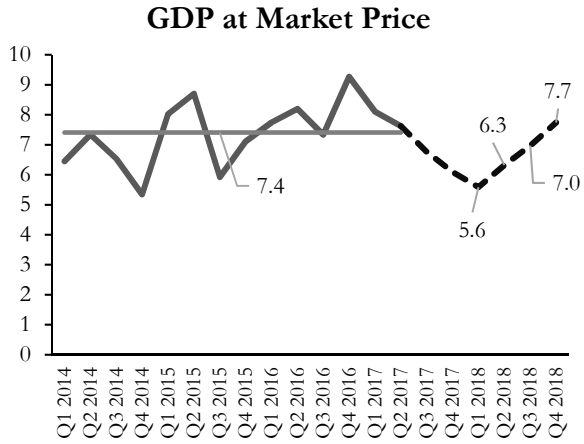
Q2 2016
Q3 2016
Q4 2016
Q1 2017
Q2 2017
Q3 2017
Q4 2017
Q1 2018
Q2 2018
Q3 2018
Q4 2018

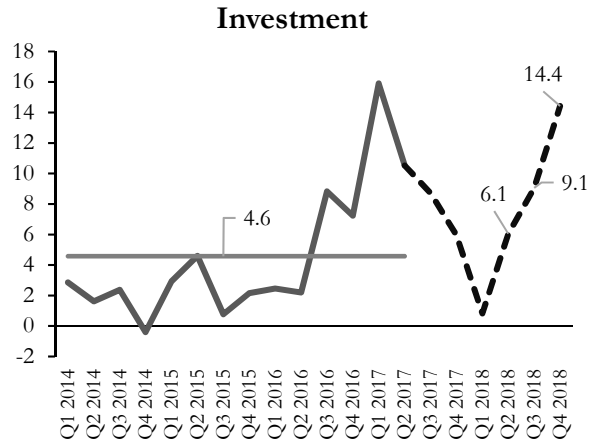
Note: Central Statistics Office data for respective fiscal year; averages indicated are for Q1, 2014–Q2, 2017.

Figure 14: GDP growth recovered during Q2, 2017-18 to Q4, 2017-18

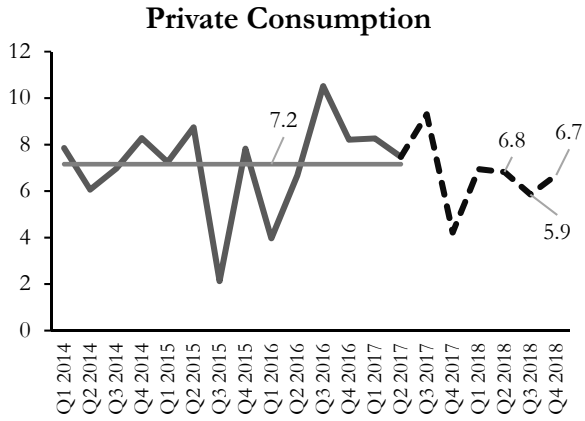
14 A: GDP growth recovered



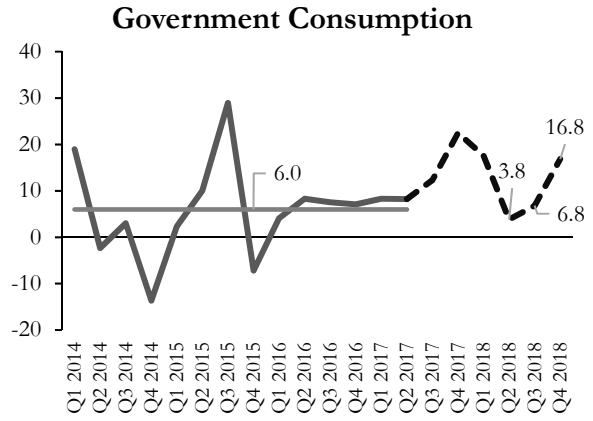
14 B: Investment growth picked up after remaining subdued



14 C: Private consumption growth remains at levels seen in the past

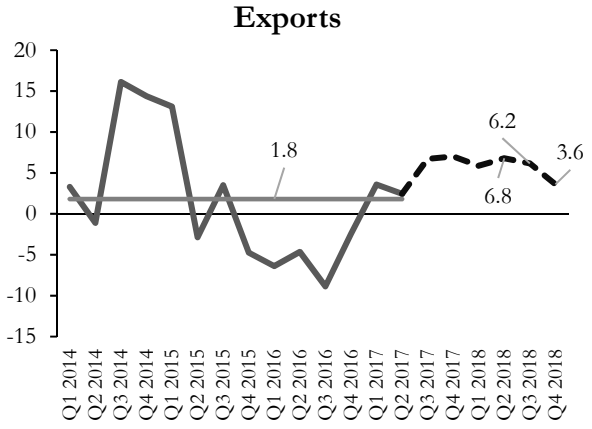


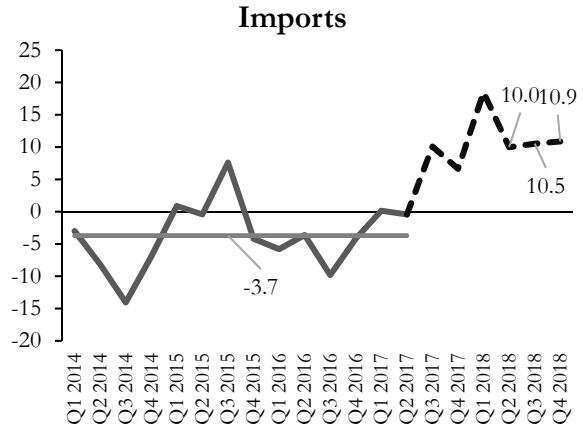
14 D: Government consumption growth is mostly at levels seen in the past



14 E: Exports growth shows modest pick up

14 F: Import growth has picked up





4. Continued Challenges for the Indian Economy

In this section we take a look at the past episodes of high growth rates in India, defined as those when growth reached 8 percent or higher, and ask whether similar levels of growth rates seem feasible in the near term, and what kind of challenges may need to be overcome for growth to move to a higher rate trajectory. We also discuss whether there is any room, or rationale, for countercyclical policies to support growth, and how is the external environment is poised to support a higher growth rate in India.

4.1 Past episodes of high growth

A review of the data since 1971 reveals that there have not been many episodes when annual growth rate exceeded 8 percent. There have been six episodes over the last five decades, for a total of 11 years (including two years when the growth rate was 7.9 percent), when the growth rate in each year neared 8 percent or higher. With the exception of a five-year period, 2003–04 through 2007–08, most of these episodes of high growth did not sustain for more than a year (Table 4). Rather growth acceleration lasted for only one year, and corrected sharply a year later (Figure 15).[36] In some of these episodes, high growth was on account of an unusually good agricultural output (1976, 1989), due to the low base impact of slow growth in the previous year. In others, it was an outcome of stimulative fiscal or other macroeconomic policy (such as 2010–11), and hence proved to be unsustainable. The only durable episode that lasted from 2004 to 2008, was dependent on a comprehensive reform agenda, an unusual buoyancy in the global economy, and easy global liquidity.[37]

[36] This is not unusual, as cross-country experience shows that a large percentage of high-growth episodes unravel within years (see Berg et al. (2008); and Pritchett and Summers (2014)).

