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India's Growth Story§

ABSTRACT India has attained much economic success in the last three decades. Yet economic deceleration in the recent years has generated worried commentaries about India's growth outlook. In this paper, we offer a long-term macro perspective on India's growth experience. Analyzing past five decades of data, we note that growth has slowly but steadily accelerated over this period, 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 to early 2000s; a period of rapid growth with several features of unsustainability during 2004–08; and a corrective slowdown that started with the Global Financial Crisis in 2008. The slowdown was reflected most profoundly in investment, credit, and exports. Even as the economy recovered to a 7–7.5 percent growth rate, durably accelerating it to a higher level will require concerted policy momentum that succeeds in reversing the slowdown in investment, credit supply, and exports, and the support from the global economy. Maintaining hard-won macroeconomic stability, a definite and durable solution to banking sector issues, and realization of the expected growth and fiscal dividend from the Goods and Services Tax are some of the factors that can help attain a higher growth rate. The paper also includes a short annex on India's new GDP series and comparisons with the old.

Keywords: *Development, Economic Growth, India, Investment, Exports, Banking Credit, Macroeconomic Stability, GDP series*

JEL Classification: *E65, F40, O11, O47, O53*

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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 the 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?[1]

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. The 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 the most part, growth is not concentrated in a few uses or sectors, but is visible in most of its components—consumption, investment, and

1. National Accounts data used in the analysis are for the 2011–12 base year. For the years prior to 2011–12, the data are available from the 2004–05 series. We have back-casted these data following the methodology laid out in Appendix A. The analysis does not incorporate the back series with the 2011–12 base year, released by the Central Statistics Office (CSO) for the years 2004–05 to 2011–12, on November 28, 2018. However, Appendix B presents some of the key results if this data revision is considered. Additionally, the analysis is limited to 2016−17 and does not reflect the first revised estimates for the year 2017−18 released on January 31, 2019.

2. Years refer to fiscal years in the paper unless otherwise indicated. For example, 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.

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 (TFP). The contribution of productivity gains to growth has increased in the recent decades (Bosworth, Collins, and Virmani 2007).

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 gross domestic product (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.[3] 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.

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. The 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 then.[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

3. This observation is based on our back-casted estimates of NAS using the methodology described in Appendix A. The narrative will change quantitatively but not qualitatively if one uses the 2011–12 back series data for the years 2004–05 to 2007–08 released by the CSO.

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

has lost share in the global export market. This may have implications for accelerating growth to India's potential and for enhancing potential growth itself.

Finally, the steep growth slowdown in the few quarters during 2018 is not a 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.[5] 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 7.1 percent in the second quarter of 2018–19, 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 few sporadic 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, the high growth was due to a base effect 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).

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.[6] It will require a concerted reform and policy momentum, wide enough in scope, which 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, and 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

5. See Note 1 for the data used.

6. 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 of around 8.5 percent is conditional on a reform agenda that addresses the banking sector and other issues (https://www.livemint.com/Politics/OUuLehx0uBAO32P1xhSYAN/India-can-return-to-85-growth-rate-Arvind-Subramanian.html).

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 ensure that these rates are sustained in the decades to come, moving more and more Indians into a status comparable to that of 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. Section 4 discusses the ongoing slowdown in parts of the economy and the policy challenges in reversing the slowdown. Section 5 concludes the paper.

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.[7] 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, Russia, South Africa, Malaysia, Mexico, Turkey, and Indonesia, which we refer to as EM7.[8] We estimate regressions of the following form:

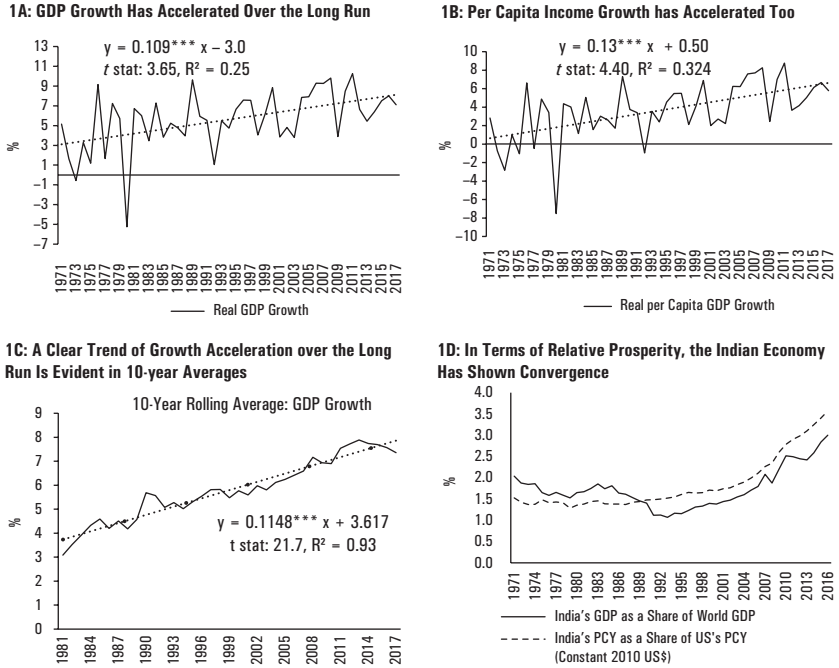
$$\text{GDP Growth}_{it} = \beta_0 + \beta_1 \text{Trend}_t + \beta_2 \text{India}_i \, x \, \text{Trend}_t + \varepsilon_{it} \qquad (1)$$

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

7. The source of the data is the CSO. See Appendix 1 for details of the data used and on how we spliced the GDP series for different base years.

8. According to the World Development Indicators (WDI), 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.

FIGURE 1. India's Growth Rate Has Consistently Accelerated over the Long Run



Source: Data are from the CSO and WDI.

Note: In Panel C, the 10-year rolling averages of growth rate are for the current year and the preceding nine years. Years refer to fiscal years in Panels A–C and to calendar years in Panel D. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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 the 10-year average growth rates for other large emerging markets is negative (column 1). Column 3 of the table shows that the difference between trend coefficients is statistically significant, with India having a significantly higher growth acceleration than other emerging market economies.

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

TABLE 1. Trend in the Pace of Long-term Growth of India and EM7 Countries

Variables	*(1)* *GDP Growth 10–Year Rolling Averages*	*(2)* *GDP Growth 10–Year Rolling Averages*	*(3)* *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

Source: WDI and authors' calculations.

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. The 10-year rolling averages of growth rates are for the current year and the preceding nine years. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

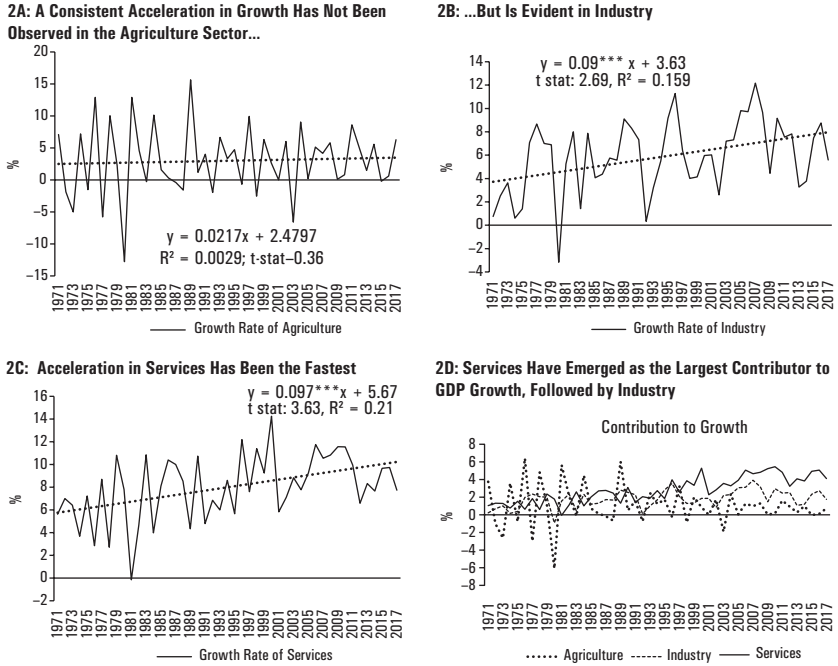
not necessarily a higher average growth rate (Figure 2). Consistent with the experience of other countries, the contribution of agriculture and allied activities in GDP growth has declined, while that of the nonagricultural sectors has increased. The exceptionally fast growth of the services sector in 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).

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).[9] Particularly remarkable is the sharp increase in the stability of GDP growth in the postreform period since 1991.[10] Even if growth accelerated episodically in the decades prior to 1991, it was punctuated by large annual variations and often failed to sustain. Thus, growth has not just accelerated post-liberalization but has also become more stable.

9. While the figure only shows the coefficient of variation, the results are very similar for standard deviation.

10. Figure 3 also documents a decline in the coefficient of variation in the 1980s, coinciding with some acceleration in growth in the 1980s.

FIGURE 2. Growth Rates Have Accelerated and Become More Stable across Sectors



Source: CSO data.

Note: Years refer to fiscal years. Agriculture includes crop, livestock, forestry, and fisheries; the 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.

2.2. Spatial Trends in Growth

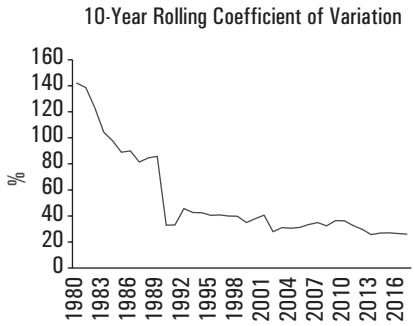
Next, we examine growth patterns at the state level.[11] For this, we estimate the trend coefficient of Gross State Domestic Product (GSDP) growth for annual data since 1981. We use the following regression equation, where the subscripts *s* and *t* denote variations at the state and year level, respectively:

$$\text{GSDP Growth}_{st} = \beta_0 + \beta_1 \text{Trend}_t + \gamma_s + \varepsilon_{it} \qquad (2)$$

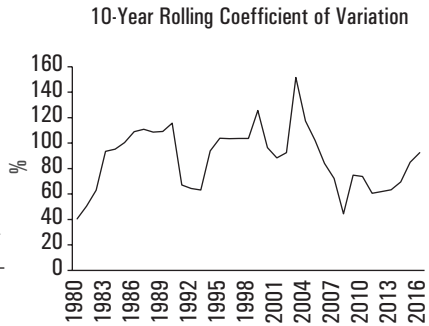
11. The states included in this analysis are Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, and West Bengal. We construct a back-casted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

FIGURE 3. India's Long-term Growth Rate Has Become Increasingly More Stable

3A: Coefficient of Variation, GDP Growth, India



3B: Coefficient of Variation, GDP Growth, EM7 Median



Source: WDI data.

Note: 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.

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 agricultural/non-agricultural sectors in the state 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 are thus time-invariant.

$$\text{GSDP Growth}_{st} = \beta_0 + \beta_1 \text{Year}_t + \beta_2 \text{Characterstic}_s \, x \, \text{Year}_t + \varepsilon_{it} \quad (3)$$

The coefficient β_2 measures the differential growth acceleration between states with and without a given characteristic. Table 2 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 (Table 2, 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

TABLE 2. Trends in the Pace of Long-term Growth at the State Level

Variables	*(1)* *Growth Rate*	*(2)* *Growth Rate*	*(3)* *Growth Rate*	*(4)* *Coefficient of Variation*	*(5)* *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) × Trend		–0.0002			
		(0.251)			
GDP per capita > Median × 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

Source: Authors' calculation based on data from CEIC Data Company Ltd.

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 1 if a state has above median per capita GSDP in the initial year 1981.

of variation for each state.[12] The last two columns in Table 2 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.

To understand differences in the drivers of growth, we examine differential trends between agricultural and non-agricultural, and richer versus poorer states, in the investment share of GSDP. The results are presented in Table 3. The table highlights that there is no statistically significant trend in the investment share of GDP since 1991 (the earliest observation in our dataset). However, the aggregate results in Column 1 of the table mask significant heterogeneity. States with below median per capita GSDP in 1981 experienced a declining trend in the investment to GDP ratio since 1991 that is statistically significant, but not the states with above median per capita income levels.

2.3. Composition of GDP

Looking at the composition of GDP on the use 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

12. 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.

TABLE 3. Trends in Investment at the State Level

Variables	*(1)* *Investment per GSDP*	*(2)* *Investment per GSDP*
Trend	−0.596	−1.417**
	(1.164)	(2.239)
Ag. share (1981) × Trend		
GDP per capita > Median × Trend		1.642*
		(1.761)
State-fixed Effects	Yes	Yes
Observations	400	400
R-squared	0.196	0.196

Source: Authors' calculation based on data from CEIC Data Company Ltd and Reserve Bank of India.

Note: In Column 2, 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 1 if a state has above median per capita GSDP in the initial year 1981.

