CHAPTER – 7
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CONCLUSIONS AND POLICY IMPLICATIONS

7.1 Introduction
The main objective of this study was to examine long run and short run inter relationship between saving, investment, economic growth, money supply, inflation and interest rate for India during period 1951 to 2012. Firstly, we check the trends, pattern and structural breaks of each of the variables: savings, investment and economic growth in turn to give an overall view of the Indian economy for last 62 years. Secondly, we test for the long run and short run relationship between saving, investment and economic growth. Thirdly, we examine the interrelationship between sectoral saving and investment and their role in economic growth again in short run and long run. This is further extended to examine the interrelationship between economic growth, saving, investment, money supply, inflation and interest rate for India. The chapter outlines the major findings of the study in section 7.2 to section 7.4.

7.2 Trends, Patterns and Structural Breaks Savings, Investment and Economic Growth
1. Savings and Investment rates have increase consistently in India through the post independent period but investment rate has increased faster than Savings rate.

2. Savings rate was more volatile than investment rate over the period 1951 to 2012.

3. The share of the private savings is more than the public savings in the total gross domestic savings in India over the time period.

4. Before the new economic policy the share of physical savings was more than financial savings in total household savings but after the new economic policy the share of financial savings was more than physical savings.
5. The share of the private Investment is more than the public Investment in the total Investment in India over the time period.

6. After the new economic policy (1991), the share of private corporate investment increased in total private investment but that of household investment decreased.

7. Public sector invested in infrastructure and basic industries and private sector invested in *sunrise industries* like electronics, computer and automobile. As a result, there is a structural break present in Gross Domestic Investment in year 1986.

8. Public sector invested in infrastructure and basic industries and private sector invested in *sunrise industries* like electronics, computer and automobile. The impact of adopting new technology could be realized after a lag of six years. The structural break is present in Gross Domestic Product in year 1992.

9. During the seventh plan (1985-1990) period, activities of banking as well as financial institutions extended further. Similarly, steps were taken to make their services easily accessible and efficient. Apart from this, banking & financial institutions activated to mobilize more savings. Therefore the structural break present in Gross Domestic Savings in year 1992.

7.2 Long Run and Short Run Interrelationship between Savings, Investment and Economic Growth

7.2.1 Entire Economy

The Johansen’s-Juselius test revealed that Gross domestic product (GDP) is cointegrated with Gross domestic saving (GDS) and Gross domestic investment (GDI) individually as well as collectively for the Indian economy. It means there is a long-run equilibrium relationship between the Gross domestic product (GDP), Gross domestic saving (GDS) and Gross domestic investment (GDI).

The Vector error correction method suggested that gross domestic saving (GDS) and gross domestic investment (GDI) lead to gross domestic product (GDP) individually as well as collectively in long run. However, gross domestic product (GDP) does not lead to gross domestic saving (GDS) and gross domestic investment (GDI) individually as well as collectively in long run.
The Block Exogeneity Wald Tests showed that gross domestic saving (GDS) and gross domestic investment (GDI) do not lead to gross domestic product (GDP) individually as well as collectively in short run. However, gross domestic product (GDP) does not lead to gross domestic saving (GDS) and gross domestic investment (GDI) individually as well as collectively in short run.

### 7.2.2 Private Sector

The Johansen’s-Juselius test indicated that Gross domestic product (GDP) is co-integrated with Private sector saving (PS) and Private sector investment (PI) individually as well as collectively for the India. It means there is a long-run equilibrium relationship between the Gross domestic product (GDP), Private sector saving (PS) and Private sector investment (PI).

The Vector error correction method showed that gross domestic product (GDP) lead to private sector saving (PS) and private sector investment (PI) individually as well as collectively in long run. However, private sector saving (PS) and private sector investment (PI) do not lead to gross domestic product (GDP) individually as well as collectively in long run.

The Block Exogeneity Wald Tests articulated that private sector saving (PS) and private sector investment (PI) does not lead to gross domestic product (GDP) individually as well as collectively in short run. However, gross domestic product (GDP) does not lead to private sector saving (PS) and private sector investments (PI) individually as well as collectively in short run.

### 7.2.3 Household Sector

Use of the the Johansen’s-Juselius test concluded that the Gross domestic product (GDP) does not co-integrated with Household sector saving (HHS) individually. Gross domestic product (GDP) is co-integrated with Household sector investment (HHI) individually as well as collectively. It means there is a long-run equilibrium relationship between the Gross domestic product (GDP) and Household sector investment (HHI).