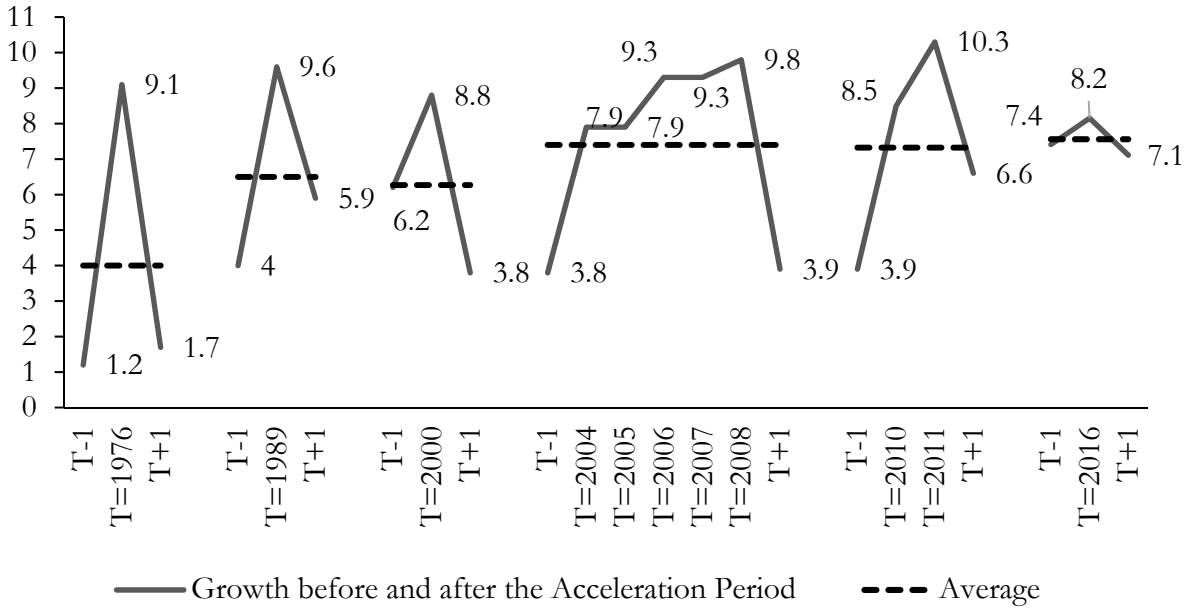
[37] See Panagariya (2018) for a discussion of how reforms undertaken in the 1990s and early 2000s translated into higher growth subsequently.

Table 4: Episodes of "high growth"

Growth rate	**No. of episodes**	**Time period***
≥ 8	6; total number of years: 9	1976, 1989, 2000, 2006–08, 2010–2011, 2016

* Year reported as fiscal year.

Figure 15: Many episodes of "high growth" lasted only for a year

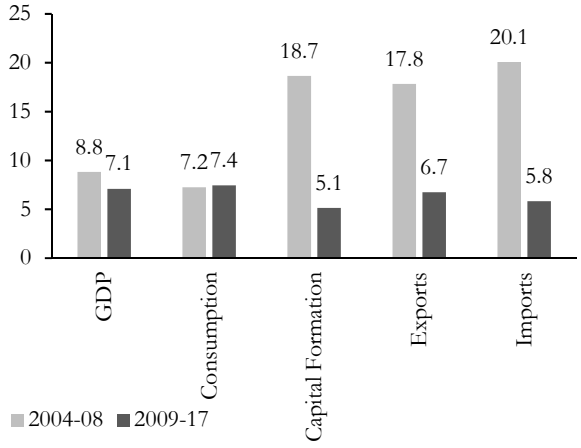


Note: Central Statistics Office data. Years refer to respective fiscal years.

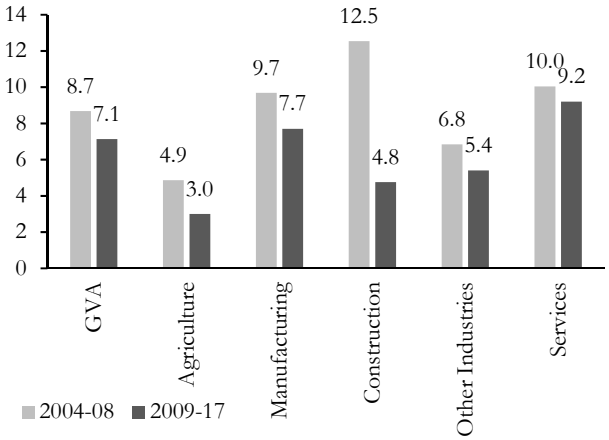
We note that the high growth rate attained during 2004-08 reflected in robust growth rates in all domestic sectors (Figure 16). In contrast, several sectors have lagged in the last decade. Economic growth has been increasingly driven by consumption (private and public) since 2009, while two important engines of growth, private investment and exports, have continued to underperform. This trend is particularly concerning as investments and exports are not just important direct sources of growth and productivity, they also determine the technological capability, as well as the competitiveness of a country's production structure. We infer that, in an accounting sense, sustaining a growth rate higher than that indicated by the trend growth rate of 7.0-7.5 percent, will require contributions from all domestic sectors. Besides, at a time, when the economy is fairly open, it will be difficult to sustain such levels of growth only with the support of domestic factors, and will require support from the global economy.

Figure 16: Growth during 2004-08 built on robust growth across domestic and external sectors

16 A: Average growth across uses during and after the boom years of 2004–08



16 B: Average growth across sectors during and after the boom years of 2004–08



Note*:* Central Statistics Office data. Data are in constant Indian rupees (INR). Years are fiscal years.

Following first a period of unstainable boom and then of economic slowdown, and the buildup of macroeconomic unsustainability, reforms have been designed and successfully implemented in a number of areas in recent years-- a new inflation targeting framework has been implemented, energy subsidy reforms have reduced the level of subsidies, the level of fiscal deficit has been contained, fiscal federalism has been strengthened, and the quality of fiscal expenditure has improved. The impact of some of these reforms is evident in a significant improvement in macroeconomic stability.[38] Besides, there have been continuous efforts to improve the business environment, to ease inflows of FDI, improve credit discipline through the introduction and strengthening of an insolvency and bankruptcy framework, and widen access to financial services. The Goods and Services Tax (GST) code has been implemented which has harmonized the tax rates across states and goods and services, and has the potential to boost interstate trade, formalize the economy, and improve the tax base. The expectation is that these reforms will help sustain current growth rates while ensuring macroeconomic stability.

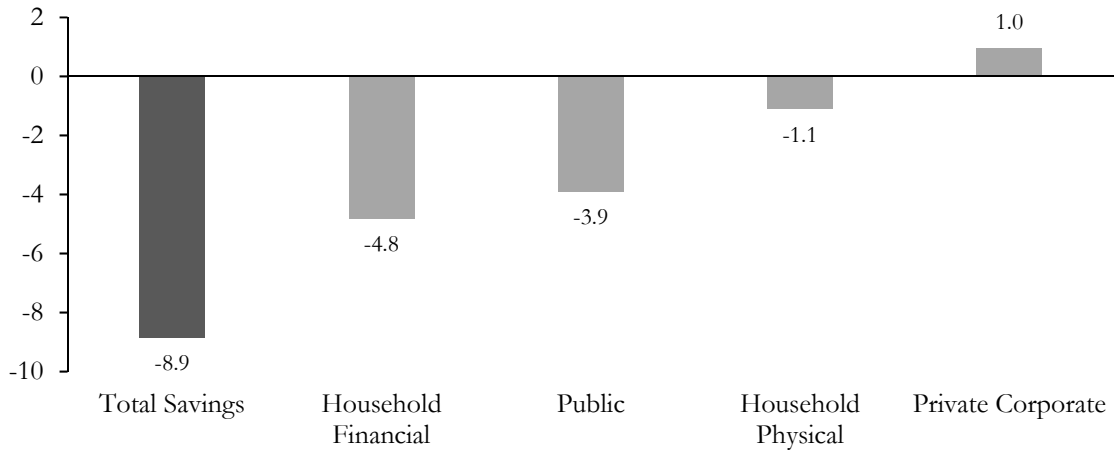
In addition, reversing the slowdown in specific sectors will require a careful analysis of their causes, and implementation of policy actions that are timely, wide-scoped, and innovative. Maintaining the ongoing reform momentum, and widening its scope will help revive growth in private investment, credit, and exports, in order to sustainably attain growth rates exceeding 8 percent. Below we offer some perspectives on the challenges that may have been holding down the potential in these sectors and the related policy issues.

4.2 Continued subdued rate of investment is worrisome

After increasing slowly but steadily over the last several decades, and rapidly during the period of high growth, 2004–08, savings and investment rates have been declining since 2009. The savings rate has declined since the GFC, after registering a large increase in prior years, and is evident in a decline in the household physical savings rate, household financial savings rate, and in government savings. In contrast, the corporate saving rate has increased during the same period.