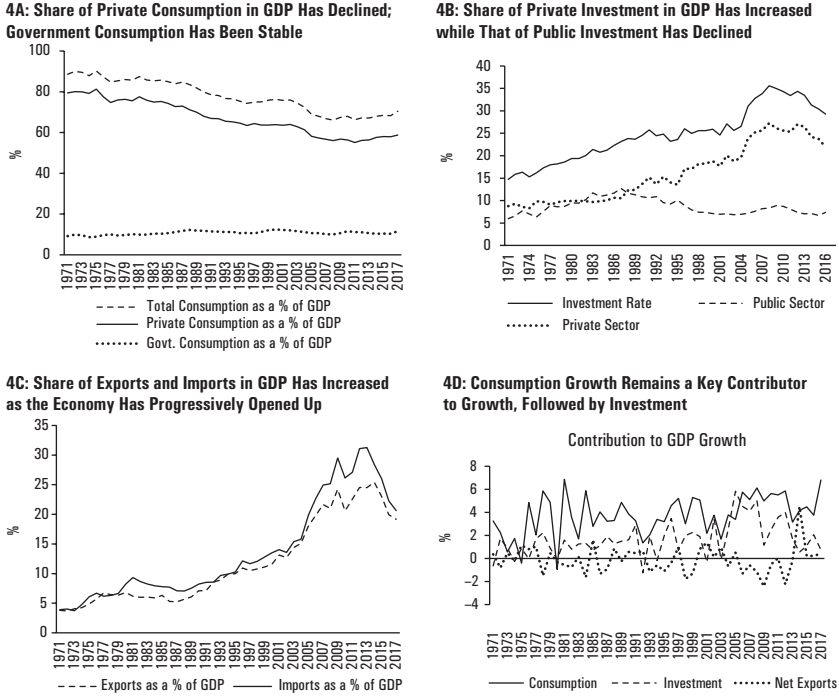
and exports has increased (Figure 4). While private consumption accounted for nearly four-fifths of GDP in the early 1970s, this share declined to about three-fifths in 2017.[13] After a small increase over recent decades, government expenditure has stabilized at nearly 12 percent of GDP. Equally salient 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 approximately only 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 a percentage 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 a majority of years.

13. 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.

FIGURE 4. Consumption Share in GDP Has Declined, While the Share of Exports and Investment Has Increased



Source: CSO data.

Note: Years refer to fiscal years. Investment rate is defined as gross fixed capital formation (GFCF) 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 TFP. A common and simple growth accounting exercise decomposes GDP growth into use of labor and capital, and TFP using a Cobb–Douglas production function. TFP 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 nonunit returns to scale in the production function. Caselli and Coleman (2001) 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; 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 (2007) and Triplett and Bosworth (2003) account for industry-level growth in the USA.

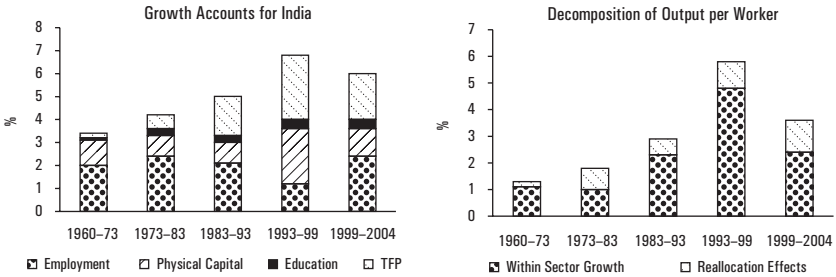
Empirical estimates for India highlight an acceleration of TFP growth in the early 1980s, followed by a further acceleration in the post-reform period. Bosworth, Collins, and Virmani (2007) construct growth accounts for India for the period from 1960 to 2004 and find evidence for a strong acceleration in TFP growth (Figure 5, Panel A). 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.[14]

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: $Y_t = A_t K_t^{\alpha} (Lt)^{1-\alpha}$, where α is assumed to be 0.30, and TFP is estimated as the Solow residual. Consistent

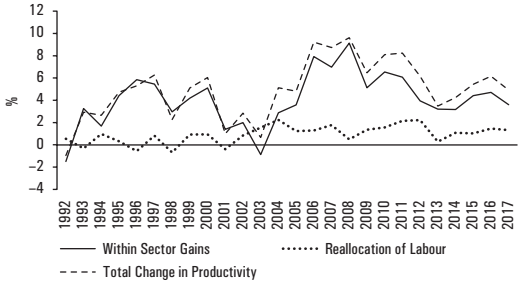
14. Bosworth and Collins (2008) compare the Indian growth experience with China and highlight the more significant role of TFP increases in the early years of growth for India, as growth in China depended more on capital accumulation. See also Young (1995) and Young (2003), who argue that accounting for biases in official deflators and the measurement of human capital, productivity growth in China was muted, and Brandt and Zhu (2010) for a more recent update of Young's (2003) calculations.

FIGURE 5. Sources of Growth—Inputs and Productivity

5A: Decomposition of Growth into Factor Inputs and Total Factor Productivity



5B: Labor Productivity Growth in India: Reallocation and Within-Sector Gains



Source: Figure 5A is from Bosworth, Collins, and Virmani (2007). Figure 5B is based on authors' calculations, data are from the CSO. Employment statistics are estimates provided by the International Labor Organization, available for 1991 to 2017.

Note: Years refer to fiscal years.

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 that of 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 5B). 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.[15]

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.[16] Alternatively, labor productivity gains may occur due to workers becoming more productive within their sectors, for example, due to labor-augmenting capital accumulation or technology improvements.[17]

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 5B). 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.[18]

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 Commission on Growth and Development (2008) identified the following factors as the correlates of high

15. See Bosworth and Collins (2008) for a discussion.

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

17. 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).

18. 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).

and 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.

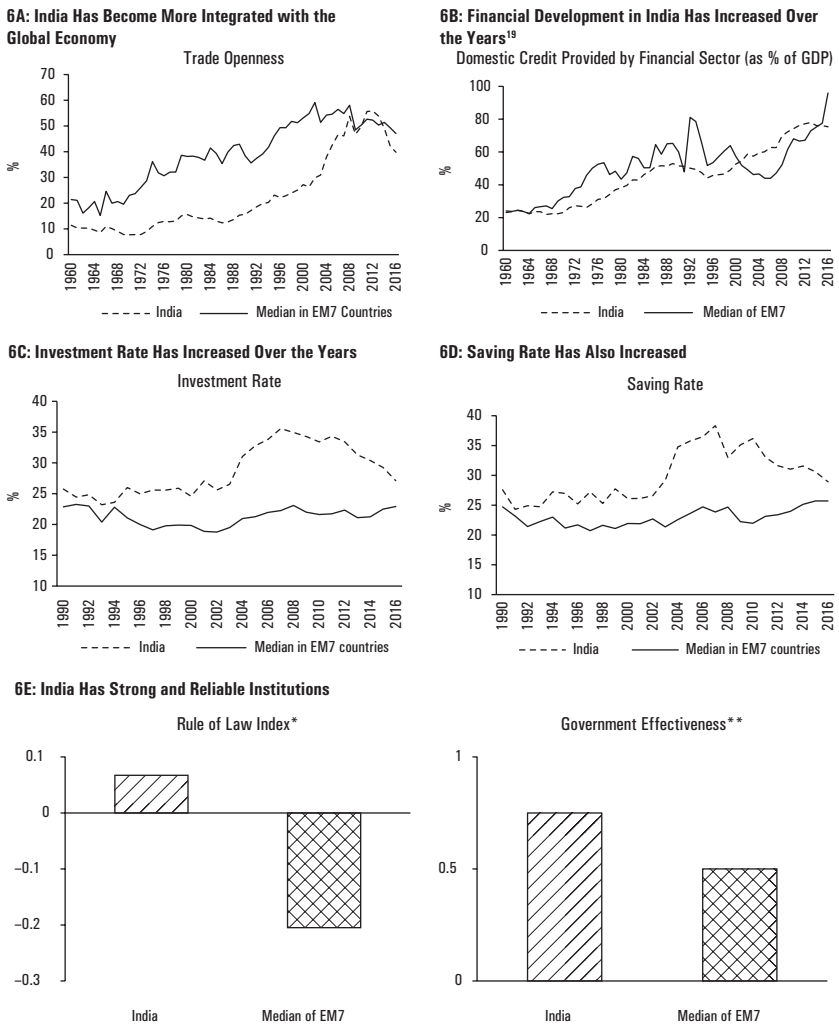
A review of the literature indicates that several of these factors have likely been instrumental in India's growth experience. First, even though India's trade to GDP ratio was persistently low for a few decades after independence, it experienced unprecedented growth from the early 1990s until the GFC (Figure 6A). Second, India has, and will likely continue to, benefit from a growing working age population, with the share of the population in 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 rate, 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 early 2000s until the GFC (Figure 6B). Financial development is also evident in financial access to individuals: while the country retains a relatively low rank among the EM7 with regard to the coverage of bank accounts in the population, it has experienced among the highest expansion rates of bank account coverage between 2011 and 2014. Fifth, 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.

2.6. Demographic Structure

Demographic structure is a central determinant of a country's active human capital, which, in turn, determines growth and growth potential. In this section, we provide a brief description of India's population structure in comparison to the EM7 from 1960 until today. For a more detailed discussion, see, for instance, Bhagat (2014) and Chandrasekhar, Ghosh, and Roychowdhury (2006).

Figure 7 plots the share of different age groups in the total population for India and for the median of EM7 countries. While India initially benefitted from a higher working age population share in 1960 compared to the EM7,

FIGURE 6. Proximate Determinants of Growth in India

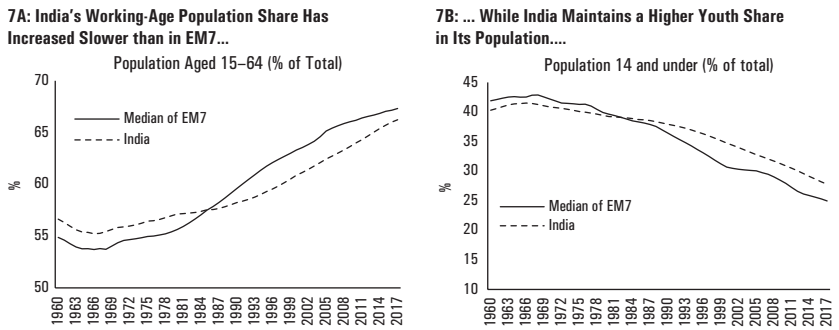


Source: Data are from WDI and IMF International Financial Statistics. The latter's date range is 1960–2011. *: World Bank Worldwide Governance Indicators, Kaufmann et al. (2010). Date Range: 1996–2017 (with gaps); **: Political Risk Services. Date Range: 1996 to 2017.

Note: Bars show the average (of the median) over time in the case of EM7.

19. 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, such as finance and leasing companies, moneylenders, insurance corporations, pension funds, and foreign exchange companies.

FIGURE 7. India's Demographic Structure



Source: Data are from WDI.

this share has increased slower than in the EM7 (Figure 7A). This slower increase was not driven by a comparatively higher share of older people exiting the labor force but rather by a slow decline in the youth share in the population (Figure 7B).

This finding has implications for future and current growth. On the one hand, a comparatively low labor force share means that dependency ratios are high, which, in turn, can constrain contemporaneous savings and investment. On the other hand, India still holds considerable potential to realize a demographic dividend when population dynamics change, which can imply favorable growth conditions in the future.

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

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 GFC in 2008–09.

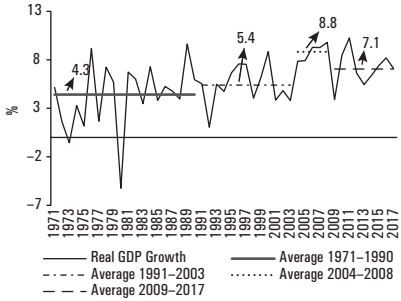
3.1. The Phase of Rapid Growth Acceleration

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).[20] 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.[21]

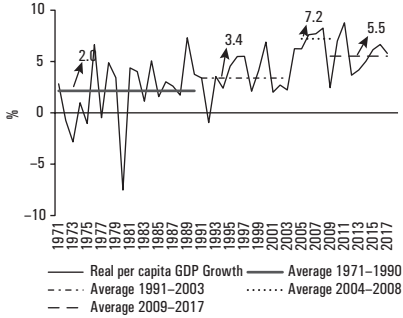
A short phase of unusually high growth followed during 2004–08, when growth was aided by rapid global growth and excess global liquidity, and

FIGURE 8. Three Phases of Growth

8A: Growth Accelerated to an Average Rate of 5.4% During 1991–2003, followed by 8.8% During 2004–08, and a Slowdown Thereafter



8B: Real Per Capita GDP Growth Followed the GDP Growth Trajectory



Source: CSO data.
Note: Years refer to fiscal years.

20. For a growth narrative of the decades prior to 1991, see Panagariya (2004) and Mohan (2008).

21. See Mohan and Kapur (2015) for a discussion of these reforms.

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 unusually high credit growth; and, in synchronization with other emerging markets, an unprecedentedly large volume of capital flows.

