Investment Behavior in India:

What led to Investment Slowdown and how to Revive it?

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Abstract: *The importance of investment for improved productivity and economic growth has been well established in both theoretical and empirical literature. Investment slowdown has been the subject of intense debate in recent years. Most of the existing debates have been around aggregate investment but disaggregate investment at institution wise and assets wise may respond heterogeneously with respect to the macro-prudential policy measures. The present study goes in depth to explore the investment dynamics at disaggregate level for the period 2004-2019 in the wake of changing economic environment characterized with active utilization of monetary and fiscal policies, varying monetary transmission effect, economic uncertainty, business environment and financial pressure either by credit short-fall or debt overhang.*

Keywords: India, Investment Behaviour, Monetary policy, fiscal policy, economic uncertainty.

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1. Introduction

The importance of investment for improved productivity and economic growth has been well established in both theoretical and empirical literature (Solow, 1957; Romer, 1986; Lucas, 1988, Khan & Reinhart, 1990; Grossman and Helpman, 1991; Barro, 1991). There are also empirical studies which established significant contribution of investment to growth in India (Sahoo and Dash, 2009; 2012; Dash and Sahoo, 2010). India's investment ratio rose constantly in the beginning of 21st century and peaked at 34.3% of GDP in 2011-12, but has slowed down since then. As per the National Accounts Statistics (NAS) data, the growth in capital formation at 2011-12 base was about 15% during 2004–2008. However, it started to fall immediately after the global financial crisis (GFC), falling to 7.8% during 2009-13 and further down to 5.8% during 2014–2019. The investment slowdown has continued in spite of the introduction of several policy measures by the Indian Government such as the Insolvency and Bankruptcy Code (IBC), Goods and Services Tax (GST) and, various legal and regulatory frameworks for effective and efficient administrative processes to stimulate investors' confidence. The investment slowdown in India is in line with the investment behaviour of other developing and emerging countries. Investment growth decelerated across countries during the post-crisis period, especially in emerging and developing economies (EMDE) wherein growth reduced from 10% in 2010 to 3% in 2017. The investment rate fell sharply in the BRICS bloc of five large emerging markets, from 13% in 2010 to around 4% in 2016 (Kose *et al.*, 2017). However, the decline in investment in India – one of the key drivers of growth - is a matter of concern for scholars and policy makers as sustaining of 7–8% growth in the medium term may be difficult. Therefore, there is a need for critically examining investment behaviour in India at both aggregate and disaggregated levels (i.e., institution wise, asset wise etc.) to diagnose the pattern of slow down and its underlying reasons.

As such, there has been an intense debate about the causes of the investment slowdown in India. Some commentators underscore the role of higher capital cost due to the increased interest rates, in line with the neoclassical theory of investment. Others have maintained that a host of other factors, particularly on the supply side, and policy uncertainty are at play. An RBI study (2013) reported that India's post-crisis period has been characterized by low real interest rates and low investment levels as compared to the higher interest rates and higher investment levels that were prevailing before the crisis. The fact that investment levels continue to be low, even in the face of falling interest rates, has been attributed to lower marginal productivity of capital or expected returns on new investment. Anand and Tulin (2014) note that deteriorating business confidence and rising policy uncertainty has led to the cancellation of new investment projects and dampened the spirit of business expansion in the post GFC period. According to RBI report (2019), there has been a deceleration in gross capital formation in India since 2011-12 due to a fall in private investment, which in turn has been caused by a decline in financial flows from banks and non-banks to the commercial sector. Subramanian and Felman (2019) have pointed out that excessive lending by banks and corporate sector's optimistic growth outlook during 2004-08 resulted in over-leveraging. The problem was further exacerbated by the policy paralysis associated with delays in land and environment clearances and, rising financing costs. Furthermore, the credit squeeze amid rising NPAs - which has only increased after the asset quality review in 2014 and NBFC crisis in late 2018- have decelerated investment growth in the country. At the global level, Banerjee *et al.* (2015) found that business investment has weakened despite low interest rates and widely accessible capital market funding. The reason for this is the prevailing mismatch between favourable financial conditions and investment opportunities and, an uncertainty about future economic conditions. Kose *et al.* (2017) suggest that factors including terms-of-trade shocks for oil exporters and commodity importers; slowing inflows of foreign direct investment; rising private debt burdens and; increasing political risks are responsible for the slowing down of investment in emerging countries. Besides these, financial market and macroeconomic policy uncertainties have also adversely affected the investment rate.

In this context, the debate around investment slowdown in India requires more clarity in order to understand the role played by various economic factors in influencing the investment behaviour in India so as to suggest the policy options available for reviving the investment in the country. Most of the existing literature on the subject pertains to analysing aggregate investment rather than studying its various components. It is worth to note that there may be heterogeneous response of institutional investment with regard to policy measures and the same cannot be captured with aggregate investment analysis. Thus, there is a need to examine investment behaviour at a more disaggregated level (i.e., in terms of institution-wise and asset-wise investments) for exploring how investment has responded to the changing macroeconomic policy environment. We add on the existing debate by exploring the nature of investment at disaggregate level and more importantly how macro variables such as credit-gap and debt overhang, economic uncertainty, monetary policy transmission and business environment have influenced the private investment in India.

2. Investment Behaviour in India

2.1 Investment Behaviour in India at an Aggregate Level

The investment rate in India increased from 20% in the early 1990s to 25% in the 2000s, as the period witnessed wide ranging policy changes focussed on globalisation, privatisation and deregulation, which were implemented to ensure higher productivity-led growth and prevent any further balance of payment crises like 1991. Even after the Asian financial crisis, investment in India had remained resilient during 1997-08 to 2000-01 as it was supported by a prudential monetary policy, appropriate interventions in the foreign exchange market and, regulated capital flows by the Reserve Bank of India (RBI). From 2003-04 to 2007-08, India experienced unprecedented growth in GDP, of around 9% p.a. which was accompanied by strong growth performances by the global economy (5% p.a.) and emerging economies[3] (8% p.a.). The empirical literature (Agrawal *et al*., 2010) pertaining to India suggests that growth leads to savings. In accordance with these findings, higher growth during 2003-2008 was accompanied by higher savings and thereby, higher investment (Figure 1). The increase in aggregate investment was mostly contributed by private corporate sector investment[4] (Figure 2), the latter supported and financed by increase in bank credit and foreign private capital inflows. Public investment grew moderately owing to implementation of Fiscal Responsibility and Budget Management Act (FRBM). However, household sector investment slowed down during this phase, linked to its higher savings preferably into physical assets. The spurt in capital inflows did not lead to external indebtedness as public sector debt contracted due to the FRBM. Unlike the instance of debt-led growth raising domestic consumption, the increase in credit and capital inflows resulted in an investment boom.

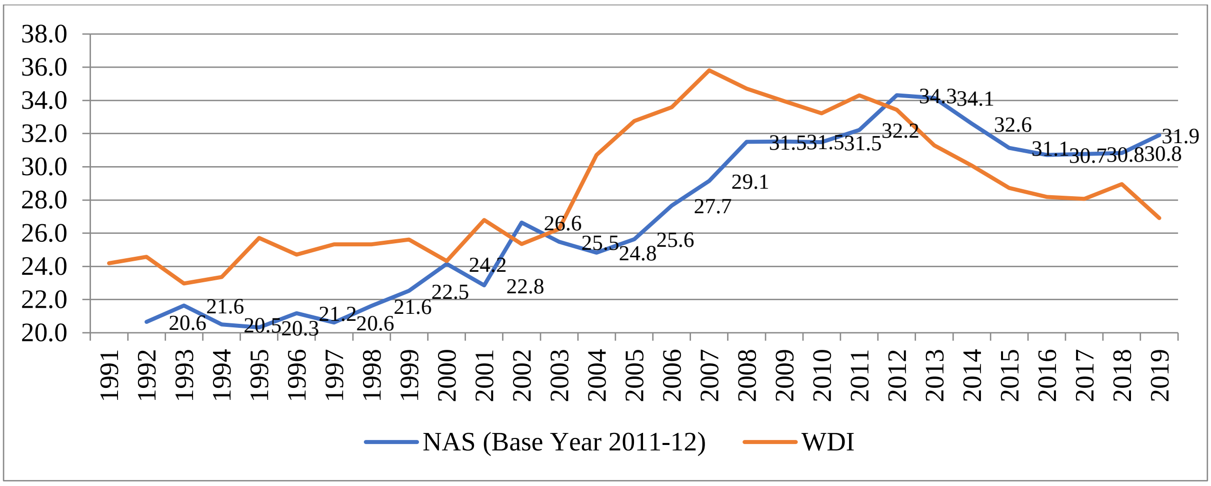
The occurrence of the global financial crisis in 2008 affected the momentum of investment growth in the country, as growth prospects were dampened amid loss of business confidence,

[3] During 2000 to 2010 EMEs grew at the rate of 6%, compared with the below 4% growth rate of the previous two decades (ECB, 2016).