Figure 17: Contribution to Decline in Average Saving Rate between 2007–08 and 2016–17

[38] A sharp decline in oil prices, starting in mid-2014, low global inflation, and continued easy global liquidity provided the conditions conducive for the implementation of some of these reforms.

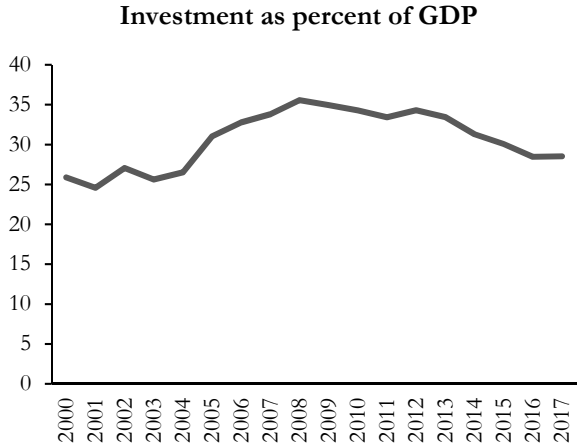


Note: Data is from CEIC. Figures show the difference between the average rate in 2016 and 2017, over 2007 and 2008.

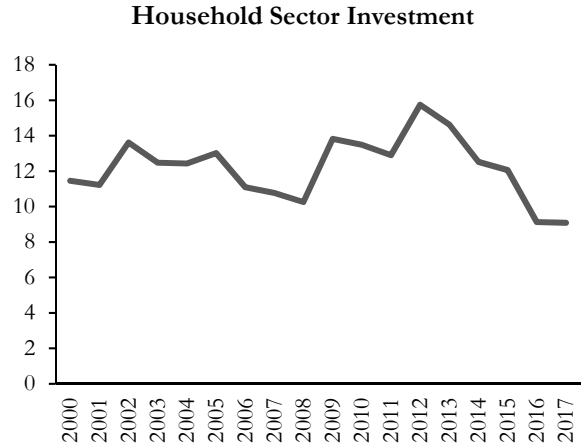
The investment rate has declined as well since the GFC, after registering a rapid increase in prior years. The decline is most evident in the corporate investment and household physical investment rates. There is a divergence in the corporate savings and investment rate, since while the corporate savings rate has increased, its investment rate has declined.

Figure 18: Trends in Investment Rate

18 A: The investment rate has declined since the GFC…

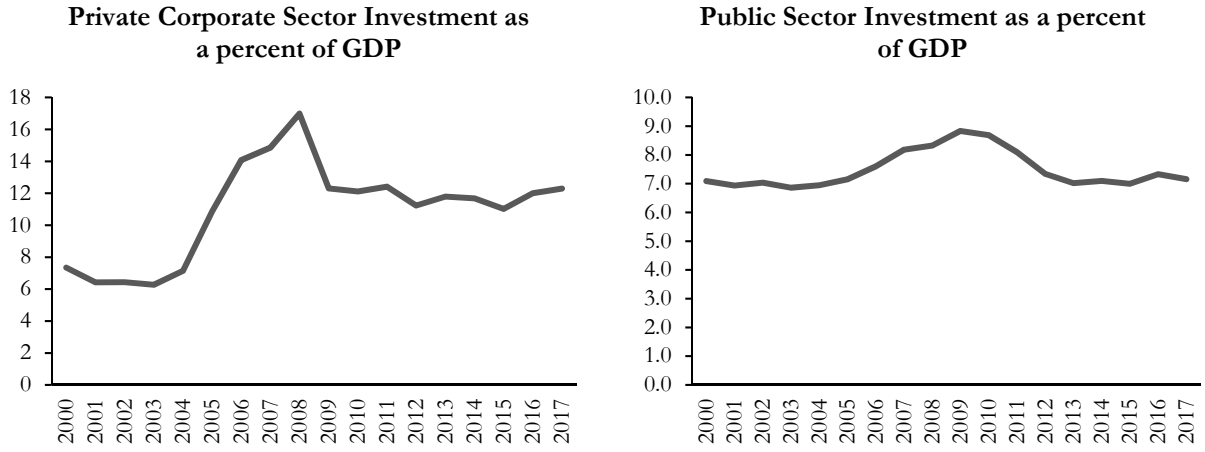


18 B: …the decline is evident in household investments…



18 C: …and private corporate sector

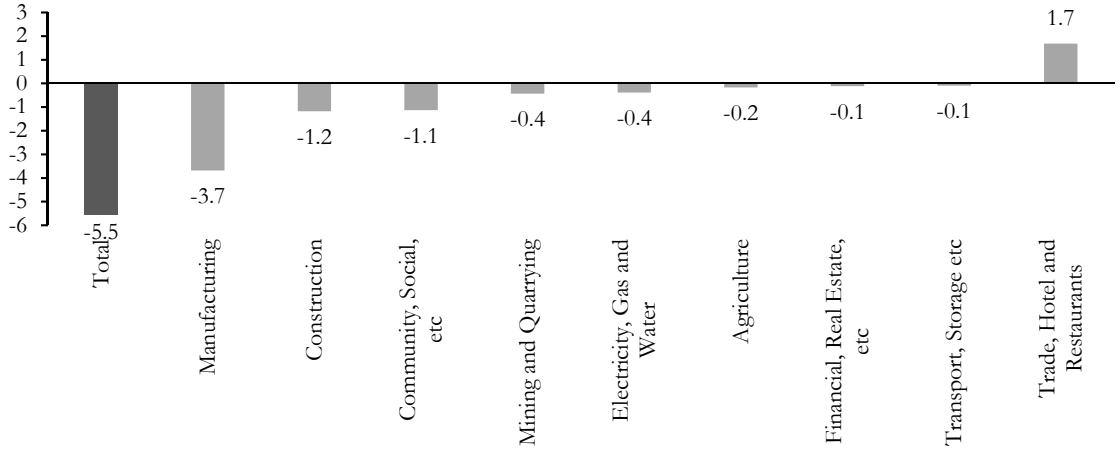
18 D: While public investment fell after GFC, it has increased modestly in recent years



Note: Data is from CEIC and presented for fiscal years. Investment rate is defined as gross fixed capital formation in percent of GDP.

Investment slowdown pervades across several sectors of the economy, most prominently in manufacturing and construction (Figure 19). Overall, the investment rate declined by approximately 4.9 percentage points during 2007–08 and 2015–16, driven by manufacturing, with the investment rate declining by 3.7 percentage points, followed by construction. Investment rates declined in other sectors too, but increased in trade, hotels, and restaurants.

Figure 19: Decline in Average Investment Share of GDP between 2007–08 and 2015–16

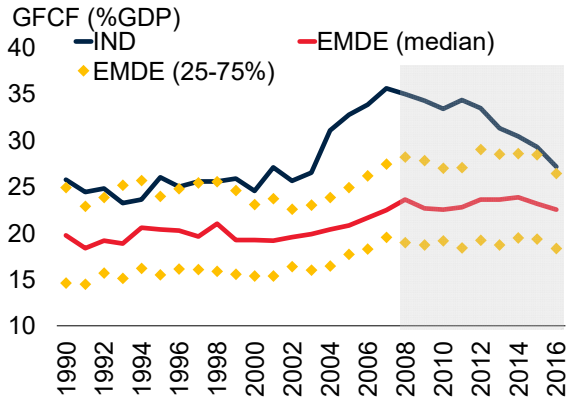


Note: Data is from CEIC. Figures show the difference between the average rate in 2015 and 2016 and 2007 and 2008.