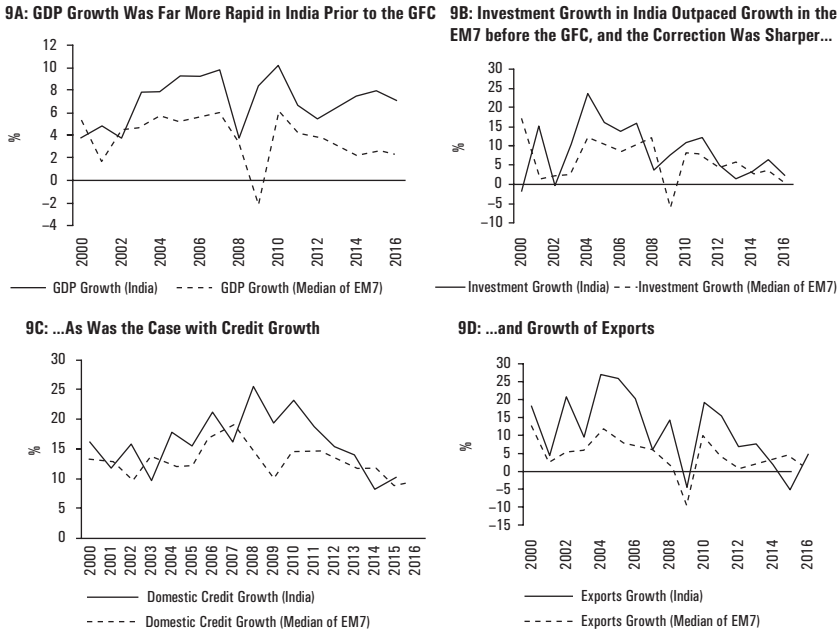
A third phase of growth slowdown then ensued, aligning with the slowdown in global growth rates and the onset of the GFC in 2008–09.[22] During this period, global growth turned negative, global trade volume declined and remained suppressed for years thereafter, and global liquidity froze temporarily. Indian growth adjusted to a lower level. After the GFC, 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. The slowdown was most pronounced in investments and exports, both of which more than halved their contribution to growth.

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 the 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.[23]

22. 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 Brothers in September 2008.

23. 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 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 were thus vulnerable to reversal. There was a sudden stop of capital flows in 2008–09, when capital flows declined precipitously to $7 billion.

FIGURE 9. India Grew Faster Prior to the GFC, and the Correction Was Sharper after the GFC



Source: CSO and WDI.
Note: Data in the figures are for calendar years. Credit growth is nominal.

In econometric analysis (not reported here 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 percentage 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 further, export growth slowed in India due to the global slowdown in trade and India's decreasing share in world exports.[24]

24. 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).

3.2. Interstate Patterns of Growth during and after the GFC

To further identify the characteristics of the slowdown after the GFC, we analyze how economic growth across Indian states was impacted by the GFC.[25] 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.[26] 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 postcrisis 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 robustness tests we also define the states that are in 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.[27] 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

25. Data on Gross State Domestic Product are from the CMIE's database on the states of India. 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, that is, Jharkhand, Chhattisgarh, and Uttarakhand, for which credit data are only available from 2001 onward.

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

27. See also Kumar and Subramanian (2011).

crisis. During the GFC, growth and investment were impacted less adversely in states with less dependence on credit (Figure 10).

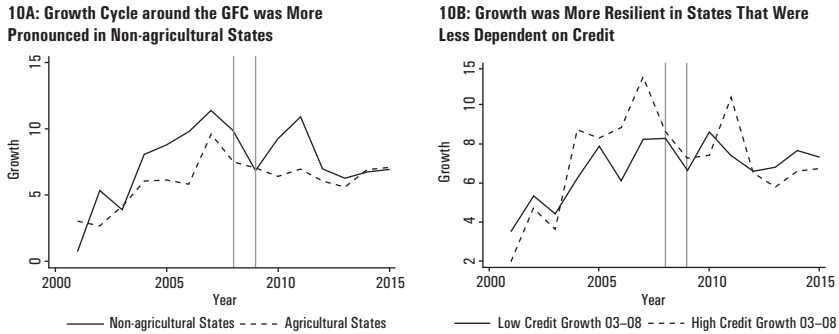
To investigate these relationships more systematically, we test whether there were significant differences in growth trends before and after the GFC across states with higher and lower credit dependence and credit growth. In the spirit of a difference-in-difference approach, we estimate the following regression model:

$$\text{GDP Growth}_{it} = \beta_0 + \beta_1 \text{State Type}_i \; X \; \text{Post GFC}_t + \gamma_t + \mu_i + \varepsilon_{it} \qquad (4)$$

γ_t and μ_i denote year and state-level fixed effects, respectively. The coefficient of interest, β_1, captures the differential trend after the GFC on states with a certain credit-related characteristic, that is, 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 4 presents the results. Column 1 of the table 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. A placebo test confirms that there is no statistically significantly negative relationship for years prior to the GFC. Similarly, Column 3 shows that the growth slowdown in states in the top tercile of the credit growth distribution was 2.39 percentage points

FIGURE 10. Differential Impact of the GFC across States



Source: Authors' calculations based on data from CEIC Data Company Ltd and Reserve Bank of India.

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 the fiscal year 1999–2000. Credit growth refers to the period between 2002–03 and 2007–08.

TABLE 4. Impact of GFC on States with Varying Credit Growth and Credit Dependence

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
	GDP Growth	*GDP Growth*	*GDP Growth*	*GDP Growth*	*GDP Growth*	*GDP Growth*
High credit growth × post-GFC (Median)	–1.449*					
	(1.854)					
High credit to GDP × post-GFC (Median)		–1.26				
		(1.485)				
High credit growth × post-GFC (Tercile)			–2.39**			
			(2.268)			
High credit to GDP × post-GFC (Tercile)				–0.620		
				(0.710)		
Credit growth 2003–08 × post-GFC (continuous)					–0.448**	
					(2.584)	
Credit to GDP × 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

Source: Authors' calculations based on data from CEIC Data Company Ltd and Reserve Bank of India.

Notes: The 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 heteroscedasticity robust standard errors.

larger than for those in the bottom tercile. The estimates are statistically significant at the 10 and 5 percent levels, 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 a reduction of 0.45 percentage points in GDP growth after the GFC for every additional percentage point increase in credit growth (Table 4, Column 5). Similarly, the level of credit dependence of a state's economy was negatively correlated with changing growth trends around the GFC: Column 6 of the table 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.

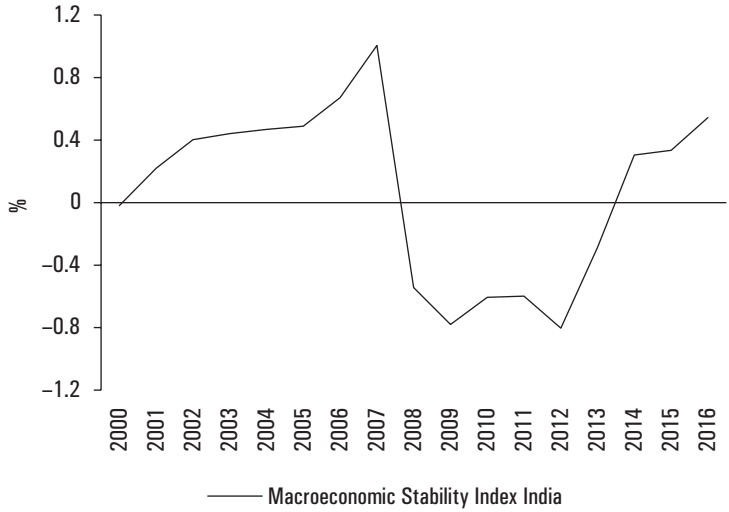
3.3. Policy Response to the GFC and Macroeconomic Stability

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 (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").[28] 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 (Figure 11). 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

FIGURE 11. Macroeconomic Stability Deteriorated Significantly during and after the GFC and Has Improved in Recent Years



Source: Data are from WDI.

Note: Years refer to calendar years. The index is constructed as an average of standardized indexes of inflation (CPI inflation), current account deficit (percent of GDP), and fiscal deficit (percent of GDP).

28. Repo rates dropped from 9 percent in September 2008 to 3.25 percent in April 2009 and the Center's fiscal deficit increased by 5.5 percentage points of GDP.

quality of public expenditure possibly worsened due to a decline in the share of capital expenditure. Hence, it is unsurprising that as market sentiment turned against emerging markets in summer 2013, India was one of the most impacted economies during the "taper talk."[29]

The tapering talk episode started on May 22, 2013, when Federal Reserve Chairman Ben Bernanke first spoke of the possibility of the US 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 "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.[30]

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, with the Reserve Bank of India (RBI) having raised it from 3.25 percent in December 2009 to 8.5 percent in December 2012.[31]

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

29. The period of the "taper talk" generally refers to that between May 22, 2013, and September 18, 2013.

30. See, for example, "India in Crisis Mode as Rupee Hits Another Record Low" (http://money.cnn.com/2013/08/28/investing/india-rupee/) and "India's Financial Crisis: Through the Keyhole" (https://www.economist.com/banyan/2013/08/18/through-the-keyhole).

31. If the increase in 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.

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 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.

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 earlier. 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. Further, we analyze the growth rate of quarterly GDP and its decomposition for the period starting 2013–14 through Q2 2018–19 (Figures 13 and 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 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.[32]

Second, many economic indicators now firmly indicate that these events had a transient impact as the economy has been slowly recovering from them.[33] Growth has since steadily accelerated to 7.7, 8.2, and 7.1 percent in the last three quarters spanning Q4, 2017–18 to Q2, 2018–19. Economic revival is also evident in high frequency indicators such as the Purchasing Managers' 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 the recent months. While consumption and services continue to be the main drivers of growth in recent quarters (between Q4 2017–18 to Q2 2018–19), the contribution of GFCF (on the demand side) and manufacturing and construction sector (on the supply side) has increased steadily. 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).[34]

4. Continued Challenges for the Indian Economy

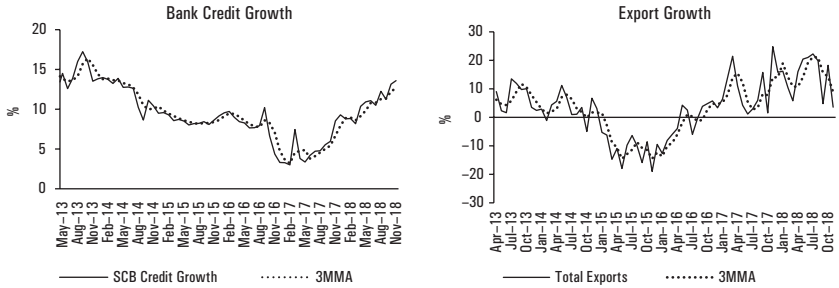
In this section, we take a look at the past episodes of high growth rates in India, defined as those when growth reached 8 percent or higher and ask whether similar levels of growth rates seem feasible in the near term, and what kind of challenges may need to be overcome for growth to move to a higher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

32. 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.

33. 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).

34. Outstanding credit by only SCBs; we don't consider credit by nonscheduled banks or other financial corporations. The same applies to the discussion of bank credit under Section 4.3.

FIGURE 12. High Frequency Data Suggest Some Uptick in Credit Growth and Exports



Source: Credit data are from the RBI; exports data are from the Ministry of Commerce and Industry.
Note: 3MMA refers to three months' moving average.

4.1. Past Episodes of High Growth

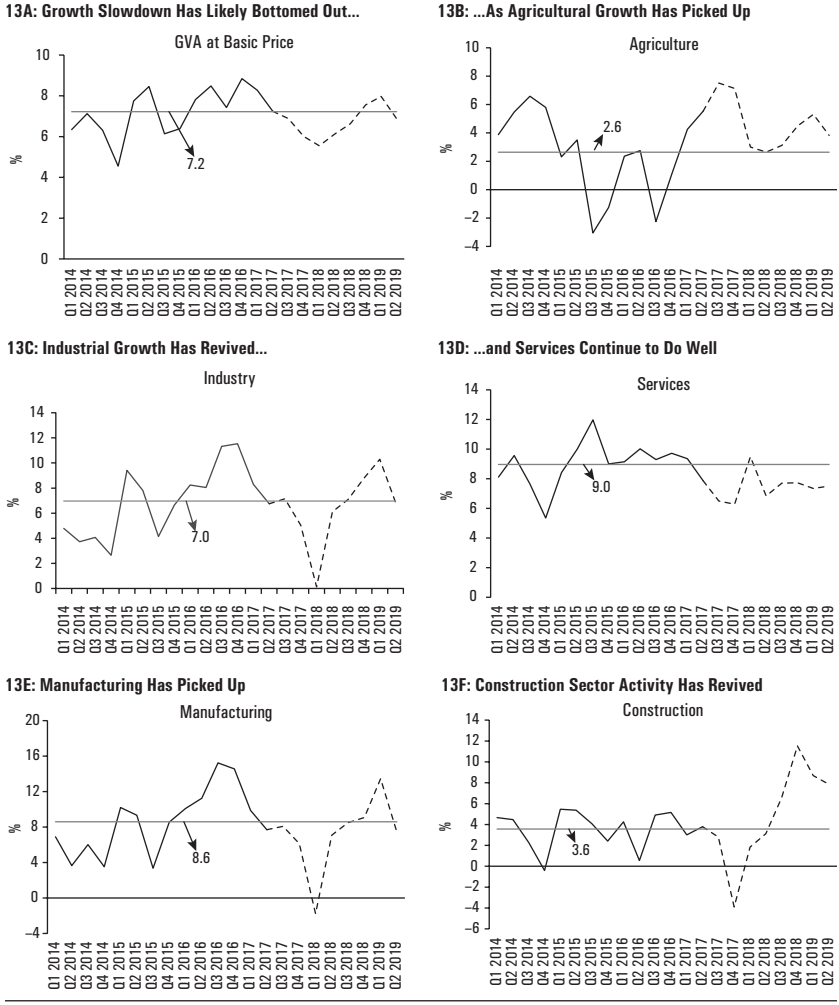
A review of the data since 1971 reveals that there have not been many episodes when annual growth exceeded 8 percent. There have been six episodes over the last five decades, for a total of eleven years (including two years when the growth rate was 7.9 percent), when the growth rate in each year neared 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 5). Rather, growth acceleration lasted for only one year and corrected sharply a year later (Figure 15).[35] In some of these episodes, high growth was on account of an unusually good agricultural output (1976, 1989) due to the base effect of slow growth in the previous year. In others, it was an outcome of stimulative fiscal or other macroeconomic policies (such as in 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.[36]

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 behind 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

35. This is not unusual, as cross-country experience shows that a large percentage of high-growth episodes unravel within years (Berg, Ostry, and Zettelmeyer 2012; Pritchett and Summers 2014).