[4]The investment rate of India witnessed a jump from 28 % to 34 % during this period and corporate investment rate contributed to this jump.

falling global trade[5] and collapse of commodity prices. Though there was fall in investment growth rate, investment continued to increase even after the GFC with the help of some fiscal stimulus, an accommodative monetary policy and increasing financial intermediation[6]. Investment ratio increased till it reached its peak at 34.3% in 2011-12 after which it has declined; the ratio fell to 30.8% in 2016 and improved marginally to 31.9% in 2018-19(See Figure 1). Some of the factors cited for the investment slowdown are deceleration in growth, lack of aggregate demand, stalled projects and occurrence of the twin balance sheet problem. Major policy changes such as demonetisation and implementation of GST have further disrupted the investment cycles in the economy. Apart from domestic factors, there have been several developments in the world economy after the GFC – including the sovereign debt crisis in Europe; rise of protectionism across countries; tariff wars between USA and China and other geo-political issues – which have infused global trade with increased uncertainty and adversely affected growth and investment prospects in developing countries like India. As per historical experiences, the recent investment slowdown in India has continued longer than the average time period taken by other developing countries for getting through such slowdowns (Economic Survey, 2017-18). The weak investment reduces the growth potential of an economy which could have wide-ranging implications for its development needs as well. Therefore, it is important to examine the patterns of investment in India at a more disaggregated level to understand the nature of its slowdown more comprehensively.

Figure 1: **Gross Fixed Capital Formation (% of GDP)**



Source: World Development Indicators (WDI), NAS. Note: NAS data is for fiscal year ending with 2018-19[7]

2.2 Investment Slowdown across Different Types of Assets and Institutions

The composition of investment institution wise is reported in Figure 2, where the investment rates (as a share of GDP) for public sector, household sector and corporate sector were 6.2%, 11.2% and 8.3% in 2004-05 which increased to 7.7%, 11.3% and 12.4%, respectively in 2017-18. The rise in investment ratio from 2004-05 till the GFC was attributed to a significant increase in corporate sector investment (by 6 percentage points) and a moderate increase in public sector investment (by 1.5 percentage points). However, corporate sector investment declined immediately after the GFC. This was balanced by household sector investment which continued to increase till 2011-12, causing aggregate investment rate to peak at 34.3% in 2011-

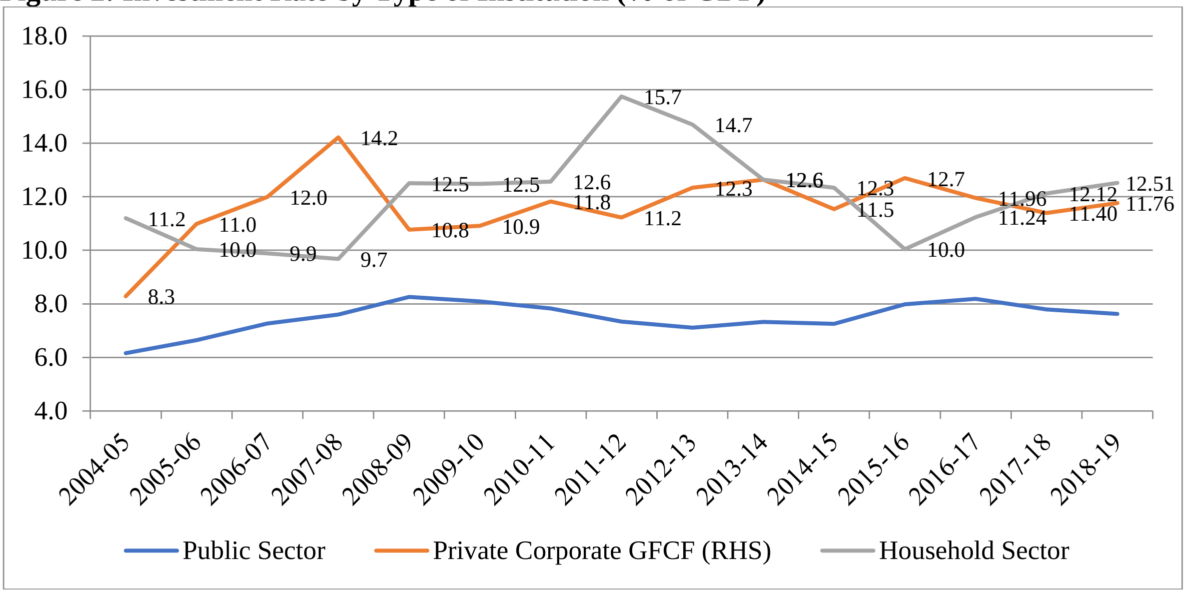
[5] The trade which was growing at a rate of 7.8 % in 2005, 9.1% in 2006 and 7.33 % in 2007 was immediately slowed down to 2.95% in 2008. The volume of trade was further shrunk by 12.3% in 2009 (Mathew, 2012).

[6] Fiscal deficit increased from 2.5 % in 2007-08 to around 6 % in 2008-09 and 6.5% in 2009-10. Monetary policy rates were lowered from 9 % in mid-2008 to around 6 percent by end of 2010. Bank credit almost tripled between 2003-04 and 2007-08, and doubled between 2007-08 and 2011-12 (Economic Survey, 2019-20).

[7] Differences in values arise due to the computation of investment rate based on current value by WDI and real values by NAS.

12. However, household investment started falling thereafter (from 15.75% in 2011-12 to 11.26% in 2017-18), while corporate sector investment recovered by 50% from its peak in 2007-08. In contrast, public investment reached its highest level of 8.3% in 2008-09 and fluctuated between 7- 8% in the post-GFC period. Thus, it is the fall in private investment, particularly the fall in household sector investment, which is responsible for the investment slowdown in the country after 2011-12.

Figure 2: Investment Rate by Type of Institution (% of GDP)



Source: Authors' Compilation from NAS

As such, investment is broadly channelled into four different types of assets: construction; machinery and equipment; cultivated biological resources; and intellectual property products[8]. In the year 2004-05, aggregate investment was dominated by construction type of assets (19% of GDP) as compared to machinery and equipment (7.8%) (Figure 3A). Though both construction-based and machinery-based investments were growing between 2004-05 and 2011-12, the pace of investment for machineries was higher, particularly till 2008. The Indian industries were in a phase of capacity expansion before the GFC as they were aided by an expansion in economic growth, global trade, credit and capital flows. Investment in machinery and equipment showed a continuously increasing trend from 2004-05 to 2012-13, peaking at 12.1% in 2012-13. During this period, the focus was on capital-intensive manufacturing export led growth. However there have been upheavals since 2012-13(Figure 3A).

Investment in construction - the largest component in the aggregate investment - started falling after 2011-12; it fell from its peak of 19.7% in 2011-12 to 15.4% in 2017-18. The main reason for the decline in the share (i.e., housing and building type of assets) lies in the real estate bubble that had caused the GFC of 2008. After the crisis, real estate prices had collapsed in developed countries and moderated in developing countries, and there was a global credit freeze in real estate projects. In India, the corporate investment in construction was market sensitive and consequently, saw a dip immediately after 2008. But the Indian household sector took some time to register the negative effects of the real estate collapse. The lagged response of household investment can be linked to still positive valuation of real estate even after the GFC. For instance, the price index for residential property has seen an increase of 22% in 2011-13, but the same could not be sustained and fell to 8.5% in 2017-18 (BIS, Statistics). The impact of the GFC on the construction sector in India was subdued till 2011-12 as credit continued to flow to the retail sector. However, it may be noted that speculative capital in the sector had

[8]Both cultivated biological resources and intellectual property products are very minor components ranging 2 to 3% of GDP. Therefore, we have mainly focussed our analysis on Construction and Machinery equipment.

declined due to revised expectations of investors about future rates of return. The fiscal stimulus of around 3.5% of GDP immediately after GFC to boost demand, injected a lot of liquidity in the market which helped the housing sector to grow till 2011-12.

However, investment in the construction sector started declining after 2011-12 due to credit constraints, stalled projects, lower demand and reduced valuation. The shock of demonetization in 2016- which suddenly stopped the flow of unaccounted money to the construction sector- and two subsequent regulatory changes in the form of the goods and services tax (GST) and the Real Estate (Regulation and Development) Act led to more uncertainty and a prolonged slump in the sector. The rise of NPAs in the banking sector slowed credit flow to the construction sector and led to lower valuation of property prices and an increase in uncertainty about the completion of projects. As a result, there was a decline in construction activities, particularly in housing sector. However, demonetisation also led to an increase in bank deposits and banks started to outsource lending to non-banking financial companies (NBFCs) which to some extent funded real estate developers. But there was a crisis in the NBFC sector in 2018 which again stopped the flow of finance to the construction sector.