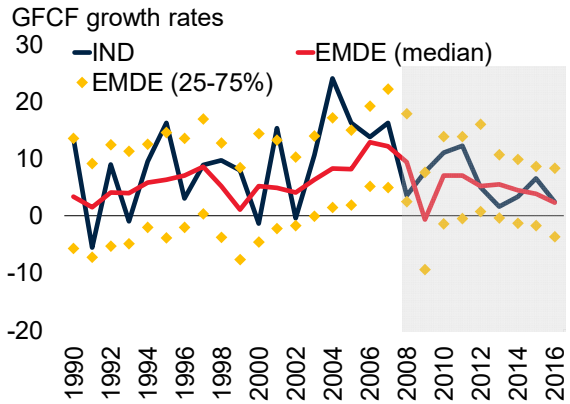
In cross-country comparison of the trends in investment rate, we note that the Indian experience differs from that of other emerging markets in that the investment rate increased far more rapidly in India prior to the GFC than in other countries, and the decline after the crisis is steeper too. This cycle is evident both in public and private investment rates, as both increased in the few years prior to the global financial crisis and declined thereafter. While private investment has continued to remain depressed in recent years, public investment rates have increased.[39]

Figure 20: A comparative analysis of the rate of investment in India and other developing countries

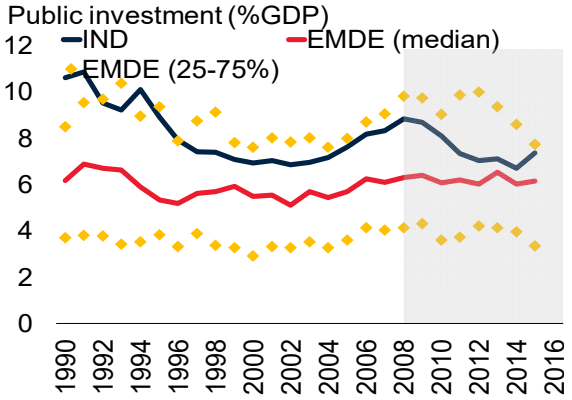
20 A: GFCF (% GDP)



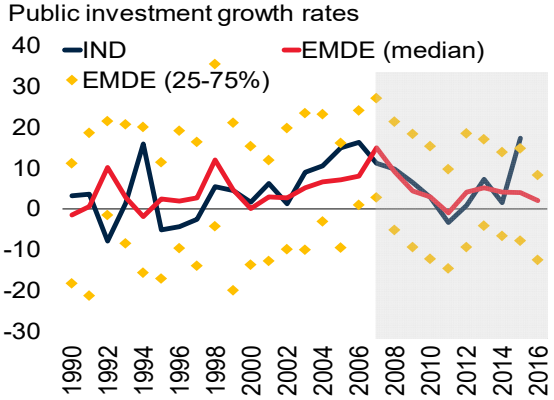
20 B: GFCF growth rates



20 C: Public investment (% GDP)



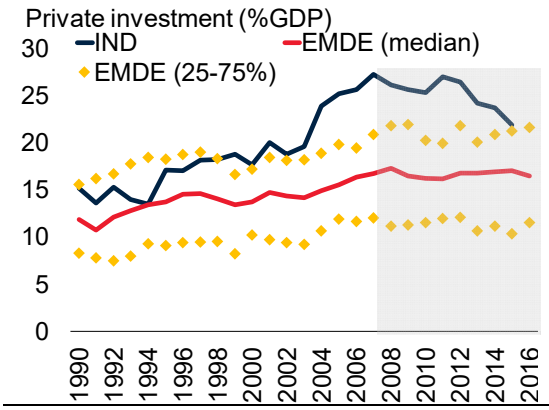
20 D: Public investment growth rates

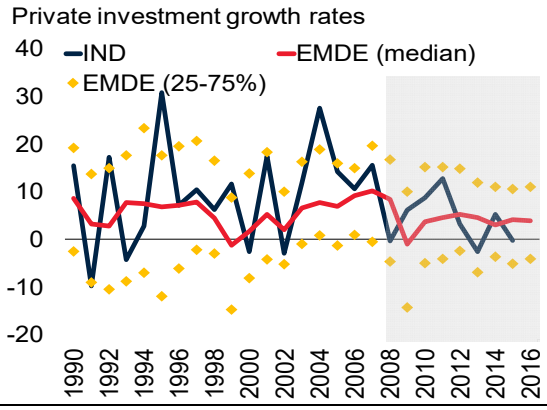


20 E: Private investment (% GDP)

20 F: Private investment growth rates

[39] The level of investment in India has been large, despite recent correction.





Private investment in India is likely constrained by several factors. There are issues related to past leverages as well as subdued market demand.[40] Going forward, de-risking the private sector may be important, as it may be to further ensure an environment of policy certainty. Understanding and relieving the generic, spatial, or sector-specific constraints to investment growth may be important too. Reviving private investment in areas such as infrastructure to finance India's long-term investment needs would be useful.[41]

4.3 Reviving bank credit and resolving asset quality issues to support growth

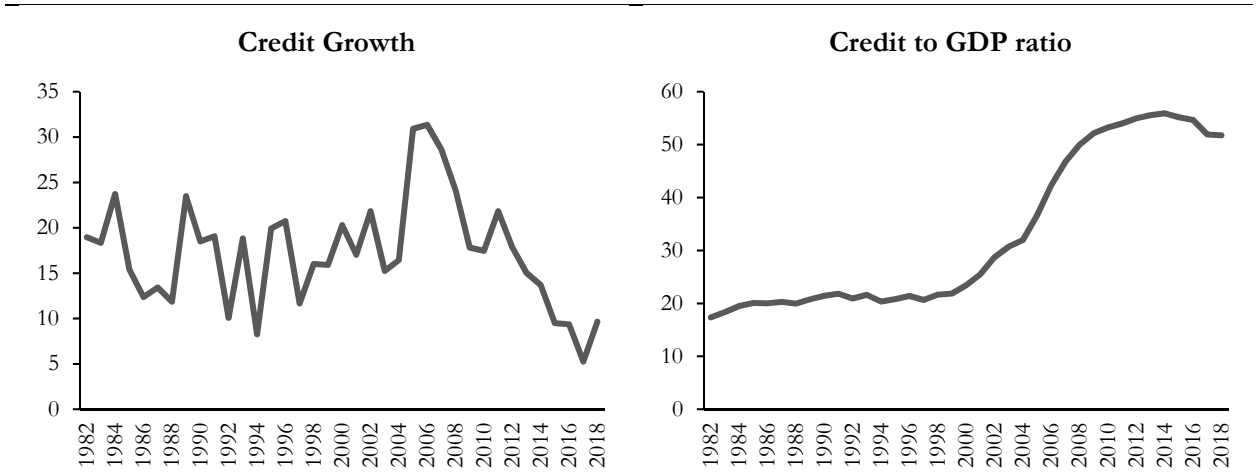
The last few years have been challenging for the Indian banks, as the pace of credit growth remains subdued, and the stress on asset quality continues. Bank credit growth has consistently declined since the GFC, after increasing briskly for a few years before that. The annual average growth rate of bank credit was 9.5 percent in 2014-17 compared to 26.3 percent in 2004-08. As a result, credit to GDP ratio has declined in recent years, after peaking at 56 percent in 2014, and after doubling within a span of 7 years from 25.5 percent in 2001 to 52 percent in 2008.