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

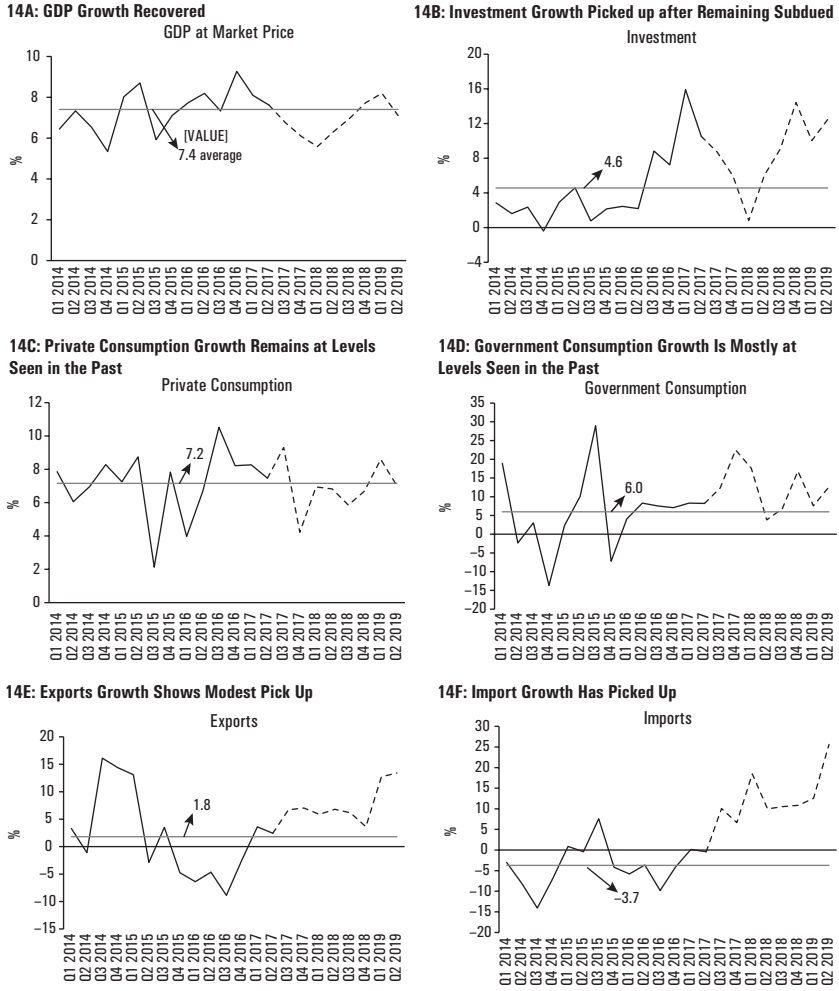
FIGURE 13. Growth Recovered across Sectors since Q2, 2017–18



Source: CSO data for fiscal years.
Note: The averages indicated are for Q1, 2014–Q2, 2017.

continued to under-perform. This trend is of particular concern as investment and exports are not just important direct sources of growth and productivity but also determine the technological capability as well as the competitiveness of a country's production structure. Sustaining growth 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

FIGURE 14. GDP Growth Recovered since Q2, 2017–18



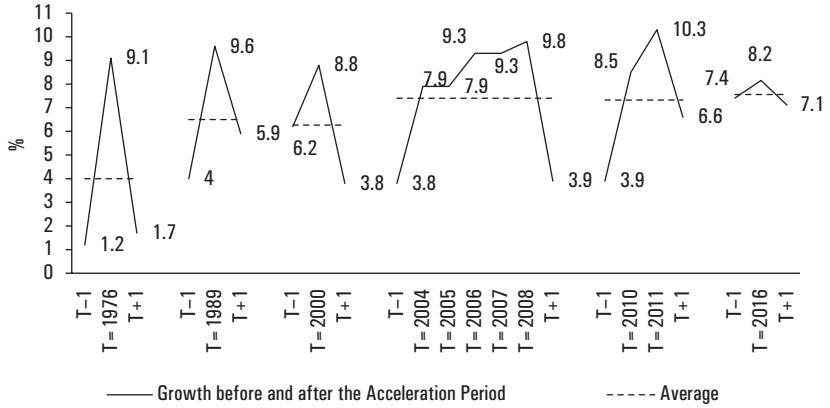
Source: CSO data for fiscal years.
Note: The average growth rates indicated are for Q1, 2014–Q2, 2017.

TABLE 5. Episodes of "High Growth."

Growth Rate	*No. of Episodes & Duration*	*Time Period**
≥ 8	6 episodes total duration: 9 years	1976, 1989, 2000, 2006–08, 2010–2011, 2016

Source: CSO data and authors' calculations.
Note: *Fiscal years.

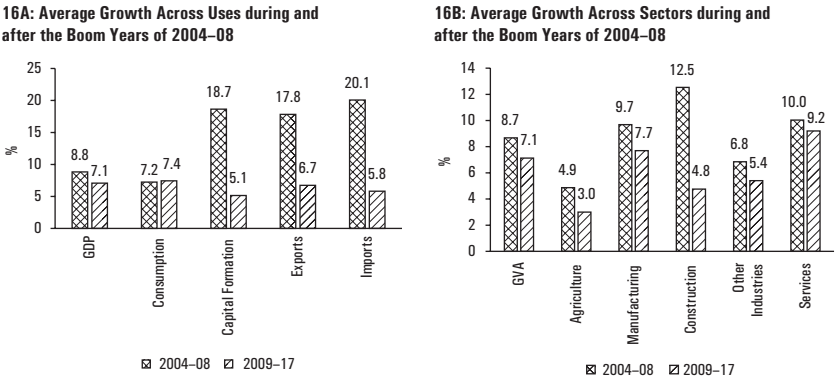
FIGURE 15. Most Episodes of "High Growth" Lasted Only for a Year



Source: CSO data. This figure is based on NAS data in the 2004–05 series prior to the year 2011–12 as explained in Appendix A. The episodes will vary if the recently released 2011–12 back series is used for the years between 2005–06 and 2011–12.

Note: Years refer to fiscal years.

FIGURE 16. Growth during 2004–08 Built on Robust Growth across Domestic and External Sectors



Source: CSO data.

Note: Data are in constant Indian rupees. Years are fiscal years.

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.

Following first a period of unstainable boom and then of economic slowdown, and the build-up 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.[37]

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. GST has been implemented, which has harmonized 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. Further, we offer some perspectives on the challenges that may have been holding down the potential in these sectors and the related policy issues.

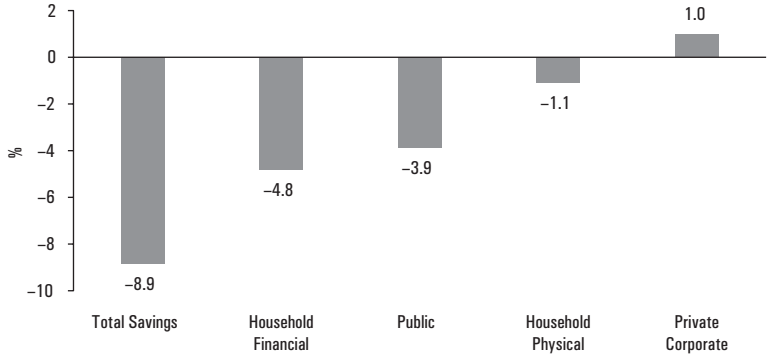
4.2. Continued Subdued Rate of Investment Is Worrisome

After increasing slowly but steadily over the last several decades, and rapidly during the period of high growth, 2004–08, saving and investment rates have been declining since 2009. The saving 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).

The investment rate has declined as well since the GFC, after registering a rapid increase in prior years. The decline is most evident in corporate investment and household physical investment rate. There is a divergence in corporate savings and investment rates; while the corporate savings rate has increased, its investment rate has declined (Figure 18).

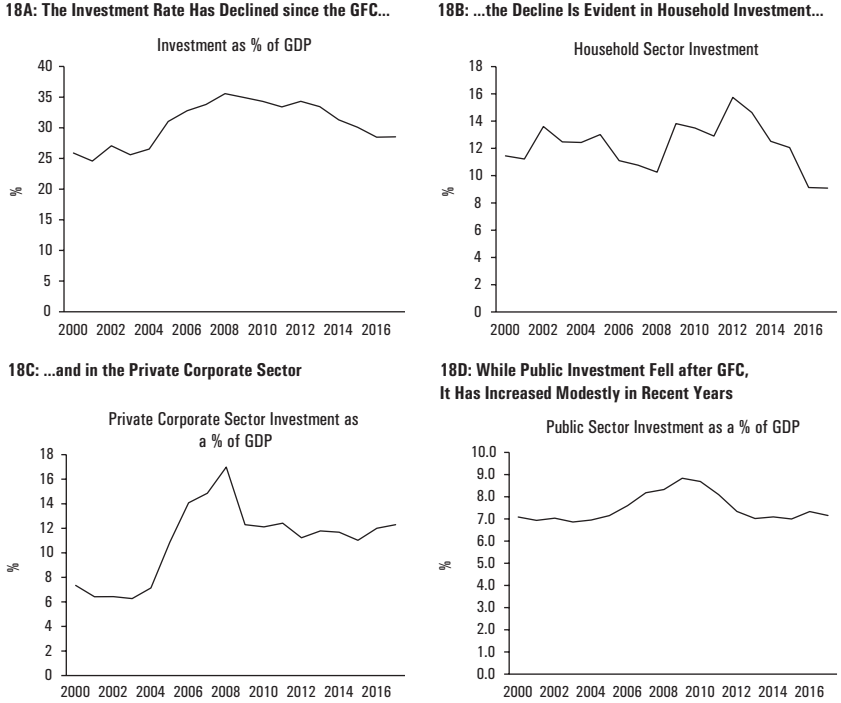
37. A sharp decline in oil prices, starting in mid-2014, low global inflation, and continued easy global liquidity provided the conditions conducive for the implementation of some of these reforms.

FIGURE 17. Contribution to Decline in the Average Saving Rate between 2007–08 and 2016–17



Source: Data are from CEIC Data Company Ltd.
Note: The figures show the difference between the average rates in 2016 and 2017, over 2007 and 2008.

FIGURE 18. Trends in the Investment Rate



Source: Data are from CEIC Data Company Ltd and for fiscal years.
Note: Investment rate is defined as GFCF in % of GDP.

The 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.

In a cross-country comparison of the trends in investment rate, we note that the Indian experience differs from that of the 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 was steeper too. This cycle is evident in both public and private investment rates, as both increased in the few years prior to the GFC and declined thereafter. While private investment has continued to remain depressed in recent years, public investment rates have increased (Figure 20).

Private investment in India is constrained by several factors. There are issues related to past leverage as well as subdued market demand.[38] 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.[39]

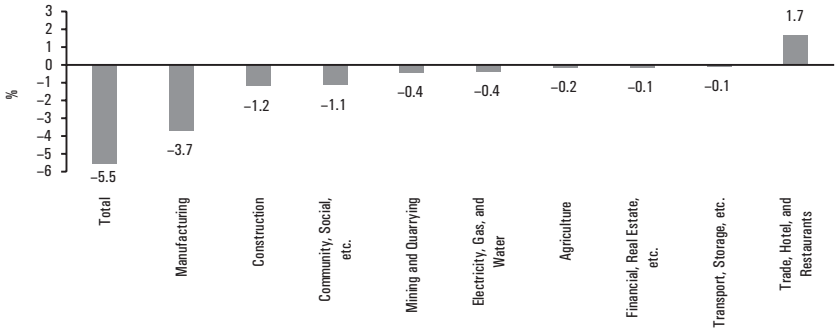
4.3. Reviving Bank Credit and Resolving Asset Quality Issues to Support Growth

The last few years have been challenging for 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

38. Deleveraging could be one reason behind the slow pace of investment growth—Indian businesses overinvested and overleveraged 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 sector. If the investment slowdown is concentrated in export-oriented firms, it may be indicative of specific constraints related to the size of external markets and to their competitiveness.