In case of the public sector, investment is dominated by construction related activities. Public sector investment increased from 2004-05 to 2008-09 after which it declined immediately with some improvements in recent years. Public investment in construction declined after GFC, but recovered to its pre-crisis level (of around 5 %) by 2015-16, thereby suggesting increased spending on infrastructure projects. Since 2014-15, the Indian government has been allocating more budgetary resources for public infrastructure. However, public investment on machinery and equipment which was showing an upward trend before the GFC has been declining in recent years (Figure 3B).

Private corporate investment increased significantly from 8.3 % of GDP in 2004-05 to 14.2 % of GDP in 2007-08, but declined to 10.8% in 2008-09 (Figure 3C). Private investment being sensitive to market-oriented activities responded quickly to changes in the demand side of economy brought about by the GFC. Unlike public sector investment, there is a greater dominance of machinery-based investment in the corporate sector investment (Figure 3C). However, the machine-based assets declined marginally after GFC, stagnated till 2014-15 and, have fallen further thereafter. This trend is a matter of concern as lack of investment in machinery and equipment affects industrial productivity and overall productivity led growth of an economy. In addition, there had been a sharp decline in construction-based corporate investment immediately after 2007-08, though it has improved since then. Private corporate investment has followed a similar trend as it fell sharply during the GFC and has revived gradually. A possible explanation could be rising savings as private corporate sector savings (as a share of GDP) have increased by almost 2.5% points during 2011-16 (Rangarajan, 2018). Moreover, there has been an increase in investment in IPR (Intellectual Property Rights) types of assets in recent years which may further improve private corporate investments. IPR-based investments aiming to increase productivity and value addition to the business of corporate sector, have risen from 2% (of GDP) in 2011-12 to 3.5% of GDP in 2017-18.

Household sector investment, mainly dominated by construction type assets, had stagnated before GFC (at around 10% of GDP) but registered a significant jump thereafter, reaching its peak level of 15.75% by 2011-12. However, the same has been declining since 2011-12 (Figure 3D) and fell to 11.3% in 2017-18, mainly due to fall in the construction sector by 5% points (from 12.8% in 2011-12 to 7.8% in 2017-18). This can be attributed to the lacklustre response of households toward residential property as it became an increasingly unattractive option for investment in the face of falling prices and rising uncertainty. The growth rate of residential property prices has declined significantly, from 24.3% in 2011-12 to 5.7% in 2017-18 (Figure 4). Moreover, the household sector witnessed a fall in savings from 23.64% of GDP in 2011-

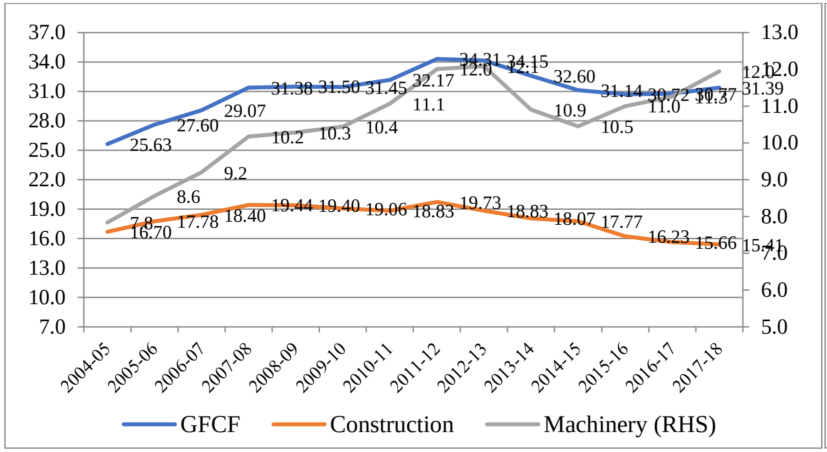
12 to 16.26% in 2016-17 (Rangarajan, 2018)[9]. However, the moderation of public investment growth after 2011-12 and its subsequent slowdown in the last few years are mainly due to a slowdown in overall economic growth. Machinery investment has offset the overall fall in household investment in construction to certain extent. The increase in investment in machinery and equipment by household sector is actually a good sign as it suggests the rise of small and medium enterprises as households include non-corporate businesses (Figure 3D).

The Economic Survey (2019-20) reports that post 2011-12, households have deployed resources for consumption rather than the physical assets. Physical savings (largely, real estate) of households declined from 15.9% in fiscal 2012 to 10.3% in fiscal 2018. Financial savings also declined from 7.4% to 6.6%[10]. As per NAS data, the average growth for PFCE was 6% during the period 2004-11 and 7.12 % during 2012-18. Figure 4 depicts that investment rate in India has reached its peak level by 2011-12 with falling private final consumption expenditure rate (% of aggregate demand), which resulted in a rise in both physical and financial savings. Physical savings were channelled into the housing boom while financial savings empowered the financial institutions for the credit boom. But after 2011-12, consumption rate has increased which led to fall in household savings while there was a decline in residential property prices (Figure 4).

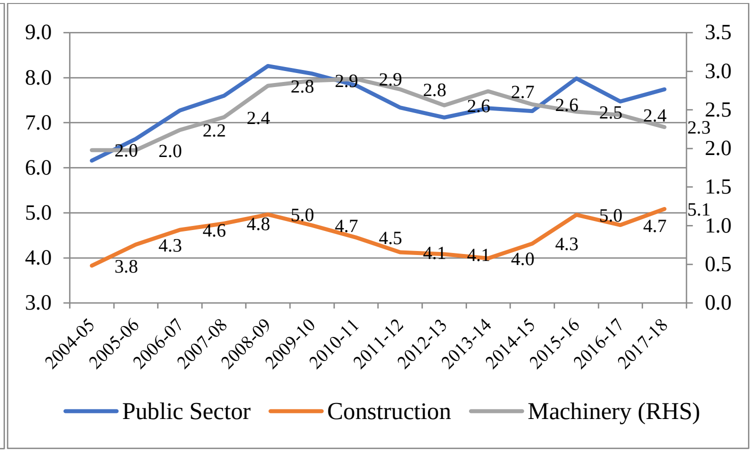
[9]India's saving rate has come down to 32.3 % in 2017-18 from the peak level of 39 % in 2011-12.
[10]FE Bureau (February 16, 2019). Declining household savings after demonetization, GST hit investment. Financial Express