In addition, after a decade long declining trend, the ratio of gross non-performing assets to advances (GNPA) of Scheduled Commercial Banks (SCBs) increased from 2 ½ percent in 2007 to 9.3 percent in 2017. The asset quality of SCBs deteriorated across sectors, with the largest deterioration in the industrial sector. The level of stressed assets (NPAs and restructured loans) has

[40] Deleveraging could be one reason behind the slow pace of investment growth--Indian businesses over invested and over leveraged during the boom years. Yet, due to the slow pace of resolution, businesses have been unable to deleverage quickly and start investing afresh. There may also be sectoral constraints to investments in sectors such as construction, leather, infrastructure, telecom, and energy. If the investment slowdown is concentrated in export-oriented firms, it may be indicative of specific constraints related to the size of the external markets, and to their competitiveness.
[41] The World Bank has recently suggested a "Maximizing Finance for Development (MFD)" approach to crowd-in private financing through the use of public instruments such as guarantees, and by removing policy or regulatory gaps. The idea is to leverage more private investment, while reserving scarce public financing for areas where private sector engagement is unavailable or not optimal.

been above 10 percent since 2014. The RBI's Asset Quality Review in late 2015 resulted in a large migration of restructured loans into NPAs and new NPA recognition.[42]

Figure 21: Trend in banking credit from Scheduled Commercial Banks



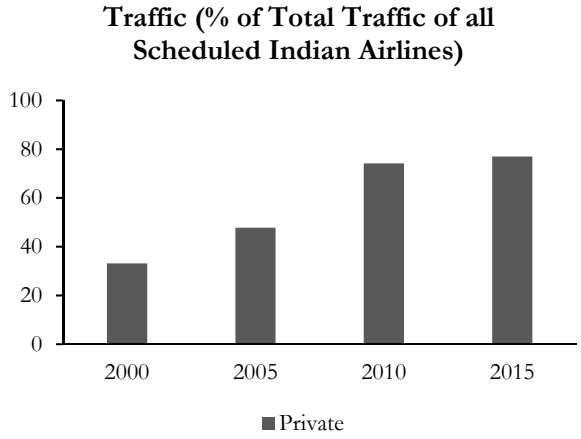
Note: Data is from the Reserve Bank of India. Years refer to respective fiscal years.

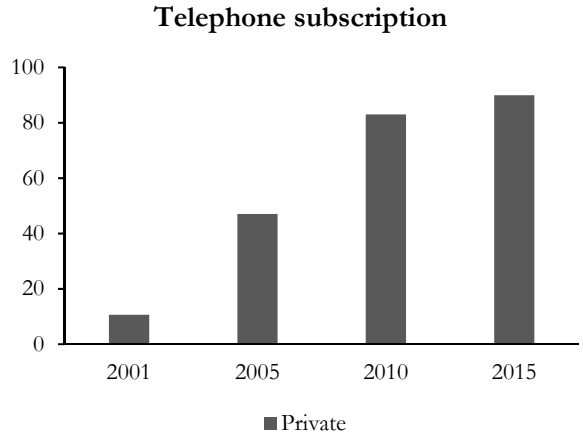
There is a predominance of banks in the Indian financial system, and that of public sector banks (PSB) in the Indian banking sector. Banks account for 60 percent of financial system assets, while 70 percent of banking assets are held by the PSBs. Interestingly, the share of publicly owned banks has remained largely unchanged, even as the ownership has decisively become more mixed in other hitherto majority government-owned sectors of the economy, such as aviation and telecom.

Figure 22: Ownership structure of the Banking, Aviation, and Telecom Industries

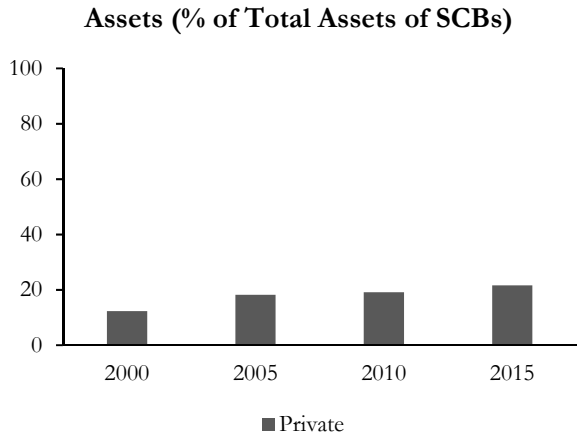
22 A: Share of private sector continues to increase in the aviation and telecom industry

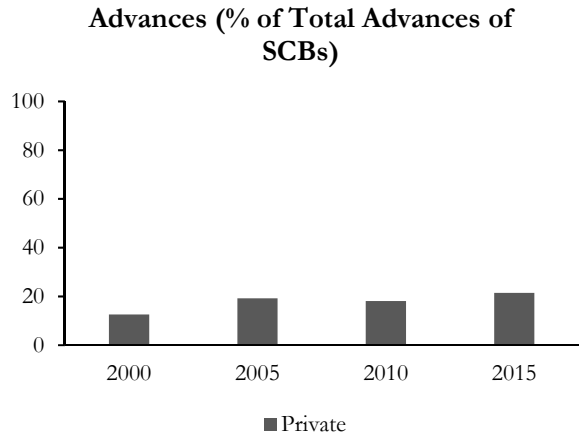
[42] See World Bank's FSAP, 2017.





22 B: But remains low and sticky in the Banking space.…

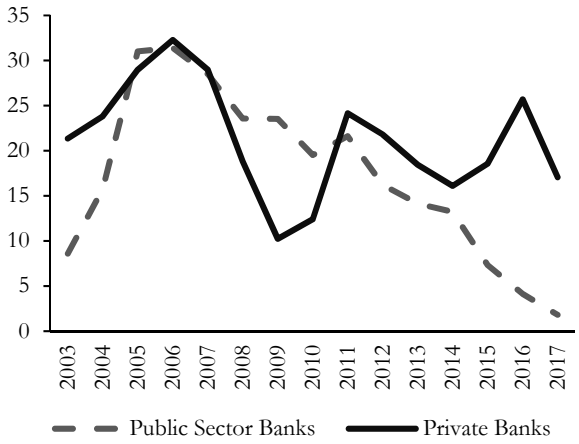




Note: Data is from the RBI (banking), Directorate General of Civil Aviation (Aviation), data.gov.in, and TRAI (Telecom). Years refer to respective fiscal year.

There has been a distinct difference in the trends for credit growth and asset quality for public sector banks and private banks. Credit growth has been slower and the pace of bad assets higher for public sector banks. In the last few years, the pace of growth of public sector bank credit (outstanding) has continued to decline, growing at 1.8 percent in 2017, the lowest in the last two decades. On the other hand, credit by private banks grew at double digit rates.

Figure 23: Growth of outstanding credit has declined in the last few years; decline is sharper for public sector banks

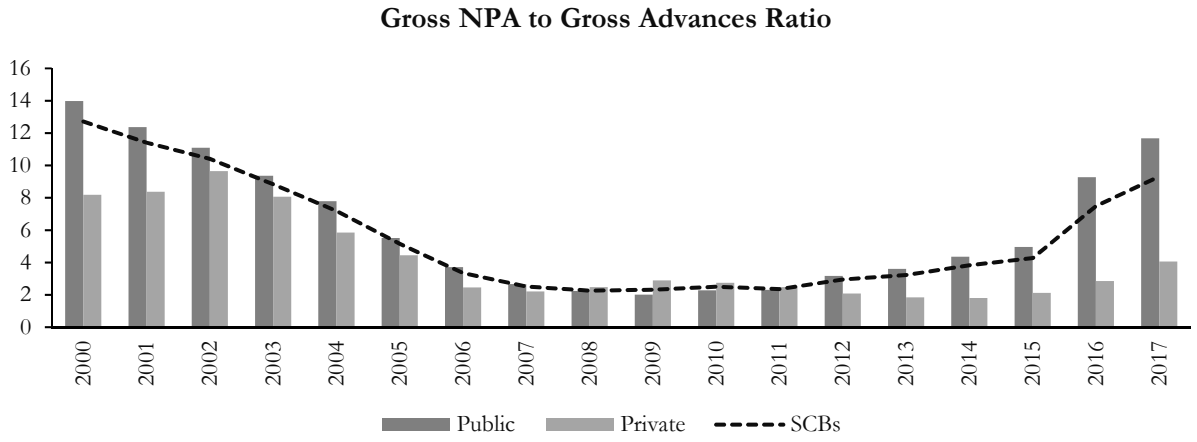


Note: Data is from Reserve Bank of India. Years refer to respective fiscal years.