39. 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.

FIGURE 19. Decline in Average Investment Share of GDP between 2007–08 and 2015–16



Source: Data are from CEIC Data Company Ltd.

Note: The figures show the difference between the average share in 2015 and 2016, and in 2007 and 2008.

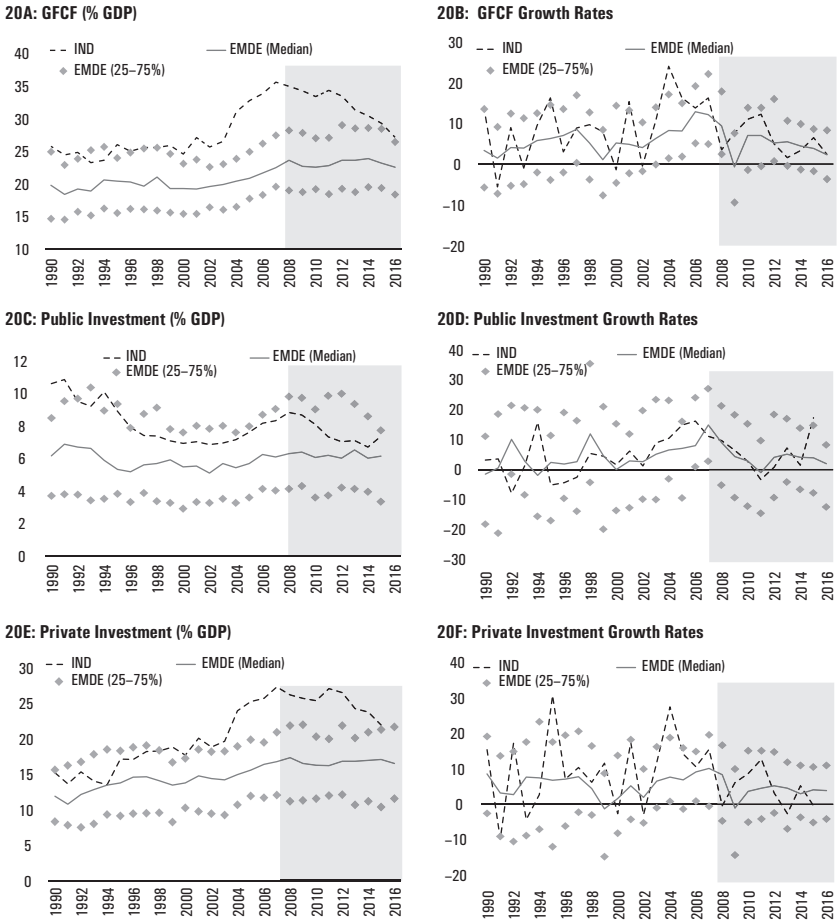
credit was 9.5 percent in 2014–17 compared to 26.3 percent in 2004–08. As a result, the credit to GDP ratio has declined in the recent years, after peaking at 56 percent in 2014, and after doubling within a span of 7 years from 25.5 percent in 2001 to 52 percent in 2008.

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 2.5 percent in 2007 to 9.3 percent in 2017 (Figure 21). 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 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 (IMF and World Bank 2017).

There is a predominance of banks in the Indian financial system, and that of public sector banks (PSBs) 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. The share of publicly owned banks has remained largely unchanged, even as ownership has decisively become more mixed in other hitherto majority government-owned sectors of the economy, such as aviation and telecom (Figure 22).

There has been a distinct difference in the trends for credit growth and asset quality for PSBs and private banks. Credit growth has been slower and the pace of bad assets higher for PSBs. In the last few years, the pace

FIGURE 20. Comparative Analysis of the Rate of Investment in India and in Emerging Market Developing Economies (EMDE)

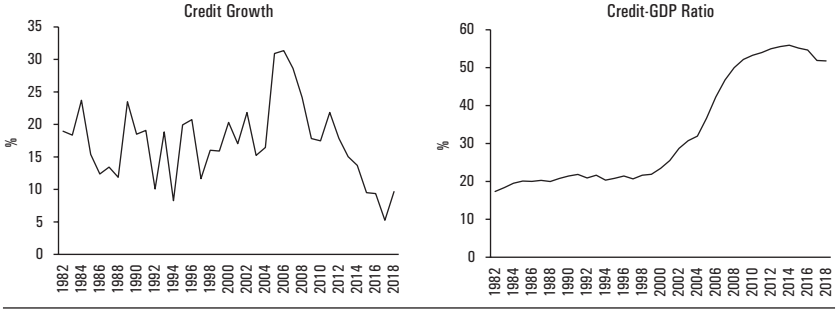


Source: WDI.
Note: The shaded area represents the post-Global Financial Crisis years.

of growth of PSB 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).

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 the early 2000s. In the recent years, the ratio of

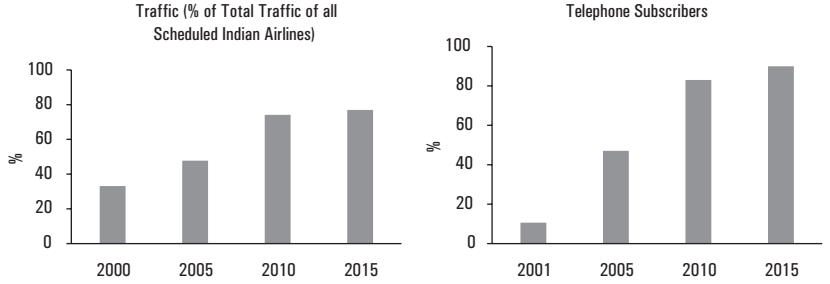
FIGURE 21. Trends in Banking Credit at Scheduled Commercial Banks



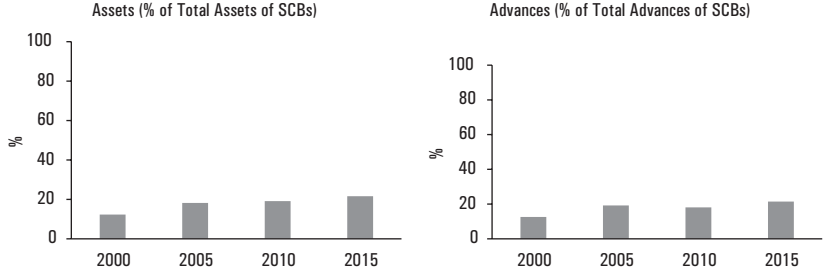
Source: Data are from the RBI.
Note: Years refer to fiscal years.

FIGURE 22. Ownership Structure of the Banking, Aviation, and Telecom Industries

22A: Shares of the Private Sector Continue to Increase in Aviation and Telecom Industries

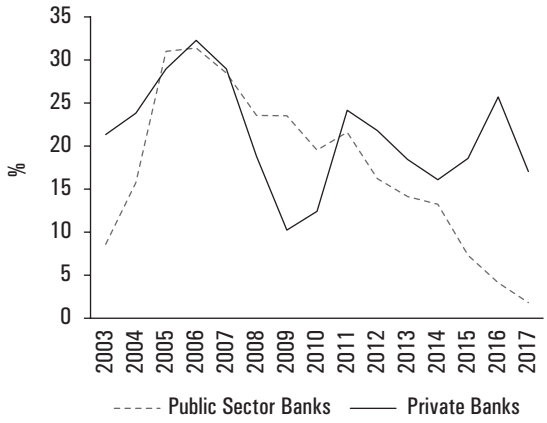


22B: But Remains Low and Sticky in Banking....



Source: Data are from the RBI (banking), Directorate General of Civil Aviation (aviation), data.gov.in, and TRAI (telecom).
Note: Years refer to fiscal years.

FIGURE 23. Growth of Outstanding Credit Has Declined in the Last Few Years; Decline Is Sharper for Public Sector Banks



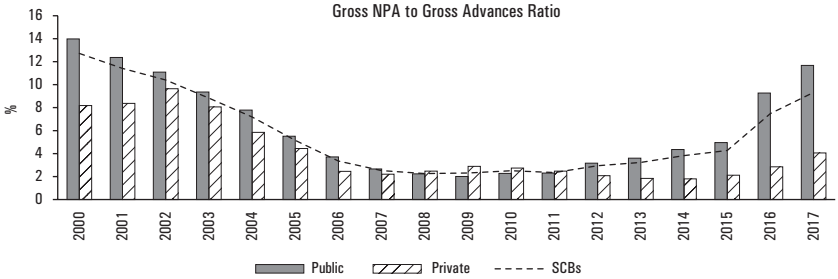
Source: Data are from the RBI.
Note: Years refer to fiscal years.

non-performing assets has increased in PSBs. Besides, there is also a stark contrast between the profitability of PSBs and private banks. PSBs have continued to record negative profitability ratios since March 2016. The return on assets of PSBs was −0.1 percent in September 2017, and its return on equity was −2.0 percent, compared to 1.4 percent and 11.9 percent, respectively, for private banks (Figure 24).[40]

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, for example, to the agriculture sector, and underrecovery of the corporate credit. Reconsidering the ownership balance, and the incentive and governance

40. The allocative efficiency of the public sector-dominated Indian banking sector is considered to be low, holding back potential investments and economic growth. Banerjee, Cole, and Duflo (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 underlend to the private sector and overinvest in government securities. They explain that the employees of the PSBs 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, Kochhar, and Panth (2015) show that the Indian PSBs allocate a larger share of their assets to government securities; and in doing so they respond more to the level of the fiscal deficit than to market signals or even the SLR ratio.

FIGURE 24. Gross NPAs to Gross Advances of the Banking System



Source: Data are from the RBI.
Note: Years refer to fiscal years.

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, and suitable reforms will be needed to reverse this situation.[41] In this direction, the government announced an unprecedented recapitalization of PSBs on October 24, 2017. The proposed measures include recapitalization of approximately ₹2.11 trillion (around $32 billion) over the next two years. The government proposed to fund it through budgetary provisions amounting to approximately ₹180 billion; recapitalization bonds to the tune of ₹1.35 trillion; and direct capital raising by banks from the market by diluting government share (an estimated ₹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 balance sheets and is unlikely on its own to improve the capital adequacy of banks.

A dynamic measurement of PSBs' 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 PSBs; revising their incentive structure to align more closely with their commercial performance; ensuring a level playing field for private banks; and opening

41. These have been discussed in the Nayak Committee Report, in the Indradhanush Plan, and in the recently concluded joint IMF–World Bank FSAP Report (IMF and World Bank 2017).

the space to greater competition. It will be useful to take a call on what part of the ongoing spike in non-performing loans (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 a cyclical recovery takes hold, whereas the structural issues are unlikely to get resolved on their own and will require fast and decisive actions.

The government is reportedly exploring different options to resolve the problem of high NPLs. Some of these measures such as mergers within the PSBs 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 being 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 GFC, 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 GFC. The first of these culminated in negative export growth rates in 2009–10, and the second phase resulted in slow exports growth 2013 onward. Meanwhile, import growth also decelerated until recently and temporarily turned negative in 2015–16.

India has barely managed to keep pace with the growth in world exports since the GFC, reflected in its stagnant or even declining share of world exports, and a declining export-to-GDP ratio. The slowdown in export 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 during 2014–16; but is also prominently reflected in the slow growth of global export 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 and 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:

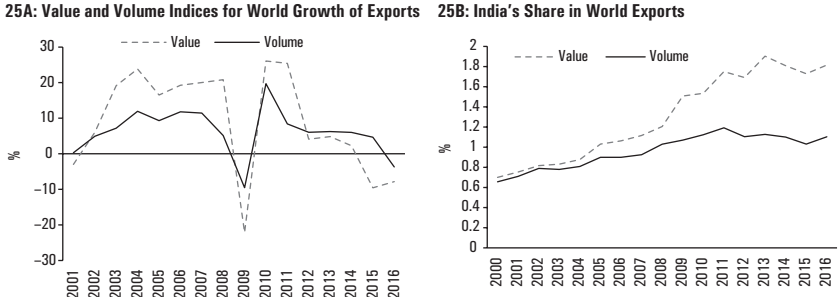
- The initial export slowdown from India around the time of the GFC was primarily due to a decline in global trade, with export growth recovering temporarily after the initial decline. The slowdown in subsequent years, however, is both due to a decline in the prices of oil and commodities, and a decline in India's trade volumes. Between mid-2014 and January 2016, the global prices of oil and metal, and agriculture prices declined sharply, dropping by about 73, 37, and 23 percent, respectively.[42]
- We find that Indian merchandise export growth has decelerated in both value and volume terms.[43] 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 (Figure 25). 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.
- India's export basket remains broad-based but the slowdown has been pervasive. The share of services exports in 2016 was approximately 36 percent of the 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. The export slowdown has been pervasive across merchandise and services exports (Figure 26).
- Comparing the product-specific average growth of exports in the boom period preceding the global economic crisis, 2003–08, to a more recent period, 2012–16, we note that the total export growth rate declined by 26 percentage points during this period (Figure 27). Decline in exports growth was most pronounced for commodity exports such as mineral fuels and lubricants, reflecting the effect of declining commodity prices after 2014, but it also extended to other product groups.[44]

42. 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.