Figure 3: Investment Composition across Types of Assets and Institutions

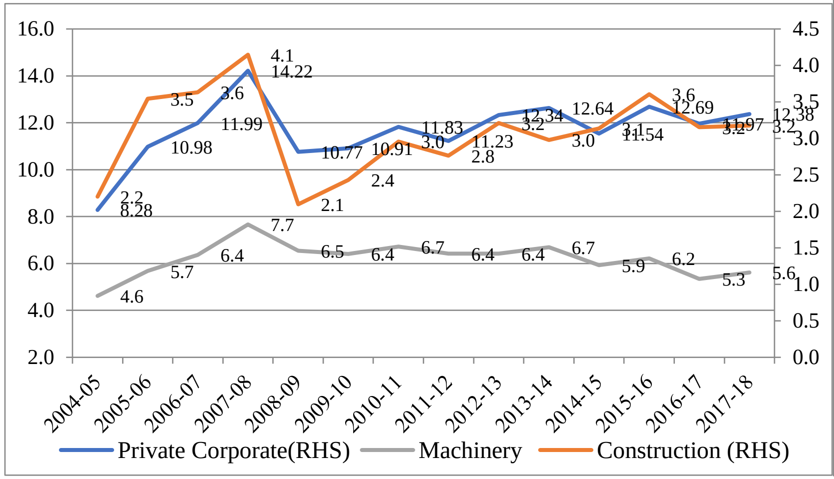
3A: Aggregate Investment



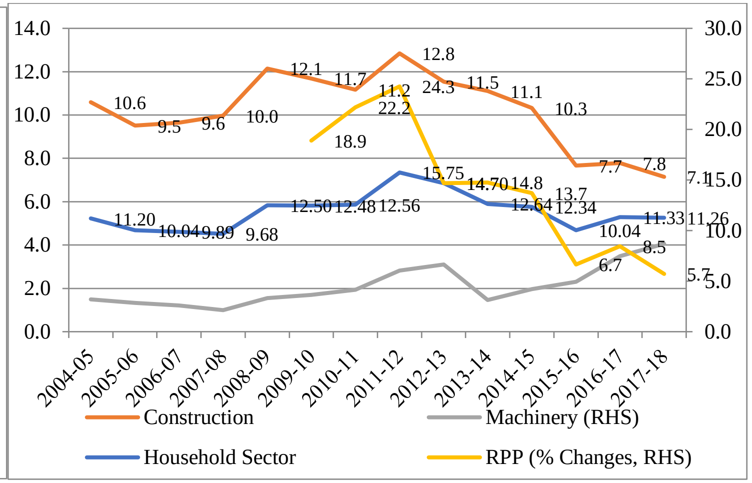
3B: Public Sector Investment



3C: Private Corporate Sector Investment

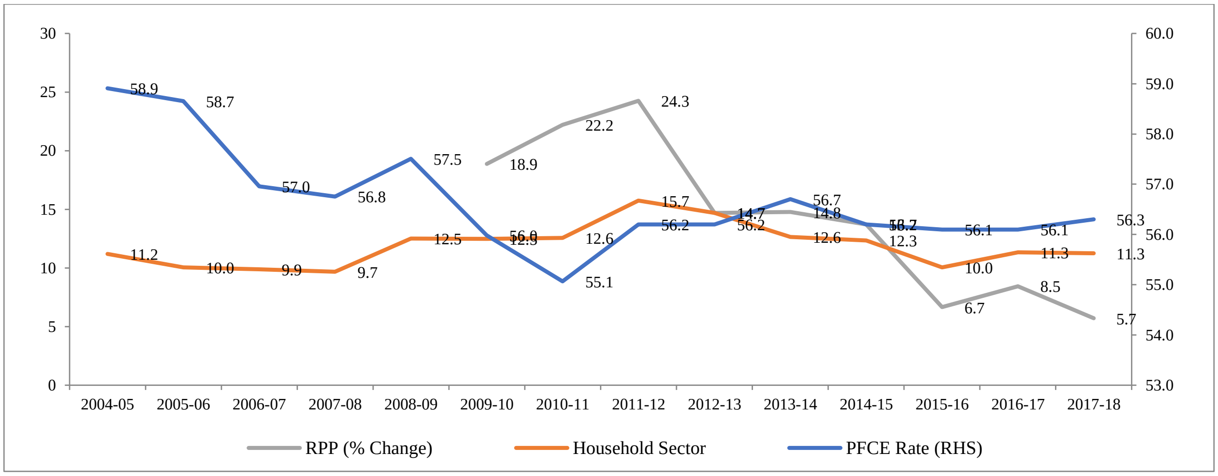


3D: House Hold Sector Investment



Source: Authors' Computations from NAS, Note: RPP: Residential property prices, Machinery: Machinery and equipment

Figure 4: Consumption Expenditure, Property Prices and Investment



Source: Authors' Compilation from NAS, BIS

3. Major Arguments for Investment Slowdown in India

Given the importance of investment for an economy's growth and development, it is important to examine the underlying factors for the investment slowdown observed in India. It has been pointed out that the tight monetary policy maintained since late 2009 has increased the cost of capital and consequently, lowered the investment rate in India (Economic Survey, 2016-17). On the other hand, from the perspective of fiscal policy, rising deficit after the crisis has created enough room for managing the demand side and thereby boosted investment[11]. But at the same time, it could have led to the crowding out of private investment (Mohanty, 2019). It may also be possible that the twin balance sheet problem had an adverse effect on aggregate investment in the country (Subramanian and Felman, 2019). Lastly, the investment slowdown in India may be a consequence of the rising economic uncertainty and lower business confidence prevailing in the economy after the GFC (Anand and Tulin, 2014). The lack of aggregate demand may have resulted in excess capacity across industries and thereby caused a lack of appetite for business expansion. In this context, we enrich the existing debate by exploring how macro variables such as credit-gap and debt overhang, economic uncertainty, monetary policy transmission and business environment have influenced private investment in India. The idea is to understand that how investment has responded to the changing policy environment, as there has been a shift in the fiscal, monetary and financial policies of the country.

3.1. Monetary Policy and Investment

The current section discusses the relation between the monetary policy and investment patterns in the country. The investment rate in India increased significantly during 2003-09, even with a repo rate of around 7% and lending rate of around 11% (Figure 5). An expansionary monetary policy was adopted immediately after the GFC wherein the repo rate was reduced (from 7.8% in 2007-08 to 4.9% in 2009-10) to inject liquidity into system and overcome the crisis. The lower repo rate and lower lending rate seemed to have helped investment, especially household investment, to increase rapidly between 2008-09 and 2010-11. In fact, the double-digit inflation- which was well

[11]Deepak Nayyar**,** Why the economic slowdown, and how to fix it? Live mint, 13 Oct 2017

above the repo and even, inflation rate for few quarters - made the real interest rate very low. As a result, investment rose and reached its highest value of 34.3% in 2011-12, hoping a sign of excess demand. However, the high rate of inflation during 2009-14 forced policymakers to tighten monetary policy and the repo rate was increased to 7.9 % by the first quarter of 2012. The changes in the monetary policy eased inflation, but the real lending rate (lending rate-inflation) increased sharply which adversely affected investment. With comfortable inflation, the lending rate would have been eased to some extent. During 2013-16, investment started falling as the monetary policy rate was maintained well above 7% in the period. Others factors such as the twin balance sheet problems may have also affected credit flows to the private sector and thereby, investment (See Section 3.3). In the last few years, the repo rate has been reduced to 6% which has helped investment to recover gradually (Figure 5). Thus, it can be seen that changes in monetary policy have a significant effect on investment behavior in India.

Another interesting observation is that there has been better monetary policy transmission - the coherence between repo rate and lending rate- during the post-GFC period. The gap between the lending rate and repo rate gap was substantial before the GFC. However, it narrowed during 2010-12 as lending rate[12] fell and investment reached its peak level in the same period (Figure 5 and Fig-6). The falling gap can be attributed to the series of measures undertaken by the Central Bank wherein it attempted to improve the pass-through effect of monetary policy. This is also evident from the fact that the lending rate did not increase during 2011-16[13], in spite of a tighter monetary policy. However, the monetary transmission became weaker during 2016-2018, possibly due to the pressure of NPAs on Indian banks which prevented them from passing on the benefits of lower interest rates. Therefore, it is not only monetary policy but also monetary policy transmission that matters for investment, especially in the face of bleak growth prospects and limited business opportunities. A possible policy implication from this finding is that robustness of monetary policy transmission is important as it reduces lending rates amid lower inflation and helps revive investment under such conditions. Some of the policy experts have suggested certain pre-requisite factors for efficient monetary policy transmission by ensuring the availability of efficient payment and settlement system, liquidity management especially in accordance with the demand and supply, integrated financial markets for better arbitrage processes and the capitalized banking system (Acharya, 2020; Goyal, 2019) and recapitalization of banks (Muduli and Behra, 2020). However, our finding suggests that there must be address to resource mismatch issue as banks hesitate to fund amid growing NPAs and potential firms face capital shortage. There is need to have a mapping of surplus funds with those of the capital deficient but potential firms. We need to strengthen the intuitional capabilities for realizing this objective. The policies and regulatory environment promoting the healthy competition in the banking industry is much needed to enable the efficient-structure hypothesis.

In the wake of credit crunch, the policy must be to address the financial resources mismatch.
Though RBI has shifted to a marginal cost of funds-based lending rate (MCLR) system from the previous benchmark prime lending rate (BPLR) system (2003) to improve monetary policy transmission, the benefits of the shift are not visible yet. The pass-through effect of monetary policy is undermined in the presence of lower bank profitability and higher requirement of capital adequacy ratio. Singh (2019) noted that in FY20, the interest was not lowered in tandem with the