There has been a long downward trend in the high NPA level since the late 1990s. The PSBs had a higher non-performing asset ratio at that time. As PSBs gradually reduced their NPAs, the NPAs continued to grow at private sector banks till early 2000s. In recent years the ratio of nonperforming assets has increased in PSBs. Besides, there is also a stark contrast between the profitability of PSBs and private banks. Public sector banks have continued to record negative profitability ratios since March 2016. Return on assets of public sector banks was -0.1 percent in September 2017, and its return on equity was -2.0, compared to 1.4 percent and 11.9 percent respectively for private banks. [43]

Figure 24: Gross NPAs to Gross Advances of the Banking System

[43] The allocative efficiency of the public-sector-dominated Indian banking sector is considered to be low, holding back potential investments and economic growth. Banerjee et al (2004) characterize the Indian public banks as "lazy", since the lending decisions of their managers are not based on the current or expected profitability of firms; they under-lend to the private sector and overinvest in government securities. They explain that the employees of the public-sector banks are treated as public servants by law, and hence if they take decisions which result in direct financial gain to a third party, they may be held guilty of corruption. The bankers thus choose to lend less to the private sector; and disproportionately more to the government. Gupta et al (2015) too show that the Indian public banks allocate a larger share of their assets into government securities; and in doing so they respond more to the level of fiscal deficit than to market signals or even the SLR ratio.



Note: Data is from Reserve Bank of India. Years refer to respective fiscal years.

According to experts, the distorted incentive structure coupled with political compulsions has resulted in allocative and operational inefficiencies of a public sector led banking sector, and to periodic loan write-offs, e.g. to the agriculture sector, and under recovery of the corporate credit. Reconsidering the ownership balance, and the incentive and governance structure may be important in order to alter the perennial cycle of allocative and operational inefficiencies.

Under its current balance sheet situation, the banking sector does not seem well equipped to help finance higher growth or investment rate, and suitable reforms will be needed to reverse this equilibrium.[44] In this direction, the government announced an unprecedented recapitalization of public sector banks on October 24th, 2017. The proposed measures include recapitalization of approximately INR 2.11 trillion (around $32 billion) over the next two years. The government proposed to fund it through budgetary provisions amounting to approximately INR 180 billion; recapitalization bonds to the tune of INR 1.35 trillion; and direct capital raising by banks from the market by diluting government share (an estimated INR 580 billion). The recapitalization ensured continuity and stability in the system, but needs to be followed by wider reforms.

The government also implemented and strengthened a new Insolvency and Bankruptcy Code. While an important step toward changing the credit culture, the policy will take time to help clean the balance sheets, and is unlikely, on its own, to improve capital adequacy of banks.

A dynamic measurement of public sector banks' governance and financial performance metrics could be deployed to systematically address moral hazard concerns. Additional measures to durably enhance the stability and efficiency of the financial sector could include consolidation of public-sector banks; revising their incentive structure to align more closely with their commercial performance; ensuring a level playing field for private banks; and opening the space to greater competition. It will

[44] These have been discussed in the Nayak Committee report, the Indradhanush plan, and the recently concluded joint IMF-World Bank FSAP report.

be useful to take a call on what part of the ongoing spike in NPLs is cyclical and what part is structural. While the former can possibly be reversed with a cyclical turnaround of the economy, or addressed better through cyclical solutions such as regulatory forbearance, the latter ought to be addressed through structural solutions such as altering the ownership mix. The issue also ties in with the pace of resolution: for the cyclical part of the problem, perhaps more patience is warranted until the cyclical recovery takes hold, whereas the structural issues are unlikely to get resolved on their own, and may require fast and decisive actions.

The government is reportedly currently exploring different options to resolve the problem of high NPLs. Some of these measures such as mergers within the public-sector banks have been used earlier; while others are more novel in the Indian context, including setting up of a bad bank, or the aggressive use of bankruptcy procedures in loan recovery. It would be useful to consider the merits of these options, in view of cross-country experiences. Other issues that could be afforded specific attention are on building risk assessment capabilities within the regulator and the banks; and developing and strengthening the personal bankruptcy framework.

4.4 Making exports competitive again

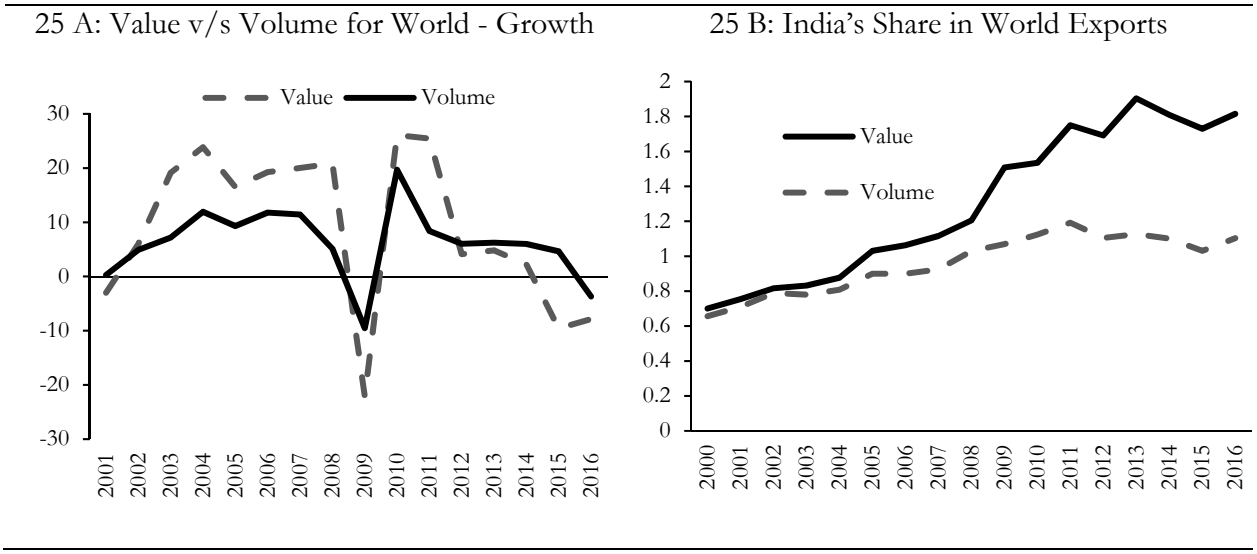
While private investment is likely held back primarily by domestic factors, exports growth is constrained by both domestic and external factors. Exports growth was an important driver of GDP growth prior to the global financial crisis, and specifically during the pre-crisis boom years. Its contribution to growth has diminished since. Export growth has experienced two phases of deceleration since the global financial crisis. The first of these culminated in negative export growth rates in 2009-10, and the second phase resulted in slow exports growth 2013 onwards. Meanwhile imports growth decelerated too until recently and temporarily turned negative in 2015-16.

India has barely managed to keep pace with the growth in world exports since the global financial crisis, reflected in its stagnant or even declining share of world exports, and a declining export to GDP ratio. The slowdown in exports growth is evident in merchandise and services exports, and extends to different export destinations. The slowdown is partly attributed to a decline in the prices of oil and commodities in 2014-16; but is also prominently reflected in the slow growth of global exports volume, and in India's declining share in it. We decompose the slowdown in India's merchandise exports into a price and a volume effect; further decompose the latter into a slowdown in global trade volume, and India's share in it; and into its exports destinations. We note the following stylized facts.

- The initial export slowdown from India around the time of the global financial crisis was primarily due to a decline in global trade, with exports growth recovering temporarily, after the initial decline. The slowdown in subsequent years, however, is both due to a decline in the prices of oil and commodities, and a decline in India's trade volumes. Between mid-2014 and January 2016 the global prices of oil, metal, and agricultural commodities declined sharply,

dropping by about 73, 37 and 23 percent respectively.[45] We find that Indian merchandise export growth has decelerated both in value and volume terms.[46] While the deceleration in Indian export values is significantly sharper than the volume of exports, volume growth turned negative in 2009, and again in 2016. The decline in India's trade volume is larger in comparison to the global decline in trade volume, resulting in India's reduced share in global exports. This is indicative of the role of India-specific factors in determining the export slowdown, or deteriorating external conditions specifically for India's export basket.

Figure 25: Export Growth: India and Global, in Value and Volumes



Note: Data is from WDI indicators on export values and from UNCTAD on export volumes. Years are calendar years. The global volume index is calculated as the weighted average of countries' volume indices with weights equivalent to countries' (value-based) share in global merchandise exports.