43. 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 USA 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.

44. Growth rates are for export values in current USD.

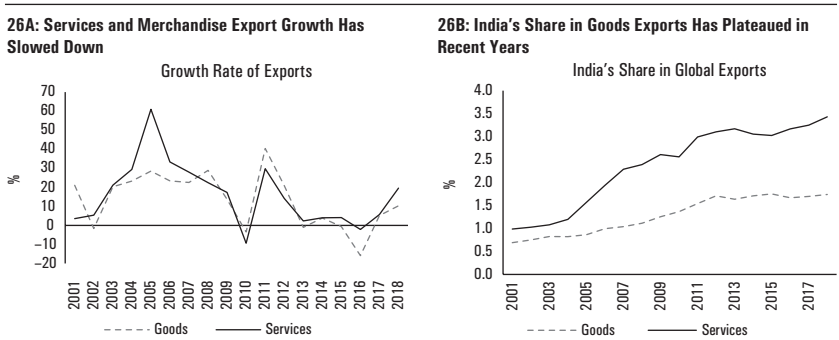
FIGURE 25. Export Growth: India and Global, in Value and Volume



Source: Data are from WDI on export values and from UNCTAD on export volumes.

Note: The 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.

FIGURE 26. Exports of Goods and Services: India, 2001–18



Source: Data are from RBI and WDI.

Note: Years are fiscal years. Calendar year 2017 in WDI data is considered as fiscal year 2017–18.

- India's export destinations remained diversified and were equally affected. The largest share of exports from India is destined for the Middle East (approximately 20% in 2016), and within it, the largest share is exported to the United Arab Emirates. The USA is the second largest destination, accounting for 16 percent of India's exports, followed by China (including Hong Kong), Sub-Saharan Africa, and Europe (Figure 28). We disaggregate Indian exports across its eight main trading partners and the rest of the world for 2003 to 2017.[45] We note that the export slowdown experienced

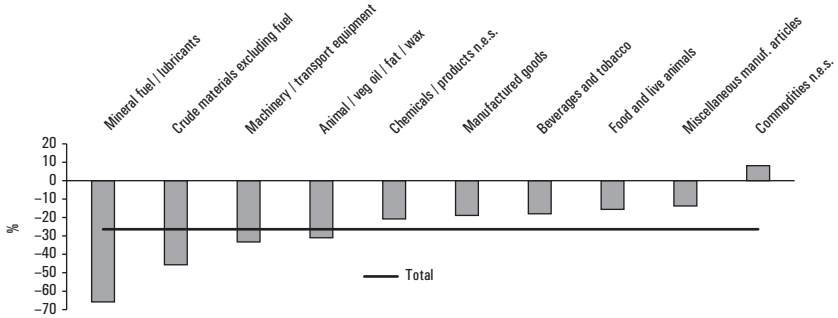
45. India's main trading partners, in order of share in total exports, are the USA, the United Arab Emirates, Hong Kong, China, the United Kingdom, Singapore, Germany, and Saudi Arabia.

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 USA and to China and Singapore.

A significant improvement in the competitiveness of Indian firms would be the key to reinstating the increasing trend in India's share of global exports.

FIGURE 27. Export Growth Rates before and after the GFC

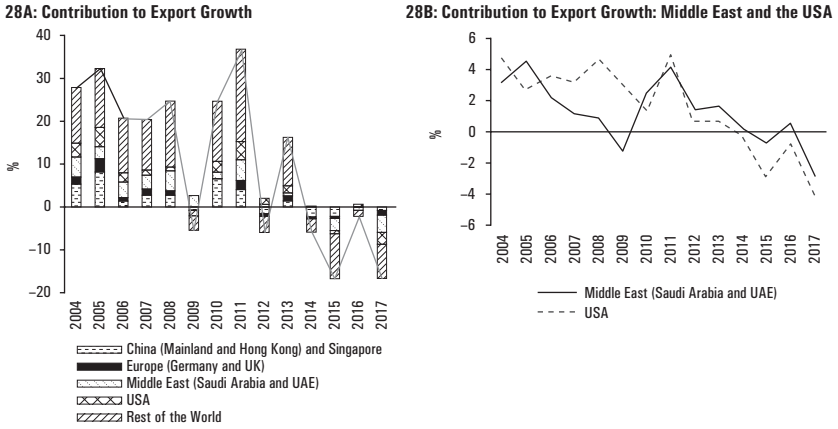
(Difference in average growth rates between 2003–08 and 2012–16)



Source: Data are from UN Comtrade database.

Note: Export growth is in nominal USD. The 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. Total refers to the total difference in average growth rates.

FIGURE 28. Destinations of Indian Exports



Source: Data are from UN Comtrade database.

Note: The years are calendar years. Export growth is in nominal USD.

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 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 underscores several challenges. The global growth outlook is projected to be less robust in the coming years due to several factors. These include a rise in policy uncertainty, underpinned by escalating trade tensions, imposition of tariffs and retaliatory actions by some of the largest economies; monetary policy tightening by the US Federal Reserve Board and other advanced country central banks; and moderation of growth in advanced economies and China.

A surprisingly robust increase in oil prices, defying most expert projections, has presented an additional headwind in the last couple of years. Being a net oil importer, India is sensitive to an increase in oil prices through a number of channels, the most prominent one being through higher a current account deficit, which bears the direct first-order impact of an increase in oil prices. This then filters into a subsequent impact on the 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 US Federal Reserve Board has raised its policy rate seven times in the last three years starting in 2015 as per its pre-announced path. It raised its policy rate by 100 basis points in 2017 and by another 100 basis points in 2018. Looking forward, global interest rates are likely to rise at a slightly slower pace than previously expected. 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

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 2.5 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 seems limited room to consider expansionary policies.[46] If still considered by the government, it will have to be creative about generating 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 vulnerability.

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 GFC in 2008. The slowdown was reflected most profoundly in investment, credit, and exports. Even as the economy has now recovered to a 7–7.5 percent growth rate level,

46. 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.

durably accelerating it to a higher level will require 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 their causes, and implementation of policy actions that are timely, wide-scoped, and innovative.

The factors that may help India improve its competitiveness include an infrastructure boost to bring it at par with other manufacturing hubs of the world; reforms in land, labor, and financial markets, and in the educational system, to assure the continued competitive supply of key production inputs such of labor, land, finance, and skills. Besides, issues related to a competitive exchange rate, enhancing bilateral and regional trade integration, evading the temptation to cave in to the rhetoric on trade protectionism, and embedding more deeply in global value chains, all assume great significance and require an objective discussion and assessment.

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Appendix A: National Accounts Data Splicing

The national accounts data used in this paper was obtained from India's CSO. 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 saving and investment; direct estimation in the value added of private corporate sector using financial returns; using MCA-21 instead of Annual Survey of Industries (ASI) to estimate manufacturing sector output (Nagaraj and Srinivasan 2016).

We splice the new annual and quarterly GDP series backward, using a simple backcasting methodology. The data for the fiscal years prior to 2011–12, available under the old series (with base year 2004–05) were converted to 2011–12 base as explained further. 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.

Appendix B: National Accounts Data Update

The CSO released the back series of the National Accounts Statistics (NAS) with base year 2011–12 (new series) in November 2018.[47] The back series was released for the fiscal years 2004–05 through 2010–11. Until this release,

47. http://www.mospi.gov.in/sites/default/files/press_release/Press-Note-28Nov2018.pdf.

the data for the years prior to fiscal year 2011–12 were available with the base year 2004–05 (old series).

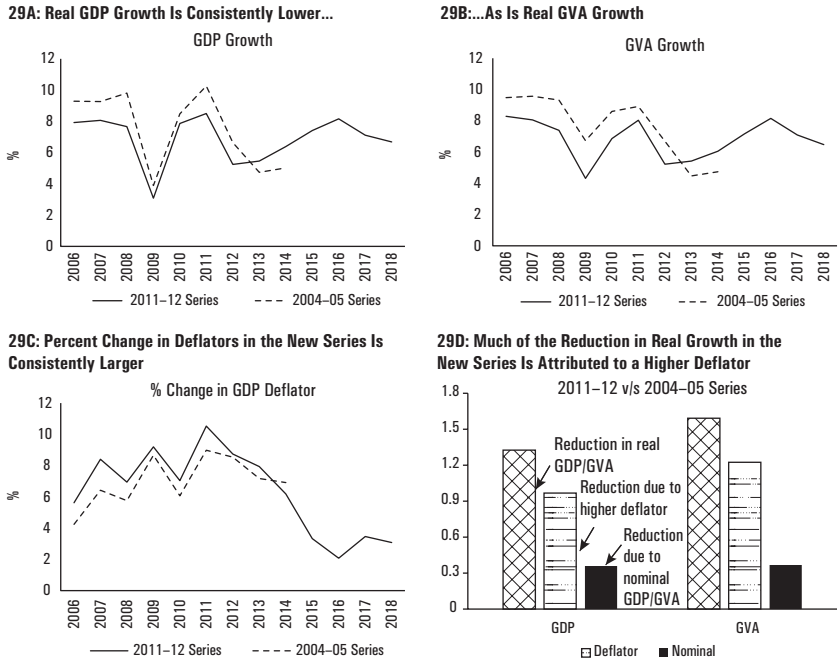
The CSO reported several methodological changes/upgrades in line with the recommendations of the United Nations System of National Accounts (SNA 2008) while preparing the back series. These include: (a) using the Ministry of Corporate Affairs (MCA) database and public sector data in manufacturing and electricity, respectively, which was previously estimated by annual reports of private electricity companies and the Annual Survey of Industries (ASI); (b) use of sector-specific CPI's for the non-financial services (new CPI from 2011–12 and CPI-IW before that) versus the use of CPI (AL) and CPI (IW) in the previous series; (c) use of sales tax data to project growth in the trade sector; and (d) using minutes of usage rather than telecom subscriber growth to estimate the communication sector activity. However, in some cases—due to the data availability limitations for earlier years—either the splicing method or ratios were used for estimates in the base year of 2011–12.

In the new series, GDP growth is lower between 2005–06 and 2011–12. Average GDP growth in the old series (base 2004–05) from 2005–06 to 2011–12 was 8.2 percent, while average growth in the new series is 6.9 percent, about 130 bps lower. Moreover, growth is lower in each of the years from 2005–06 to 2011–12, ranging from 60 bps in 2009–10 to 210 bps in 2007–08 (Figure 29). Growth of GVA is also consistently lower in the new series. Average GVA growth in the old series was 8.5 percent compared to 6.9 percent in the new series over the same period. The differential in average growth between the two series on the supply side was even higher, at 160 bps. An implication of this is that average growth of Net Indirect Taxes (NIT) was higher by about 30 bps between 2005–06 and 2011–12.[48]

Changes in growth are largely attributable to changes in the deflators. There is little change in the level of nominal GDP between the old and the new series. The nominal GDP growth differential across the new and old series is very modest. Much of the reduction in growth of real GDP is because of changes in the deflator. We calculate that of the 130 bps difference in real GDP growth, about 100 bps is attributable to the change in the deflator while only 30 bps is attributable to changes in nominal growth. One implication of the new series is that the economy between 2006 and 2012 was characterized by weaker growth but higher inflation (as captured by the GDP deflator).

48. GDP is computed as the sum of GVA (supply side) and net indirect taxes (indirect taxes less subsidies).

FIGURE 29. Growth Is Consistently Lower in the 2011–12 Series Compared to 2004–05 Series



Source: Data from the CSO.
Note: Years refer to fiscal years.