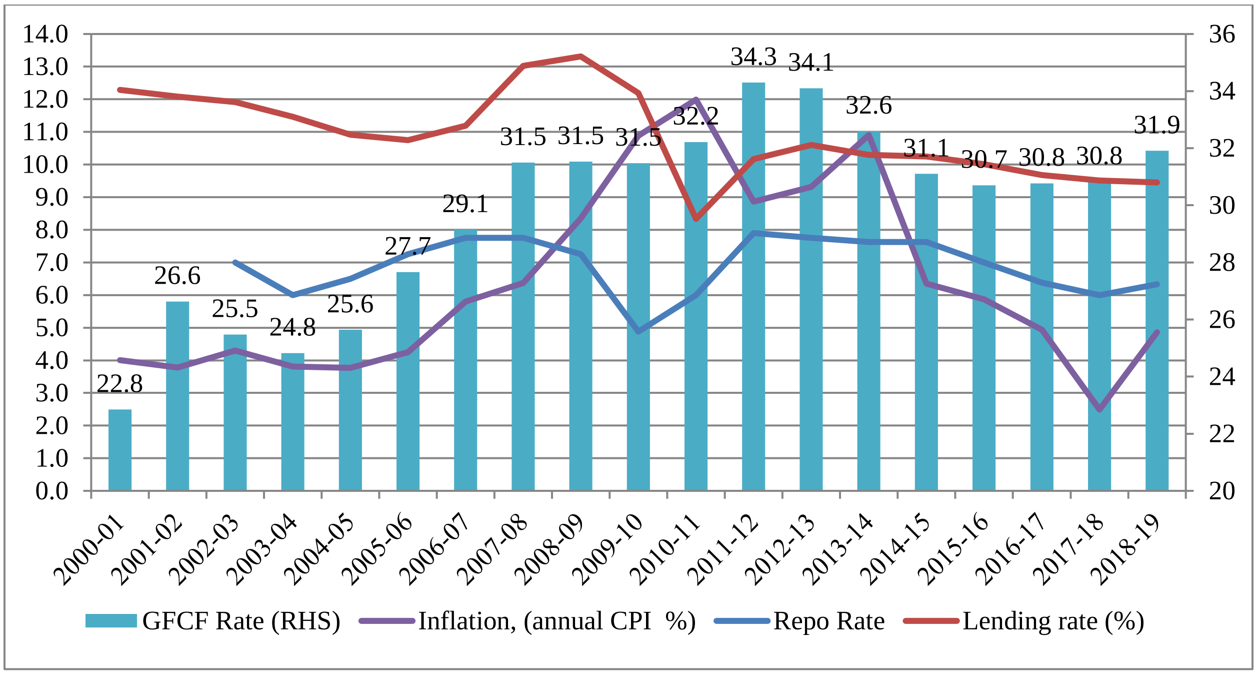
[12]The difference came down drastically to 2.3 percent in 2010-11 from previous high of 7.3% in 2009-10 (after the GFC)

[13]The possible reason that banks might have taken lessons from subprime lending crisis.

fall in policy rates – known as interest rate inflexibility – as banks were suffering from higher deposit costs, NPAs, non-operating expenses and borrowings by the government.[14] Unfortunately, the underlying factors for interest rate inflexibility still persist in the Indian banking system. It necessitates for strengthening banking profitability and making financial institutions more competitive. Nonetheless, the corporate balance sheets have strong bearings on the profitability.

The private corporate investment is more responsive to market-oriented activities and policy measures. Though it is difficult to link monetary policy with private corporate investment (Figure 6), it can be said that the investment has responded positively with the falling gap between lending rate and repo rate. There are phases where higher investment rate was accompanied by lower real interest rate. This finding is in line with the neoclassical theory of investment. However, we believe and agree with the findings of RBI (2013) that lower investment during the post-GFC period is due to low marginal efficiency of capital or expected returns on investment. After the GFC, corporate investment had remained stagnant even with rising real interest rate. As the real interest rate started rising with falling inflation from 2010-11 onwards, the investment rate remained more or less same, albeit at a slightly lower rate than its pre-crisis value, suggesting for the higher nominal interest rate effect on increasing cost of capital to the corporate sector. Overall, we did not find any significant linkage between monetary policy and corporate investment as the latter is more influenced by growth outlook, policy uncertainty and business prospects.

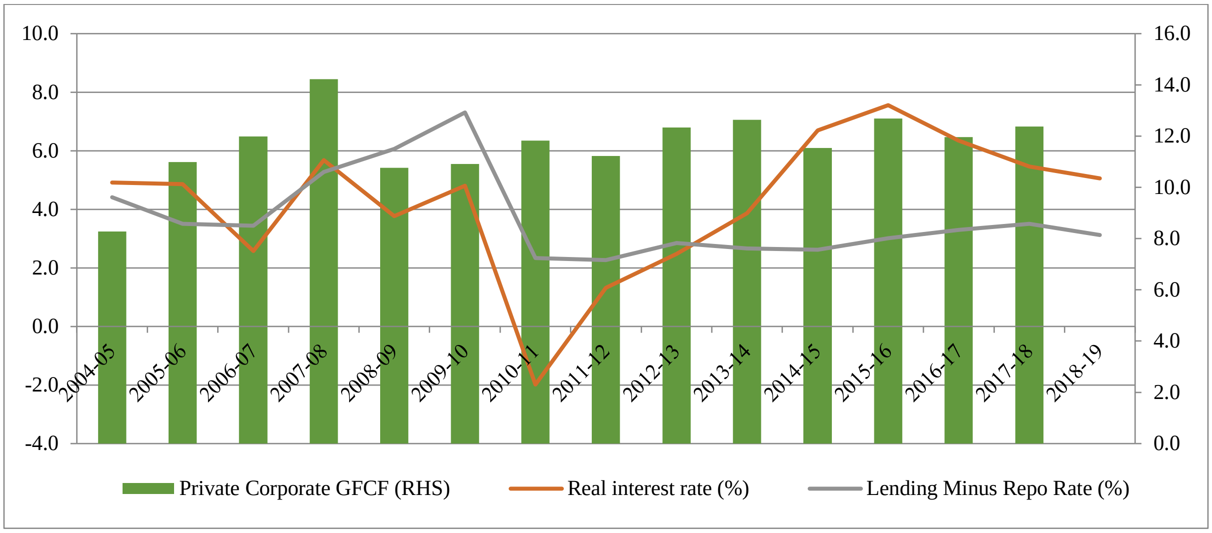
Fig-5: Investment and Monetary Policy



Source: Authors' Compilations from NAS, WDI, RBI

[14]Arun Singh (2019). How effective is RBI's monetary policy transmission, Business Today? October 07, 2019.

Figure 6: Corporate Investment and Monetary Policy Transmission



Source: Authors' Compilations from NAS, WDI, RBI

3.2. *The Twin Balance Sheet Problem*

We further investigate the relationship between banking sector developments and investment (Figure 7). Prior to the GFC, rising investment was accompanied by a significant increase in bank credit to the private sector (from 36% in 2004-05 to 46% of GDP in 2007-08) with an average credit growth rate of more than 25% per annum. However, credit flow moderated and reached around 51% of GDP in 2011-12 but thereafter private sector experienced limited supply of funds. The growth of bank credit which was always higher than 20% before the crisis started falling after GFC and, has averaged at around 10% since 2014-15 (Figure 7). With falling domestic savings and increasing pressure of capital accord, banks are bound to limit the credit flow to private sector. In other words, the reduction in credit flows and slowdown of domestic savings seem to have affected private corporate sector savings.

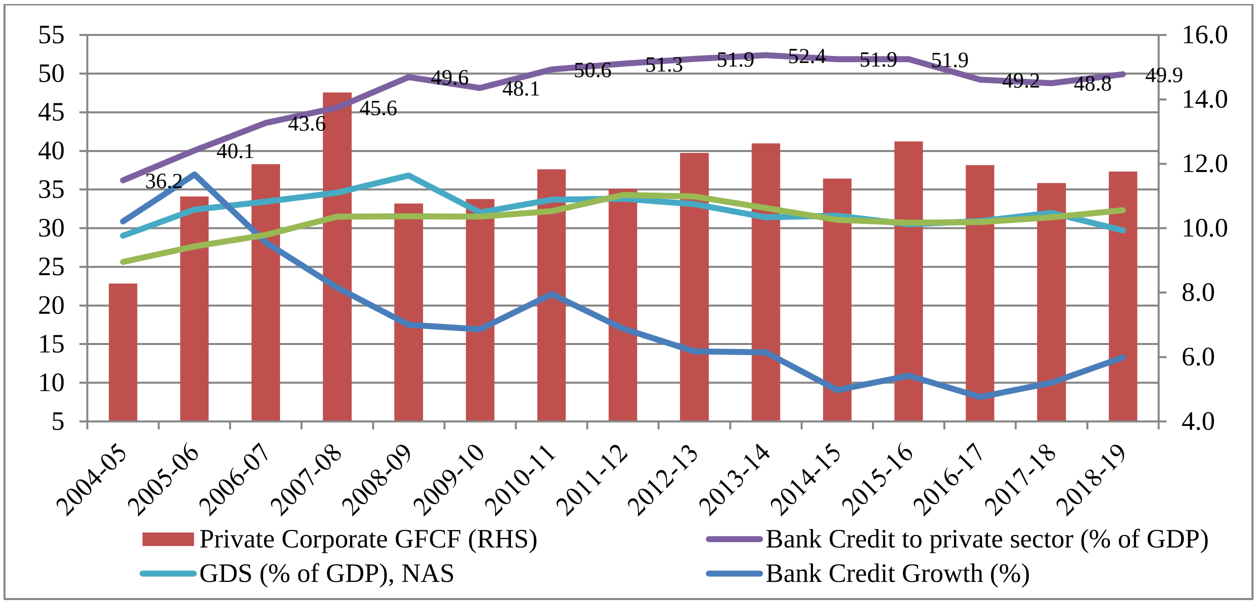
There has been lot of debate whether the rising NPAs and stalled projects which arose after GFC have affected investment. The stock of NPAs which was falling continuously before GFC started gradually rising thereafter. The increase got only more pronounced after the 2014 asset quality review, wherein the RBI had instructed the banking sector to clean up their balance sheets (Figure 8). It is observed that the net NPAs growth was 1.4 % during 2004-08 which increased to 28.6 % during 2008-12 and further, to 39.7% during triennium ending (TE) 2015 and 47.7 % during TE 2018.