- India's export basket is broad based. The share of services exports in 2016 was approximately 36 percent of total exports, core merchandise exports (i.e. non-oil non-gold exports) accounted for about half of all exports, oil exports accounted for 10 percent, and gold exports accounted for 4 percent. Exports slowdown is pervasive across merchandise and services exports.

Figure 26: Exports of Goods and Services

[45] The figures present the decline from peak prices in June, March and July 2014 for oil, agriculture and metals, respectively, to the trough in January 2016, and are drawn from the World Bank's Global Economic Monitor database.

[46] We use trade data measured in current USD and focus on merchandise trade for data availability reasons. For a globally heterogeneous export basket, using national deflators (either from the US or India) is unlikely to yield credible estimates of constant export values. Hence, we rely on volume indices to decompose trade into volumes and prices.

26 A: Service and merchandise export growth has slowed down

26 B: India's share in goods exports has plateaued in the recent years

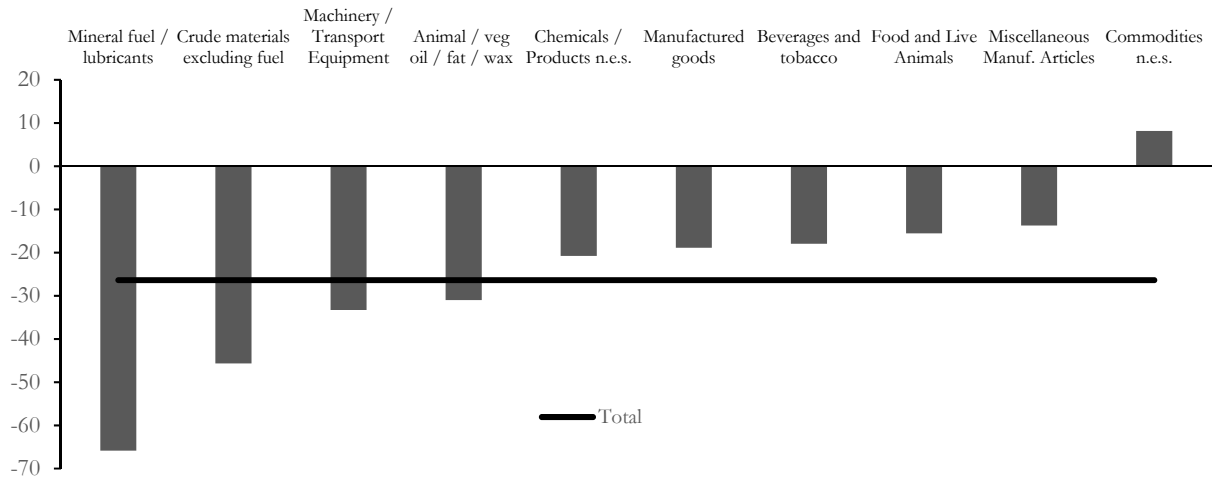
Note: Data is from the Reserve Bank of India and World Development Indicators. Years are fiscal years. All national accounts data is measured in constant INR.

- Comparing the product-specific average growth of exports in the boom period preceding the global economic crisis, 2003 to 2008, to a more recent period, 2012 to 2016, we note that total export growth rates declined by 26 percentage points during this period. Decline in exports growth was most pronounced for commodity exports, reflecting the effect of declining commodity prices after 2014, but it also extended to other product groups.[47]

Figure 27: Export growth rates before and after the Global Financial Crisis

Difference in Growth Rates between 2003-08 and 2012-16

[47] Growth rates are for export values in current USD.



Note: Data is from UN Comtrade database. Export growth is in nominal USD. Years are calendar years. The bars denote the difference between the average growth rate between 2003 and 2008 and the average growth rate between 2012 and 2016.

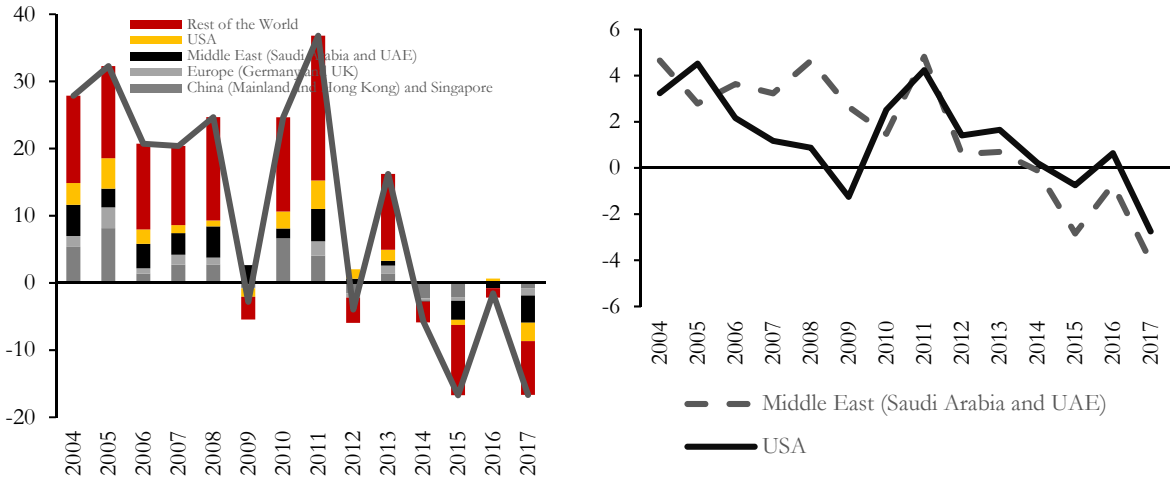
- India's export destinations are diversified too. The largest share of exports from India is destined for the Middle East (approximately 20 percent in 2016), and within it the largest share is exported to the United Arab Emirates. The United States is the second largest destination, accounting for 16 percent of India's exports, followed by China (including Hong Kong SAR, China), Sub-Saharan Africa and Europe. We disaggregate Indian exports across its 8 main trading partners and the rest of the world for 2003 to 2017.[48] We note that the export slowdown experienced by India after 2013 was across destinations, as exports slowed to most of India's main trading partners in the Middle East, the UAE and Saudi Arabia, but also to the US, China and Singapore.

Figure 28: Destinations of Indian Exports

28 A: Contribution to Export Growth

28 B: Contribution to Export Growth: Middle East and the USA

[48] India's main trading partners, in order of share in total exports, are the USA, the United Arab Emirates, Hong Kong SAR, China, China, the United Kingdom, Singapore, Germany, and Saudi Arabia.



Note: Data is from UN Comtrade database. Years are calendar years. Export growth in nominal USD.

Significant improvement in the competitiveness of Indian firms would be the key to reinstate the increasing trend in its share in global exports. The factors that may help India improve its competitiveness include an infrastructural boost to bring it at par with other manufacturing hubs of the world; reforms in land, labor, financial markets, and in the educational system, to assure the continued competitive supply of key production inputs, such as labor, land, finance, and skills. Building on recent improvements in its Doing Business ranking, India can benefit from further strengthening of the competitive business environment. Besides, issues related to competitive exchange rate, enhancing bilateral and regional trade integration, evading the temptation to cave in the rhetoric on trade protectionism, and embedding more deeply in the global value chains all assume great significance and require an objective discussion and assessment.

4.5 Leveraging external conditions

India is a large emerging market. Contrary to some perceptions, India has continuously, even though incrementally, integrated globally both in its trade and capital account. It has liberalized the inflows and outflows of FDI, portfolio capital, and other forms of capital flows. Gupta and Masetti (2018) document capital flow measures across emerging markets and observe that, starting from a relatively low base, India has liberalized its capital account significantly in the last few years. As a result, it attracts a large share of the capital that flows to emerging countries. Thus, it is not surprising that a number of global developments, such as those related to growth in global growth or trade, liquidity or risk aversion in financial markets, or oil prices have implications for India's economic growth, balance of payments, macroeconomic stability, and fiscal and monetary policy outcomes.