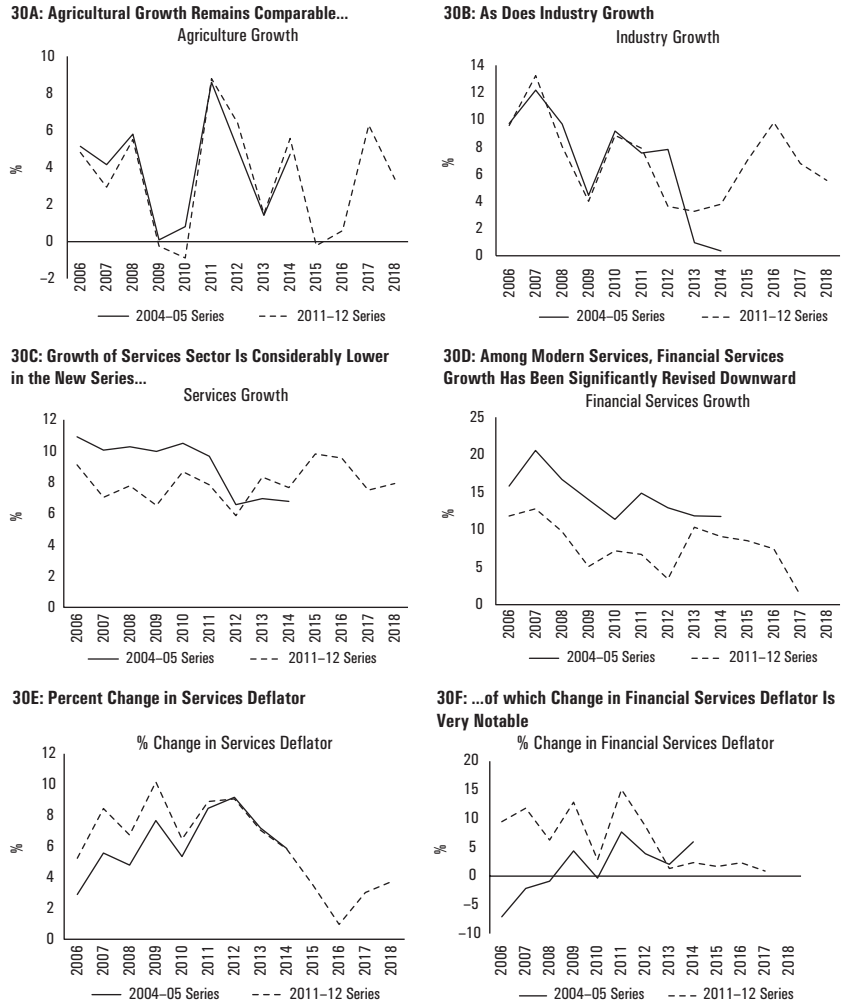
Services deflator explains most of the changes on the supply side. On the supply side, growth of the services sector is considerably lower in the new series while the growth of the agriculture and industry sectors remain comparable (Figure 30). The services deflator explains most of the real growth differential across the two series. Within the service-sector deflator, the most notable changes are to the deflator in the financial services sub-sector.

Figure 30 (Panel F) shows that the deflator in this sub-sector witnessed sharp changes under the new methodology.[49]

On the demand side, lower growth under the new series was concentrated within the consumption sector (mainly private). In contrast, gross fixed capital formation (investment), export and import growth were virtually

49. The CSO's press release notes first that the methodology for estimating GVA of the financial sector (unorganized) was revised to include stock exchanges, stockbroking companies, and asset management companies under the coverage of financial corporations. Second, the deflator used is an index based on the implicit price deflator of the nonfinancial sector.

FIGURE 30. Changes in Services Sector Growth Explain Most of the Differential on the Supply Side



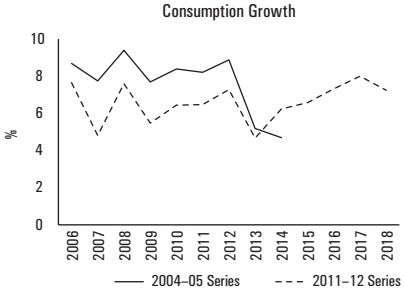
Source: CSO data.
Note: Years refer to fiscal years.

identical across the two series. This implies that the drivers of growth have not meaningfully changed over the last decade (Figure 31).

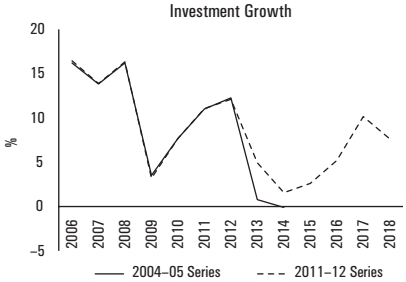
Notwithstanding the data update, the key results on growth acceleration, stability, and diversification across sectors remain robust and unchanged (Figure 32). In Table 6, we present the trend in growth of GDP, per capita GDP, and sectoral growth for both the old and new series. While the

FIGURE 31. On the Demand Side, Consumption Growth Is Lower in the New Series

31A: Consumption Growth Has Been Consistently Lower in the New Series

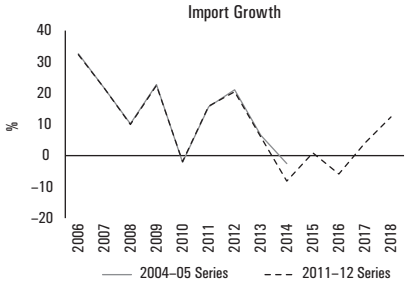


31B:...while Investment Growth Has Remained Virtually the Same



31C: Export Growth Has Also Remained Virtually the Same

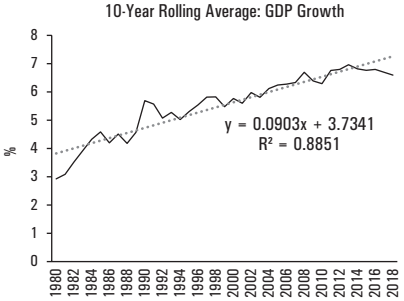
31D:...along with Import Growth



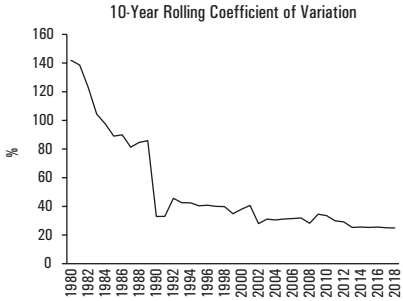
Source: CSO data.
Note: Years refer to fiscal years.

FIGURE 32. Growth Acceleration and Stability (under the New Series)

32A: Growth Continues to Accelerate in the New Series...



32B: ... and Has Become More Stable



Source: CSO data.
Note: Years refer to fiscal years.

TABLE 6. Trends in GDP and Sectoral Growth with the Old and New Series

A: Old Series					
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Variables	*GDP Growth*	*GDP per Capita Growth*	*Agriculture Growth*	*Industry Growth*	*Services Growth*
Trend	0.109***	0.130***	0.0217	0.0970***	0.0961***
	(3.881)	(4.645)	(0.364)	(3.078)	(3.409)
Observations	47	47	47	47	47
R^2	0.251	0.324	0.00294	0.174	0.205
B: New Series					
	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Variables	*GDP Growth*	*GDP per Capita Growth*	*Agriculture Growth*	*Industry Growth*	*Services Growth*
Trend	0.0932***	0.114***	0.0184	0.0863**	0.0802***
	(3.403)	(4.188)	(0.308)	(2.664)	(3.853)
Observations	47	47	47	47	47
R^2	0.205	0.280	0.00210	0.136	0.248

Source: CSO data and authors' calculations.
Note: *t*-statistics in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ indicate level of significance.

coefficients based on the new series are slightly lower, they do not dampen any of the key results of this paper. GDP growth continues to accelerate and has become more stable (under the new series) and the growth remains diversified across sectors. Moreover, since the back series has not affected the estimates of national accounts in nominal terms significantly, the key ratios such as investment rate, savings rate, exports to GDP, imports to GDP, consumption to GDP, remain virtually the same.[50] The long-term trends in these ratios are, therefore, unaffected.

50. Graphs suppressed for brevity. Available on request.

Comments and Discussion*

Sudipto Mundle
National Institute of Public Finance and Policy

This is an impressive paper with a detailed, careful analysis of data to address three issues: long-term growth dynamics, three phases of growth in the economy, and the challenges going forward for India to maintain a high rate of growth. I basically agree with most of what has been said in the paper. Indeed, some of us have also been asking the same questions and giving similar answers related to investment rate changes, degree of openness of the economy, and so on. In a sense, these are fairly conventional answers. Today, I want to present a slightly different way of looking at the growth story, mainly to encourage a discussion.

But first let me start with a question about the data. When I was first asked to comment on this paper, I was curious about how the authors would tell a long-term growth story of the Indian economy when we actually don't have comparable GDP data prior to 2011–12. The new GDP series was launched with 2011–12 as the base year. Usually when that happens, the Central Statistical Organisation generates the back series so that researchers, analysts, and others have a long comparable series to perform the time series analysis. In this case, this was not done, partly because the new data sources being used, particularly the corporate balance sheet data (the MCA 21 database) of the Ministry of Corporate Affairs are not available for the previous years. The authors have thus generated their own back series. Coincidentally, the National Statistical Commission (NSC) has appointed a committee, which I happen to chair, that has also been mandated, among other things, to generate the missing back series. This work has just been completed. Unfortunately, it will take a week or two of internal processing before the new back series is made available in the public domain by the

* To preserve the sense of the discussions at the India Policy Forum, these discussants' comments reflect the views expressed at the IPF and do not necessarily take into account revisions to the conference version of the paper in response to these and other comments in preparing the final, revised version published in this volume. The original conference version of the paper is available on www.ncaer.org.

NSC for discussion and comments. Perhaps it will be available when the paper presented today is revised.

Meanwhile, I can give a comparison of the two ways in which the back-casting has been done in this World Bank paper and by my NSC-appointed committee. In both cases, the growth rates of the old series have been largely preserved, which is desirable, and this chain of growth rates has been linked to the higher GDP level of the new 2011–12 series, as compared to the old (2004–05 base) series. The back series generated for this World Bank paper has not been presented in this paper, but my assessment is that in their back-casting, the level of adjustment is fully back loaded onto the old base year (2004–05), because after that the old series growth rates are being maintained to reach the higher GDP level of the new series in 2011–12. What we have done in the NSC committee is to maintain the old growth rates, but incrementally adjust the output level each year, distributed over the entire back series period, so that cumulatively the back series ends up with the same 2011–12 output as in the new series. This assumes a smooth, gradual change in the production structure as compared to the one-time, big-bang change in 2004–05, as implicit in the World Bank paper. We felt that the gradual adjustment assumption is more realistic.

Let me now go to the first part of the paper, which discusses the long-term growth dynamics. Consider the following thought experiment. Take an economy with two sectors; one which is faster growing, less volatile, and has higher productivity, and another which has lower growth, higher volatility, and lower productivity. If the growth process is repeated over a number of years, after say 10–15 years, the inter-sectoral differences initially embedded in the economy will endogenously generate a significant change in the production structure of the economy. Collaterally, the growth rate of the aggregate economy will have accelerated, it will appear to be less volatile, and productivity will have gone up significantly even though there is no change in productivity, volatility, or the growth rate in either sector. I obviously have in mind agriculture and non-agricultural as the two sectors, but the same logic would apply at any level of disaggregation. These are exactly the three main long-term trends that have been identified in the paper: growth acceleration, rising productivity, and declining volatility. The reason why I am emphasizing this is not because other things like changes in technology, products, and policy, or other shocks are unimportant, but to make the point that the impact of all these other changes and shocks are imposed on top of the underlying long-term structural changes arising from the simple arithmetic of weighted average dynamics as I have explained. The underlying structural changes

would have occurred in any case without any of the additional technological or policy changes. Endogenous structural change and its consequences are an important part of the growth story.

Let me now refer to the forward-looking part of the paper, which discusses what is likely to come later. Based on the long-term dynamics and the three phases that have been analyzed at higher granularity, including the higher frequency data for the last couple of years, a number of factors have been identified as the drivers of growth. Along with factors like India's low dependency ratio, the investment rate changes, or changes in the degree of openness, the authors also cite reforms.

However, the endogenous structural change which I discussed, together with the evolution of the dependency ratio, the rise and subsequent decline of the investment rate, and changes in the degree of openness can by themselves completely explain everything that has happened without any reference to reforms. This includes not just the long-term growth trends but also three growth phases that have been identified: the period of slow growth prior to 1991, actually prior to the mid-1980s; the later gradual increase in growth followed by the sharp growth acceleration between 2003–04 and 2007–08; and finally the slowdown post the financial crisis. This is not to suggest that reforms are unimportant. Indeed the rise and decline of the investment rate and changes in the degree of openness were themselves driven, among other things, by the post-1991 reforms and some subsequent retrogression. However, to tell an interesting story of India's growth, it is important to distinguish between the different layers of causality: endogenous structural change, macroeconomic trends such as changes in the dependency ratio, the investment rate or degree of openness, and reforms in the institutional or regulatory framework. These drivers operate at different levels of causality and need to be treated separately, including interactions among the drivers themselves.

Dilip Mookherjee
Boston University

The first half of this paper provides a range of interesting facts concerning long-term growth in India over the past five decades: accelerated growth rates, especially since 2000, accompanied by a reduction in growth volatility. They show striking contrasts with seven other emerging market economies, and that accelerated growth was sustained and uniform across

different states within India. The acceleration was accompanied by a rise in investment rates, the role of the service sector, of credit, trade, and foreign direct investment, and in productivity growth rates. Moreover, traditional "structuralist" school of macroeconomic factors such as agricultural growth, domestic demand, or public investment did not seem to matter. Neither did "structural transformation" from agriculture to industry, or human capital growth. The paper is very clear in showing this.

The second part of the paper then moves to a granular short-term perspective of performance of the economy since the 2007 crisis. The theme and style of this section is somewhat at odds with the first part. The authors describe three phases in the evolution of the economy since 1991: pick-up of growth rates, unusually fast growth during 2004–08, the slowdown from 2008, and the recent recovery. The post-2007 period was marked by a slowdown in investment, exports, credit quantity, and quality. "Structuralist" factors played a more important role in these short-term movements. The tension between the two parts could be that the 1990–2007 acceleration was a one-time phenomenon, and that it will be difficult to sustain in the years ahead.