Higher NPAs can be attributed to stalled corporate sector projects as growth in cost over-run per project has gone to the highest level during 2009-15. Stalled projects are due to lack of market demand; lack of feasibility or profitability of projects and; lack of credit or availability of funds in the post-GFC period. The rising NPAs has put pressure on bank balance sheets thereby reducing the appetite of the banks for further project funding, especially after the asset quality review. Moreover, the re-rolling and re-scheduling of loans to private sector were not possible after 2014 which increased NPAs in the banking sector and stalled projects which would have been otherwise operational. Interestingly, the NPAs ratio had started increasing after 2011-12 and accelerated further after 2014-15, not due to a fall in assets in the form of bank credit, rather by absolute rise in NPAs as suggested by Economic Survey (2019-20). Overall, the investment boom supported by credit flows was unsustainable after the crisis, particularly after 2011-12, due to bad balance sheets in both banking sector (rise in NPAs) and corporate sector (stalled projects).

Initial credit boom before 2007-08 and then twin balance sheets problems created bad financial conditions for investment in terms of increase in credit-gap, debt overhang and, debt service ratio. But previous studies on the investment slowdown in India had overlooked these dimensions. It is evident that the credit gap (deviation from the trend level) was positive and high during 2004-08 implying credit flows were higher than the long-run trend level (Figure 9)[15]. However, the positive credit gap started to come down after 2008 and turned negative post 2014, indicating the below trend level of credit flow to the private sector and an overall shortage of funds. Similarly, the debt gap line was above the trend line during 2004-09 which suggests that the corporate sector could access capital markets during the period and this coincided with the investment boom in the economy. However, the positive debt-gap turned negative in the period 2010-2014 and thereafter remained close to zero. This suggests that corporate houses had lower access to funds through the bonds market. Further, it is worth noting that the debt service ratio - proportion of income utilized for debt repayment - has increased gradually since 2004 but reached its peak level of above 8% during 2012-15. It can be argued that the excessive credit flow during 2004-08 led to over-leveraging by corporate houses. But with rising economic uncertainty after the GFC, the corporate sector attempted to safeguard its balance sheet rather than opting for expansion or addition of capital formation. To sum up, the slowdown of credit flow to the private sector - which also gets reflected in the negative credit-gap, lack of access to debt through bond markets and rising debt payment - has affected investment adversely in the economy. Thus, private corporate investment in India has suffered from the twin balance sheet problem. There is a need to put major focus on private investment including the corporate sector. As observed, the corporate sector is gradually utilising the bonds and capital market, but there is need to have further competitive financing options including the bonds and mutual funds market to fill the rising credit gap and provide access to funds at reasonable prices. There is much scope to gradually increase the equity financing in banks with effective implementation of bad banks approach so as to reduce the financial distress and allowing space for higher channelization of credit to the potential firms. Along with the easy monetary policy the scheme like sovereign gold bond should ensure the appropriate flow of liquidity into the NBFCs which remains a key factor for injecting liquidity into MSME. Moreover, loose monetary policy in terms of lower interest rate would revive the demand for construction sector which is a prominent factor for investment.

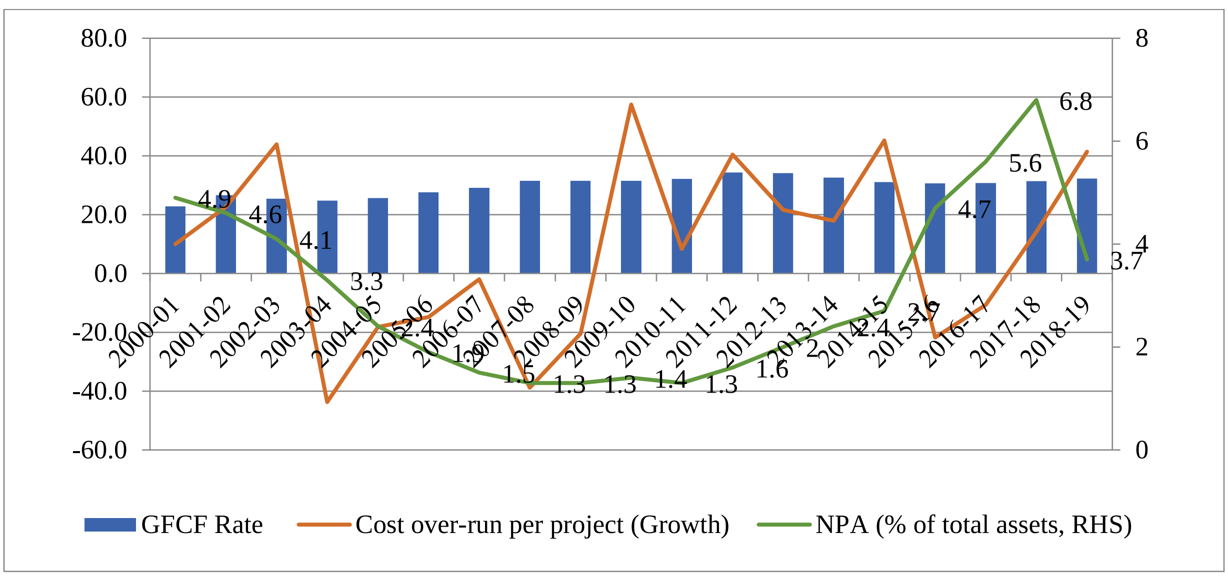
[15] Note that this is the same period which witnessed a sudden rise in investment ratio.

Figure 7: Investment, Savings and Bank Credit



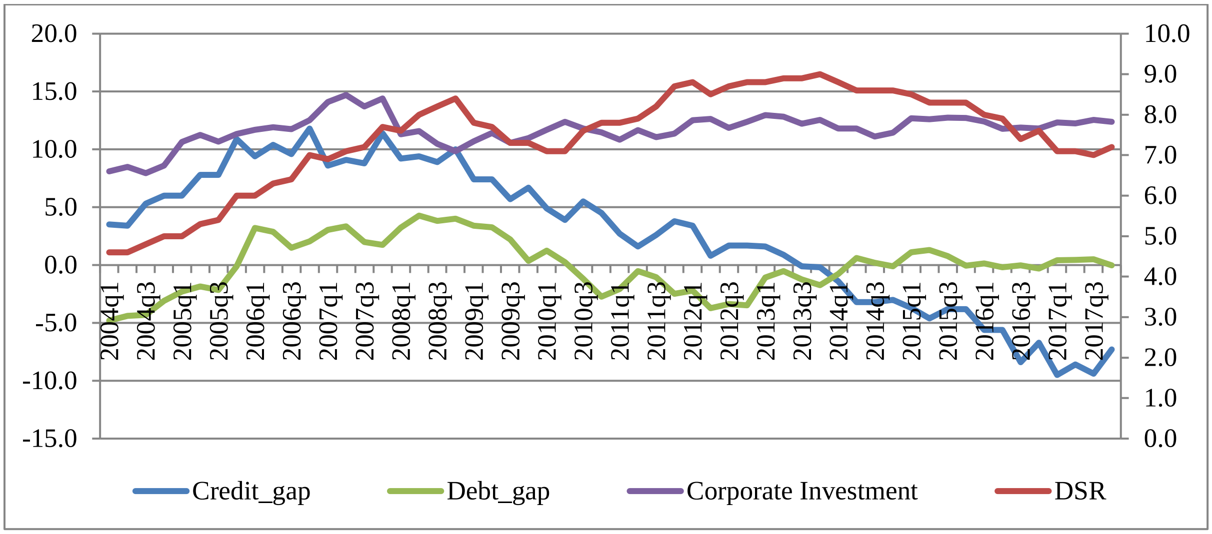
Source: Authors' Compilations from NAS, RBI