External conditions have remained broadly supportive of growth in the last couple of years, but the projected near-term outlook presents a mixed picture. On one hand, the global environment for exports is likely to improve as the global economy has accelerated, and robust growth in the US will particularly add to the global demand. Yet an increasingly intense rhetoric on trade protectionism, followed by competing protectionist policies, present an uncertain and challenging environment.

A surprisingly robust increase in oil prices, defying most expert projections, has presented an additional headwind in the last couple of years. India being a net oil importer, is sensitive to an increase in oil prices through a number of channels. The most prominent one being through higher current account deficit, which bears a direct first order impact of an increase in oil prices. This then filters into a subsequent impact on exchange rate, inflation, and fiscal deficit, constraining the scope of growth supporting fiscal and monetary policies, yet leading to an emotive political narrative.

On the financing side, the U.S. Federal Reserve Board has raised its policy rate seven times in the last three years, starting in 2015, as per its pre-announced paths. It is projected to further raise the rates twice in 2018. Even if not disruptive to financial markets in the short run, higher interest rates have started to tighten financing conditions for emerging markets, including for India. Hence, enhancing competitiveness in the domestic financial sector will be even more important to ensure affordable financing conditions.

4.6 Limited room or rationale for countercyclical measures in the presence of structural constraints to growth

Currently there seems only limited room to ease fiscal, monetary, or exchange rate policies to boost growth in the midst of complex and persistent structural constraints to a higher growth level. Given the structural nature of weak exports and investments, the effectiveness of transitory countercyclical policies is likely to be limited. Even if used, these can provide only a temporary reprieve, as by their very nature, countercyclical policies ought to be used temporarily and should be reversed within a reasonable period of time.

Besides, with inflation hovering in the vicinity of 4 percent, the current account deficit at 1.9 percent this year and projected to be at about 2 ½ percent next year, the general government deficit at about 6.5 percent, the combined public debt at nearly 70 percent of GDP, and bond yields nearly touching 8 percent, there currently seems limited room to consider expansionary policies.[49] If still considered by the government, it will have to be creative about generating the fiscal space. One way to do so may be to generate resources domestically by considering a careful divestment of assets as per the recommendations of the National Institution for Transforming India (NITI). If, instead, the government wishes to borrow to finance enhanced infrastructure spending, it would be prudent to do so cautiously to minimize potential vulnerabilities.

5. Conclusion

In this paper, we offer a long-term perspective on India's growth experience. We note that growth has slowly but steadily accelerated over the last 50 years, has become less erratic, and has been well diversified across sectors and states. Assessing the period since the early 1990s more granularly, we note three distinct phases of growth: a period of slow acceleration from 1991-early 2000s; a short period of unusually rapid growth, with certain features of unsustainability, during 2004-08; and a corrective slowdown that started with the global financial crisis in 2008. The slowdown has been reflected most profoundly in investment, credit, and exports. Even as the economy has now recovered to a 7-7.5 percent growth rate level, durably accelerating it to a higher level will require a concerted policy momentum, that succeeds in reversing the slowdown in investment, credit supply, and exports; and support from the global economy. Reversing the slowdown in specific sectors will require a careful analysis of the causes, and implementation of policy actions that are timely, wide-scoped, and innovative.

Private investment in India is likely constrained by several factors. There are issues related to past leverages as well as subdued market demand. Going forward, de-risking the private sector may

[49] As per our analysis, at current levels, general government public debt is sustainable, despite some rise in real borrowing rates in recent years, largely because of fast economic growth and continued fiscal consolidation by the central government.

be important, as it may be to further ensure an environment of policy certainty. Understanding and relieving the generic, spatial, or sector-specific constraints to investment growth may be important too.

There is a predominance of banks in the Indian financial system, and that of public sector banks in the Indian banking sector. The last few years have been challenging for the Indian banks, as the pace of credit growth remains subdued, and the stress on asset quality continues. Bank credit growth has consistently declined since the GFC, after increasing briskly for a few years before that, and the ratio of gross non-performing assets to advances of Scheduled Commercial Banks have increased. Under its current balance sheet situation, the banking sector does not seem well equipped to help finance a higher growth or investment rate, and suitable reforms will be needed to reverse this equilibrium.

Reconsidering the ownership balance, and the incentive and governance structure may be important in order to improve the allocative and operational efficiency of the sector. The government is reportedly currently exploring different options to resolve the problem of high NPLs. Some of these measures such as mergers within the public-sector banks have been used earlier; while others are more novel in the Indian context, including setting up of a bad bank, or the aggressive use of bankruptcy procedures in loan recovery. It would be useful to consider the merits of these options, in view of cross--country experiences. Other issues that could be afforded specific attention are on building risk assessment capabilities within the regulator and the banks; and developing and strengthening the personal bankruptcy framework.

While private investment is likely held back primarily by domestic factors, exports growth is constrained by both domestic and external factors. Exports growth was an important driver of GDP growth prior to the global financial crisis, but its contribution to growth has diminished since. India has barely managed to keep pace with the growth in world exports since the global financial crisis, reflected in its stagnant or even declining share of world exports, and a declining export to GDP ratio. The factors that may help India improve its competitiveness include an infrastructural boost to bring it at par with other manufacturing hubs of the world; reforms in land, labor, financial markets, and in the educational system, to assure the continued competitive supply of key production inputs, such as labor, land, finance, and skills. Besides, issues related to competitive exchange rate, enhancing bilateral and regional trade integration, evading the temptation to cave in the rhetoric on trade protectionism, and embedding more deeply in the global value chains all assume great significance and require an objective discussion and assessment.

Currently there seems only limited room to ease fiscal, monetary, or exchange rate policies to boost growth in the midst of complex and persistent structural constraints to a higher growth level. Given the structural nature of weak exports and investments, the effectiveness of transitory countercyclical policies is likely to be limited. Even if used, these can provide only a temporary

reprieve, as by their very nature, countercyclical policies ought to be used temporarily and should be reversed within a reasonable period of time.

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Appendix A: National Accounts Data Splicing

The national accounts data used in this paper were obtained from India's Central Statistics Office. In January 2015, the base year was revised from 2004–05 to 2011–12. This revision makes comparing GDP data before and after 2011–12 (the first year for which the revised series is available) challenging, as the new series introduces conceptual and statistical changes. Some of these include updating the NAS methodology to the latest SNA 2008 system; changes in methodology and databases in the estimation of savings and investment; direct estimation in the value added of the private corporate sector using financial returns; using MCA-21 instead of the Annual Survey of Industries (ASI) to estimate manufacturing sector output (see Nagaraj and Srinivasan 2016).

We splice the new annual and quarterly GDP series backward, using a simple back casting methodology as explained below. Consider a variable X_t that needs to be spliced. We denote X_t in the new series as X* and X in the old series. Suppose data in the new series begin from period t. To obtain the value of X^*_{t-1} we simply apply the following formula,

$$X^*_{t-1} = \frac{X_{t-1}}{X_t} X^*_t$$

Intuitively, this series maintains a growth rate in the new series (captured by $\frac{X_{t-1}}{X_t}$) that is consistent with the old series. The resulting series thus resembles a level shift to the old series with equivalent growth rates. We used this procedure to maintain the growth rates of GDP at market prices, Gross Value Added (GVA) at basic prices, and their main subcomponents.

A challenge that arises when matching growth rates of subcomponents (whose shares add to 1) is that residuals appear, driven by the fact that changes to the base year affect the estimated contribution of various sectors to the economy. The CSO typically divides the Indian economy intro three sectors: agriculture, industry and services. Agriculture includes crop, livestock, forestry and fisheries. The industrial sector is again split into four sub-sectors: mining and quarrying; manufacturing; electricity, gas, water and other utility supply; and construction. The services sector is split into three subsectors: trade, hotels, transport, communication and services related to broadcasting; financial, real estate and professional services; and public administration, defense and other services.

To preserve additivity, we generate a residual series for GDP at market prices. For GVA, we employ the service sector (in annual data), and the Public Administration and Defense Services sector (in quarterly data), as the residual. We conduct robustness checks to verify that our observed growth rates in the services sector are not driven by its selection as a residual.