I suppose this is the million rupee question—to what extent will it be possible to sustain the high growth rates of the past three decades? Having achieved 7 percent growth over a couple of decades is an extraordinary achievement by worldwide historical standards; the prospect of an acceleration to an even higher long-term growth rate is hardly likely. The relevant question instead is, will it be possible to sustain, say, 6 percent plus growth over the next two decades? What will this take? Or will we slip back to a 2–3 percent growth on par with other developed and middle income countries and our own pre-1990 record?

For me personally, the record of 7 percent over the last three decades, which makes India's growth record just one notch below the Chinese over the same period, seems rather miraculous. This is particularly in light of the myriad growth bottlenecks that afflict India: frictions in land and labor markets, weak governance (especially urban governance), poor infrastructure, lower human capital, and lower spending on higher education and R&D. Both countries have weak judicial contract enforcement mechanisms. My hunch is that the conventional discussions of the drivers of growth in academic and policy circles are missing the essence of the Indian growth story.

Before I discuss this in more detail, let me discuss the credibility of the data used. The recent changes in national income accounts methodology do not seem to pose a major problem: while the changes may change measured

levels, they are less likely to distort the measured growth rates from one year to the next, or the long-term growth estimates. The data quality for saving and investment rates is more worrying, as they are often measured as residuals in the national income data and suffer from multiple price deflation and aggregation issues. Even more worrying are problems in measuring activity in the unorganized sector. Some of the measured growth acceleration may reflect a progressive shift of activities from the unorganized to organized sectors and improving coverage of the unorganized sector over time. While others are more qualified to comment on these issues, my guess is that these may account for part of the higher growth rates of the past two decades. But they are unlikely to account for all of it. The newfound dynamism is all too palpable for it to be entirely a statistical illusion.

Let me return to the question of the possible explanations for India's growth acceleration. It is important to note that the facts pertain to second derivatives (growth acceleration) and moments (volatility) rather than the first derivative (the growth rate), which is what most growth theory is about. Neoclassical growth theory does not seem relevant, as it is driven by investment rates and productivity growth, which are treated as exogenous. For given investment and productivity growth rates, neoclassical theory predicts growth rates will fall over time, that is, the phenomenon of convergence. Growth acceleration is consistent with neoclassical theory combined with rising investment and productivity growth, as has been observed in India. But then we need to understand the sources of rising investment and productivity.

Endogenous growth theory a la Romer (1986, 1990) or Lucas (1988) also does not seem that relevant, rooted as it is in externalities generated by R&D and human capital, respectively. But the broader idea of learning and spillovers could be relevant. The post-1991 liberalization opened the economy to higher quality inputs embodying improved technology, thereby allowing a range of new products to be produced (Goldberg et al. 2010). Perhaps liberalization of entry of new firms paved the way for agglomeration externalities to be realized, involving the sharing of key inputs, market access, and diffusion of know-how among new entrepreneurs. As in China, these may have been facilitated by efforts to provide entry and investment stimuli via special economic zones (SEZs) since the early 2000s: the recent work of Hyun and Ravi (2018) finds evidence of increased night-light intensity (a measure of local economic activity) in the close vicinity of SEZs after they went into operation, rising investment, productivity, employment and wages in the formal sector, and shifts from the informal to the formal sector.

Community-based networks may have been an important channel for spillovers. Production clusters in specific industries consisting of dense concentration of firms of small scale, marked by a high degree of specialization, extensive subcontracting, informal pooling of capital, and risks among entrepreneurs of similar social origins have been documented in specific industries that achieved high growth rates in China (Long and Zhang 2011, 2012) and India (Banerjee and Munshi 2004; Munshi 2011). The networks are based on different sources of "social capital"—clan and common place of birth in China (Deng et al. 2018; Greif and Tabellini, 2017; Peng 2004) and subcaste in India (Munshi 2014). High social and economic interdependence within these communities provided opportunities to overcome barriers to entrepreneurship—access to capital, know-how and contract enforcement mechanisms—owing to weak market and state institutions.

Once some entrepreneurs from a certain community gain a foothold, thanks to the liberalization of entry and investment regulations, the dynamic community-based spillovers could have triggered the entry of subsequent waves of new entrepreneurs from the same community in a cascade-like manner, resulting in growth acceleration phases. Empirical analyses of such community-based growth are hampered by lack of data concerning informal firms and the social origins of their entrepreneurs, and the inherent difficulty of identifying and estimating across-firm spillovers. However, the recent availability of data in China on all registered firms since the late 1970s and the birthplace of their principal entrepreneurs has enabled me and my co-authors to test such a model of community network-based firm entry and growth for the entire Chinese economy (Dai et al. 2018). We estimate the contribution of these origin community-based spillovers of firm entry and capital stock invested in private firms between 1990 and 2009 at 40 percent nationwide after controlling for a large range of constant and time-varying destination-specific factors which include geography, local infrastructure, and government support.

What are the limitations of such community-based growth mechanisms? These have been less studied, but various case studies are instructive. By their very nature, the growth spurts are restricted to specific communities and can result in fast transitions from pre-industrial occupations to industrial entrepreneurship over narrow intervals of time, followed by subsequent plateauing once the transition is completed for most potential entrants from the community. So they can result in short-lived growth spurts that are hard to sustain and are inherently uneven in their incidence. They have been restricted to low-end manufacturing industries and service sectors, where requirements for entrepreneurial know-how, education, and capital are low.

Market size constraints and low quality of products can also limit growth. Sustaining high growth rates requires upgrading of quality and access to export markets, that is, higher technology, capital requirements, and vertical integration, for which traditional community-based clusters may be ill-suited. Similar problems seem to be afflicting the growth of the Indian IT sector, as they face the challenge of growing international competition, automation, and the need to upgrade to new kinds of services.

Apart from this, the various constraints mentioned by the authors in the second half of the paper in raising investment, exports, and improving credit quality are also likely to matter. And so are many other constraints they do not mention: resources (energy, water, and land), pollution, poor urban governance, rising inequality, and resulting political pressure to redistribute via policies that reduce efficiency and investment incentives. Sustaining 6 percent plus growth will not be easy. But then we economists tend to be pessimistic by nature, forever tending to gloomy forecasts, unable to predict growth miracles in advance, and explaining them after they happen.

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General Discussion

Chaired by **Subhash Garg**
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Pranab Bardhan noted that economists tend to relate only reforms to long-run growth. Since the mid-1980s, Indian reforms have been accompanied also by massive social change. Subordinate castes have become politically more assertive and economically more active. Barriers to entry have fallen, and rising caste groups have entered small business, often investing their agricultural surplus. Economists have not tried to quantify the impact of this social development on growth dynamics. Much of this impact is in the informal sector, for which more data should be available now. The NSS has recently released data on unincorporated enterprises for two years (2011–12 and 2015–16). We should correlate the data on these informal and household enterprises with their social composition, as was done by Banerjee and Munshi (2004) for peasants from a certain caste who were now in the knitted garments industry.

Surjit Bhalla commented that on the investment rate going down, we need to be careful about the deflator. If we look at it in real terms, the price of investment goods had not gone up as much as the price of other goods and, therefore, the investment rate was declining in nominal terms. In real terms, the decline had been about 3 percentage points, but the rate was still quite high. On GDP measurement, given all the confusion, he was really looking forward to the paper on GDP that the Bank paper referred to. On what determines growth, he agreed with Dilip Mookherjee that a large part of the growth story in developing countries could be explained by the very large increase in human capital and educational attainment.

Devesh Kapur noted on Dilip Mookherjee's point on R&D that he was surprised to learn that in the last decade, India had been the fastest growing country globally in the number of papers published. A recent US National Science Foundation report shows that the share of global papers from India doubled from about 2.5 to 5 percent between 2006 and 2015. India was now the third, after China and the USA. India's gross enrolment ratio in higher education is considerably higher than China's at a comparable level of income when China was at India's level of income. Thus, in terms of the numbers on human capital and R&D, India had shown a considerable acceleration in the last decade.

Vijay Joshi suggested that the title of the paper should be changed to "Some Macro Aspects of India's Growth Story" because it did not deal with a lot of things such as education, reform of the state, and of state capacity in institutions that were essential to sustained, high growth.

Second, he suggested that in the discussion on short-term dynamics, there was no mention of how much of the deterioration in investment was due to increased fiscal deficits. Crowding out was not a good explanation, since this was a period of exceptional monetary easing as real interest rates were extremely low immediately after the global crisis. How much was it fiscal deficits, and how much, for example, was it the debt overhang?

Third, the paper merely listed some factors for export growth. How important was the significant appreciation of the exchange rate? Could we have achieved different results if the oil price bonanza witnessed after 2014 had been used differently? It would help for the paper to answer these important questions. Fourth, he said that the investment rate diagrams in the paper showed that there was a fall in the corporate investment rate after the global crisis, but it was followed by remarkable stability. So most of the decline after 2011 seemed to be in household investment, not in corporate investment. Should that be believed, and if not, why not? Finally, he wanted to know how investment could be revived given the current stress in Indian banking. He thought the paper should have addressed some of these questions.

Sajjid Chinoy complimented the authors on a comprehensive overview of India's growth story. First, he also advocated deeper analysis of India's investment dynamics in the last decade. We assume that it is large corporate investment that had declined, and fixing up the banking system could reverse this. Corporate investment fell starting in 2008, but had actually then stabilized, even picking up subsequently as a percentage of GDP. A closer look at the data showed that a lot of the decline was

related to the fall in household investment, which included investment by small and medium enterprises, over the last five or six years, even well before demonetization and the advent of GST. The implication was that without changing the economic viability of these smaller enterprises, say through factor market reforms, we may not be able to go back to those higher investment rates.

Second, he stressed that the last six or seven years have shown an interesting dichotomy in what the authors have called the golden period of growth; a strong synchronization between India's growth and global growth and then a de-synchronization in both directions in the last five years. Even as the global economy slowed down for three or four years, the Indian economy actually accelerated sharply, but as the global economy started recovering in the last two years, India grossly under-performed. One of the proximate reasons for this could be that India's exports were not responding to stronger global growth, which implied that in a stronger global environment the country was not getting the benefit of net exports, but had to bear the cost through higher commodity prices and the adverse terms of trade. The authors needed to do some thinking on this because this de-synchronization over the last 5–6 years was being seen for the first time in 15 years.

Third, he said he was getting nervous about the talk of 8 and 9 percent growth over long periods. The entire high growth of 9 percent achieved earlier was attributable to exports, and the entire slowdown from 8.8 percent to 6.9 percent in the last five years was attributable to the slowdown in the value added growth of exports. If this is the new normal, how do we sustain 7 percent, leave alone 9, in this gloomy global situation? This made it important, as suggested by Vijay Joshi, to identify other drivers of growth in order to push growth without stoking external imbalances, which was not a constraint when export-led growth was being achieved.

Abhijit Banerjee agreed with Sajjid Chinoy that the Indian household sector actually included what might be called firms elsewhere. One of the striking facts about India was how small firms were relative to the industry. The decline in investment in the household sector may actually relate to firms becoming bigger and therefore not considered household. During 2003–08, start-ups in India had started becoming bigger. So if there was a shift in household investment to more formal firms, was that good news or bad news? Banerjee also suggested that the paper should take on the question of the fiscal arithmetic of India and how things might square up with the adverse trends in deficits and government borrowing we were seeing. He thought the only way this could be done would be a return to the bad

days of very high inflation and financial repression. He thought the paper should comment on this.

Ila Patnaik wanted to draw attention to what Sudipto Mundle had brought up about the formal and informal sectors. She said that she would like to see an analysis in the paper about whether some of the recent initiatives, such as GST or demonetization, were having an impact on pushing informal firms into the formal sector. What did the data say about decline in informal sector jobs, how small informal firms were doing? Perhaps there was an increase in jobs covered by EPFO, as shown by Ghosh and Ghosh (2018). In many instances in the short-run, these changes could be disruptive and the sectors affected may not do well, but in the long run, they could signify an improvement in sector productivity. What did the paper have to say about these possible developments?

Shantayanan Devarajan noted that the biggest surprise for him from the paper was the balanced nature of Indian growth it showed, both the balance across sectors and the balance across states. He wondered how that could be reconciled with the unmistakable increase in inequality during this period, since balanced growth should reduce inequality. He echoed Dilip Mookherjee's point and asked if there was an underlying growth model for India that could explain both the balanced growth and the increase in inequality.

Karthik Muralidharan echoed the point that the underlying growth model might explain this growth pattern. He didn't think it needed much more data, but it would be amazing to see this done at the state level. This could provide a lot of clues to the questions being raised. India was just one case study, but looking at the state level variation could really shed light on correlates.

Govinda Rao observed that there appeared to be an 8- to 10-year cycle in the Indian growth story, it seemed tied to the Pay Commission awards and, perhaps, even the cyclical movement of oil prices. For instance, the Pay Commission Award in 1977–78 was followed by skyrocketing oil prices in July 1978. This cycle was also seen in 1989–90, then in 2000, and again in 2007–08. The Pay Commission, expansion of the Mahatma Gandhi National Rural Employment Guarantee Act, and loan waivers, were the three major issues in the 2007–08 budget, resulting in a sharp rise in the fiscal deficit. The Global Financial Crisis came much later. His point was that the decline in our macro stability and investment had much more to do with the country's domestic policies than the Global Financial Crisis, and the paper would benefit from considering these.

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