Figure 8: Investment, NPAs and Cost Over-run



Source: Authors' Compilations from NAS, RBI

Figure 9: Investment and Financial Pressure Variables



Source: Authors' Compilations from BIS

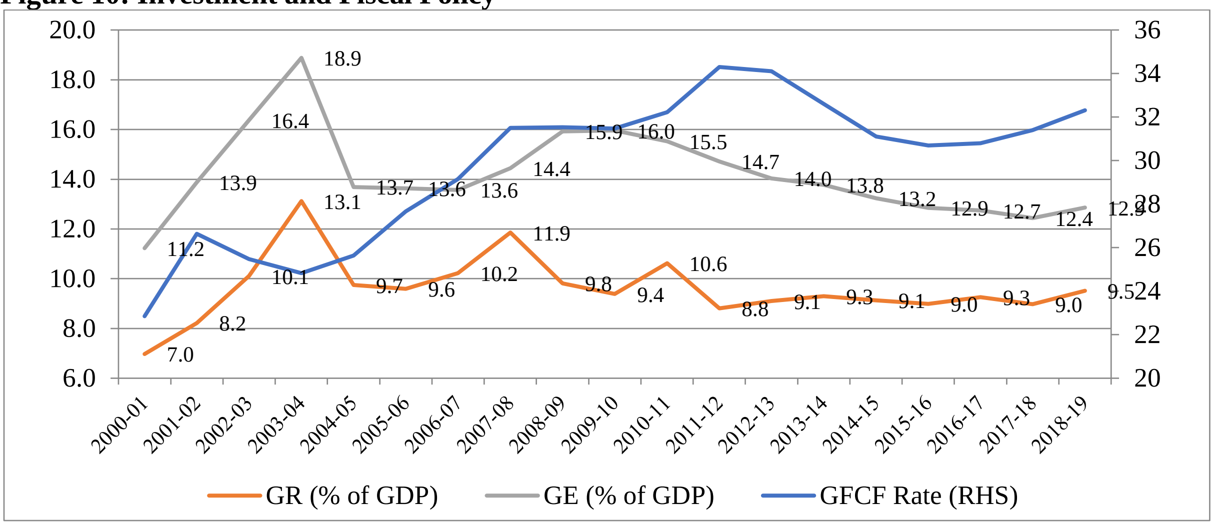
3.3. Fiscal Policy and Investment

The relationship between fiscal policy and investment has witnessed two distinct phases as represented by the periods before and after the GFC. In the pre-crisis period particularly between 2003-04 and 2007-08 government expenditure (as a percentage of GDP) declined following the implementation of the FRBM Act. However, investment continued to rise owing to the increase in private corporate sector investment. Overall, before GFC (2003-08) we observe an inverse relationship between government expenditure and investment which is led by the private corporate sector (Figure 10). As such, corporate investment had responded positively to fiscal stabilisation before 2007-08.

The GFC crisis and subsequent fiscal stimulus to counter the crisis helped injecting a lot of liquidity into the economy and resulted in a rise in household sector investment. It may be noted that the rise in fiscal expenditure led to a loss in fiscal stability, which may have adversely affected corporate investment amid fear of tax rise. The surge in aggregate investment after the crisis was led by household investment, even as fiscal deficit reached around 6% of GDP during 2008-12. In this period, government could sustain higher spending in spite of falling revenue (Figure 11). After 2012, the Indian government opted for fiscal consolidation while continuously reducing its expenditure. However, government revenue has stagnated in the period due to slow growth. Corporate investment responded favourably to these developments and was prevented from being crowded out. The reason being with stagnant revenue and rising expenditure clubbed with falling household savings and bank credit would have intensified the crowding-out phenomenon which was not observed and private corporate investment was not adversely affected. But, falling public expenditure accompanied by slower economic growth and lack of credit proved detrimental for the household sector investment. Thus, it can be argued that corporate investment responds negatively whereas household investment responds positively to expansionary fiscal policies in India.

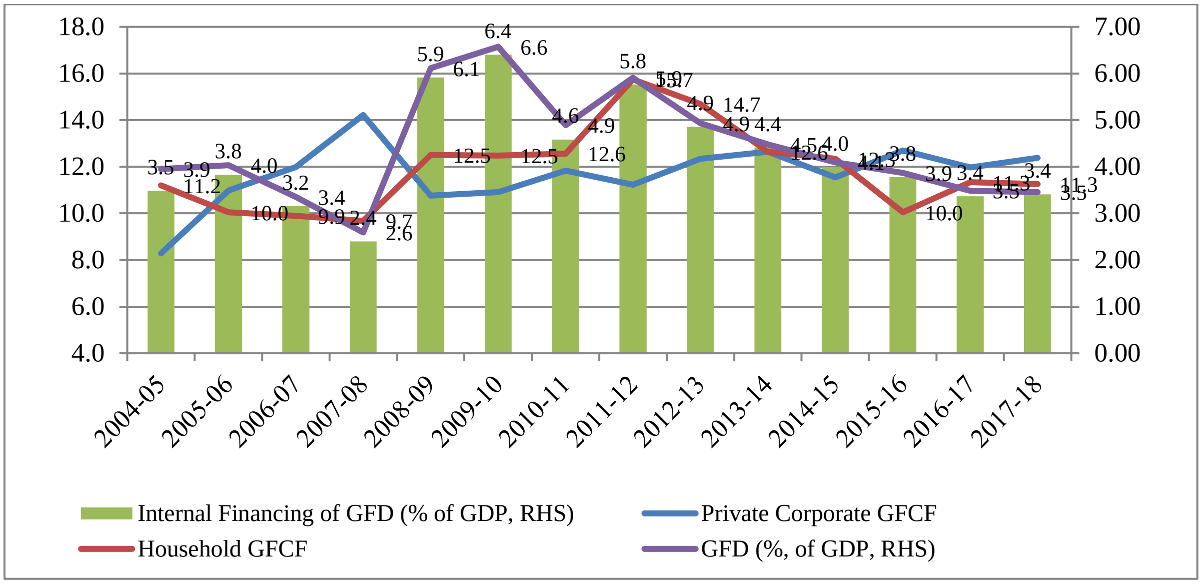
Expansionary fiscal policies could have a positive effect on investment through increased demand which boosts private investment, especially household investment. In this regard, Figure 11 shows the relationship between gross fiscal deficits (% of GDP) and private investment, including household investment. From the figure, it can be inferred that household investment has responded positively to expansionary fiscal policy in India. Household investment was at its lowest in 2007-08 as fiscal deficit was lower, however, it increased subsequently and peaked in 2011-12 as the economy implemented an expansionary fiscal policy. After 2012, household investment in India has witnessed a significant decline as there has been increasing fiscal consolidation. It is hypothesised that the slowdown in household investment is linked to falling domestic savings amid slower growth in disposable incomes. Thus, it can be argued that rising fiscal deficit due to increase in government expenditure for grand social programs to help and improve standard of life of poor and rural households help in increasing demand, thereby creating more scope for household investment including the small and medium sector enterprises. In other words, fiscal expansion is beneficial to the household sector investment through increased disposable income and domestic demand.

Figure 10: Investment and Fiscal Policy



Source: Authors' Compilations from NAS, RBI

Figure 11: Fiscal Deficit and Institution-wise Investment



Source: Authors' Compilations from NAS, RBI

3.4. The Role of Business Environment and Uncertainty in Investment

Recent discussions have highlighted the importance of business environment in explaining investment behaviour (Tokuoka, 2012; World Bank, 2018). The business confidence index[16] (BCI) was well above the index value of 120 during 2004-08, the period of investment boom in India. However, it lost momentum after the GFC and reached its lowest level in 2009Q1 (Figure 12). Thereafter, BCI improved in India till 2011-12 as there was a 'V' shape recovery supported by stimulus measures and the positive response of investment to them. The BCI started falling again after 2011-12, which caused investment sentiments to deteriorate. Overall, the BCI has been lower during the post-crisis period compared to pre-crisis period and, has not been able to reach its previous peak value after 2012. The continuous efforts at improving business confidence and reducing the economic uncertainty are welcome steps to revive the investment in India. In the new measures of self-reliant India, there is need to further expand the scope of the *Aatam Nirbhar* Bharat as it would supplement the investment by maintaining the certainty on exchange rate front and also in restoring business confidence.

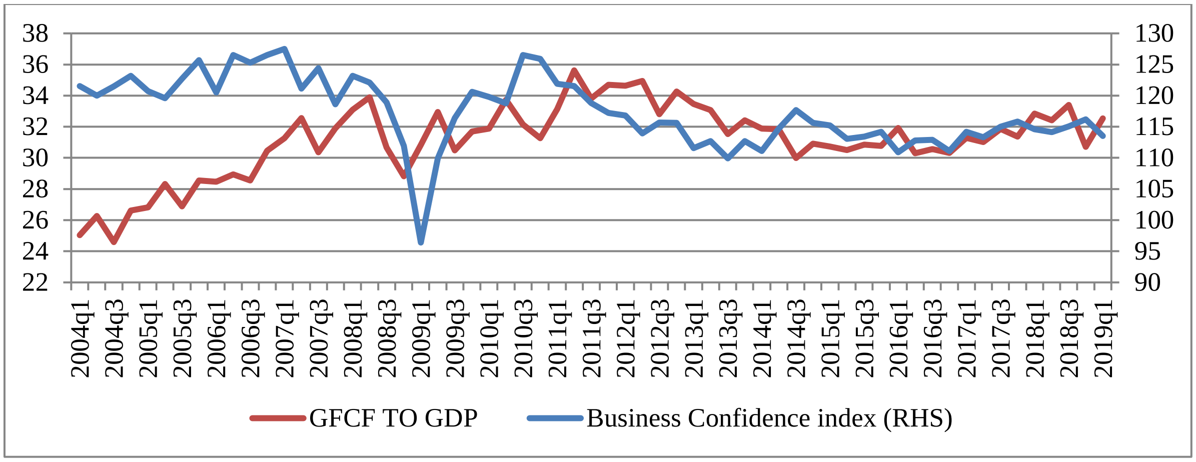
Similarly, economic uncertainty has adversely affected the investment rate in emerging economies. It is observed that Economic Uncertainty[17] (EU) was at its lowest level during the investment boom period of 2004-08 (Figure 13). In the post crisis period, uncertainty has reached its highest level in 2008Q4, wherein corporate investment fell significantly. In the subsequent year, there was some reduction in uncertainty leading to an increase in investment till 2011-12. However, lower uncertainty level could not be sustained which eventually hindered investment growth. The uncertainty level has not just risen in India, but has increased globally. The Global Economic

[16] It is measured through Business Expectation Index from industrial outlook survey (IOS) of the manufacturing sector conducted by RBI. The index is based on overall assessment of business based on order books, production, capacity utilization, financial situation, etc.

[17]Economic uncertainty is measured with cross sectional dispersion in subjective expectations of overall business situation in India carried out by RBI under Industrial outlook survey. s

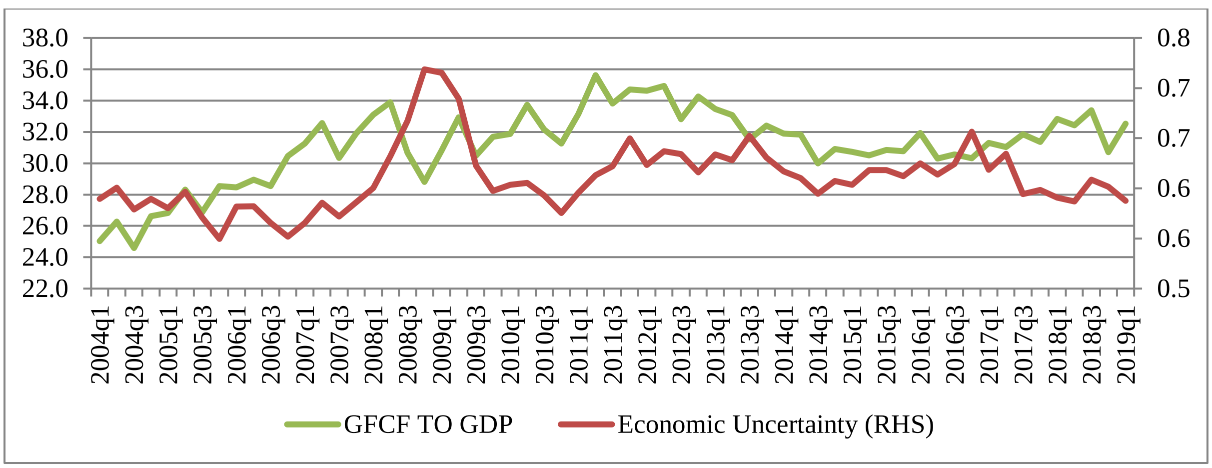
Policy Uncertainty[18] shows a similar trend as India with uncertainty increasing after GFC (especially after 2015) and reaching its peak in 2020 due to rise in nationalism, tariff wars increasing geopolitical issues and more recently, the Covid-19 pandemic.

Figure 12: Investment and Business Environment



Source: Authors' Computations from NAS, RBI

Figure 13: Investment and Economic Uncertainty



Source: Authors' Compilations from NAS, RBI

4. Conclusion

The investment slowdown in India has sparked an intense debate about the factors responsible for this prolonged slowdown. Earlier studies had examined aggregate investment and looked at the existence of a tighter monetary policy, supply side bottlenecks and economic uncertainty after the GFC as possible explanations. However, the current study critically examines the investment slowdown at a more disaggregated level (i.e., institutional wise and asset wise) and considers a variety of different economic dimensions- such as monetary policy, fiscal policy, twin balance sheets problems, economic uncertainty, and business confidence – to understand the reasons for the slowdown more comprehensively. Moreover, the study examines the impact of financial

[18] https://www.policyuncertainty.com/

pressure variables – including debt overhang, credit shortfall and rising debt payment - on investment behaviour which has been overlooked by the previous literature.

India experienced a significant increase in investment during the period 2003-08 which was led by the private corporate sector amid a massive influx of credit from banks, foreign capital inflows and favourable economic conditions globally. However, in 2008, there was a global financial crisis which was triggered by a collapse in real estate prices in the US. India was initially shielded from the adverse effects of the GFC due to measures taken by the government in the form of a generous fiscal stimulus and an accommodative monetary policy. As a result, the investment ratio in India continued to grow till 2011-12, when it reached its peak of 34.1%. Since then, the investment ratio has fallen significantly, falling to 30.8% in 2016-17 with a marginal increase to 31.9% in 2018-19. The investment slowdown can be attributed to fall in private investment, particularly household sector investment since 2011-12. There has been an almost 50% recovery in private corporate investment (11.8 % in 2018-19) but it remains below its former peak value of 14.2 % in 2007-08.

On looking at investment by type of assets, it was seen that there was a decline in investment in construction related activities, as it fell by 4 percentage points from 19.7% in 2011-12 to 15.4 % in 2017-18. This could be attributed to increased uncertainty and credit freeze after GFC, demonetization, implementation of GST and, property regulation. Another matter of concern has been the decline in corporate investment in machinery-based assets which may have repercussions for industrial productivity and overall productivity-led growth in the economy. However, on a positive note, the household sector witnessed a rise in machinery-based investment, indicating a favourable outcome for rise of small and medium enterprises within households.

Overall, we find that monetary policy does affect investment behavior in India. The lower repo rate and lower real lending rate enabled an increase in investment, particularly in household investment during 2008-09 to 2010-11. The monetary policy was subsequently tightened to contain inflation, but the high real lending rate affected investment adversely during 2013-16. We also observe that better monetary policy transmission - the gap between repo rate and lending rate- is associated with higher investment. Thus, it is not only the monetary policy but also monetary policy transmission that matters for investment, particularly when growth and business prospects are bleak. In contrast, there does not seem to be any significant linkages between monetary policy and corporate investment as the latter is more influenced by growth outlook, policy uncertainty and business prospects.

In terms of fiscal policy, there seems to be an inverse relationship between government expenditure and corporate investment, as observed in the pre-GFC period. However, falling expenditure accompanied by slower growth and a lack of credit proved detrimental for the household sector investment. It can be argued that corporate investment responds negatively whereas household investment responds positively to the expansionary fiscal policy as seen in the case of India. There was no evidence of any financial or real crowding-out effect. But it seems corporate investment may not respond positively to fiscal expansion because most of the deficit is internally financed and there can be increased pressure of crowding-out effect. Rising fiscal deficit helps in increasing aggregate demand and thereby creates more scope for household investment, including the small and medium enterprises. This finding suggests that fiscal expansion is beneficial to the household sector investment through increased disposable income and domestic demand.

In addition, the twin balance sheets problems also seem to have impacted investment negatively. The fall in flow of credit and slowdown of domestic savings had an impact on private corporate sector investment. The rising NPAs has put pressure on banks to clean up their balance sheets and reduced their appetite for further project funding. Moreover, the re-rolling and re-scheduling of loans to private sector were not possible after 2014 which increased NPAs in banking sector and stalled projects which would have been otherwise operational. Therefore, the investment boom supported by credit flows during the pre-crisis period was not sustainable thereafter, particularly after 2011-12, due to bad balance sheets in both banking sector (rise in NPAs) and corporate sector (stalled projects). The slowdown in credit flow to the private sector may be gauged through the negative credit-gap, lack of access to debt through bond market and rising debt payment, all of which had an adverse effect on investment. In this regard, monetary policies must be designed to put special emphasis on improving financial conditions and boosting private investment, particularly corporate investment.

Lastly, it is evident that business climate and economic uncertainty have a significant impact on investment, particularly corporate investment. Before 2008, investment had increased rapidly due to a favourable business environment. But the loss in business confidence after the crisis, especially after 2011-12, has resulted in a decline in investment. We also found that rising economic uncertainty is associated with lower investment and vice versa. Therefore, policies for establishing a stable economic environment are essential to counter the investment slowdown in the economy.

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