The Vector error correction method suggested that gross domestic product (GDP) does not lead to household sector saving (HHS) and household sector saving (HHS) do not lead to gross domestic product (GDP) in long run. The gross domestic product
(GDP) lead to household sector investment (HHI), however household sector investment (HHI) does not lead to gross domestic product (GDP) in long run.

The Block Exogeneity Wald Tests showed that household saving (HHS) lead to gross domestic product (GDP), however gross domestic product (GDP) does not lead to household saving (HHS) in short run and household saving (HHS) and household investment (HHI) collectively lead to gross domestic product (GDP), however to gross domestic product (GDP) does not lead to household saving (HHS) and household investment (HHI) in short run.

7.2.4 Private Corporate Sector

By applying the Johansen’s-Juselius test we concluded that Gross domestic product (GDP) is co-integrated with Private corporate saving (PCS) and Private corporate investment (PCI) individually as well as collectively. It means there is long-run equilibrium relationship between Gross domestic product (GDP), Private corporate saving (PCS) and Private corporate investment (PCI).

The Vector error correction method revealed that gross domestic product (GDP) lead to private corporate saving (PCS) and private corporate investment (PCI) individually as well as collectively in long run. However, private corporate saving (PCS) and private corporate investment (PCI) do not lead to gross domestic product (GDP) individually as well as collectively in long run.

The Block Exogeneity Wald Tests conclude that the private corporate saving (PCS) does not lead to gross domestic product (GDP) and gross domestic product (GDP) does not lead to private corporate saving (PCS) in a short run. gross domestic product (GDP) lead to private corporate investment (PCI), whenever private corporate investment (PCI) does not lead to gross domestic product (GDP). The gross domestic product (GDP) does lead to private corporate saving (PCS) and private corporate investment (PCI). However, private corporate saving (PCS) and private corporate investment (PCI) jointly does not lead to gross domestic product (GDP).

7.2.5 Public Sector

The Johansen’s-Juselius test showed the Gross domestic product (GDP) is co-integrated with Private sector investment (PI) for the India. It means that there is a
long-run equilibrium relationship between the two series and existence of causality in at least one direction.

We could infer form the application of the Vector error correction method uttered that public investment (PBI) lead to gross domestic product (GDP), however domestic product (GDP) does not lead to public investment (PBI) in long run.

The Block Exogeneity Wald Tests showed that public investment (PBI) lead to gross domestic product (GDP), however domestic product (GDP) does not lead to public investment (PBI) in long run.

7.3 Long Run and Short Run Interrelationship between Economic Growth, Money Supply, Inflation and Interest Rate

7.3.1 Gross Domestic Product (GDP) and Money Supply (M₁, M₃)
The Johansen’s-Juselius test revealed that the Gross domestic product (GDP) is not co-integrated with Narrow money (M₁) and Broad money (M₃). It suggests that there is a no long-run equilibrium relationship between Gross domestic product (GDP), Narrow money (M₁) and Broad money (M₃).

The Block Exogeneity Wald Tests indicated narrow money (M₁) lead to gross domestic product (GDP) but gross domestic product (GDP) does not lead to narrow money (M₁) in short run. Broad money (M₃) lead to gross domestic product (GDP) but gross domestic product (GDP) does not lead to broad money (M₃) in short run.

7.3.2 Gross Domestic Savings (GDS) and Money Supply (M₁, M₃)
The Johansen’s-Juselius test showed that the Gross domestic savings (GDS) is co-integrated with Narrow money (M₁) and Broad money (M₃). It suggests that there is a long-run equilibrium relationship between Gross domestic savings (GDS), Narrow money (M₁) and Broad money (M₃).

The Vector error correction method revealed that gross domestic savings (GDS) lead to narrow money (M₁) and broad money (M₃) in long run. However narrow money (M₁) and broad money (M₃) does not lead to gross domestic saving (GDS) in long run.
The Block Exogeneity Wald Tests expressed gross domestic savings (GDS) lead to narrow money ($M_1$) but narrow money ($M_1$) do not lead gross domestic savings (GDS) in short run. The gross domestic savings (GDS) lead to broad money ($M_3$) but broad money ($M_3$) does not lead gross domestic savings (GDS) in short run.

7.3.3 Gross Domestic Investment (GDI) and Money Supply ($M_1$, $M_3$)

The Johansen’s-Juselius test revealed that the Gross domestic investment (GDI) is co-integrated with Narrow money ($M_1$) and Broad money ($M_3$). It means that there is a long-run equilibrium relationship between Gross domestic investment (GDI) Narrow money ($M_1$) and Broad money ($M_3$).

The Vector error correction method showed that gross domestic investment (GDI) lead to narrow money ($M_1$) and narrow money ($M_1$) lead to domestic investment (GDI). The gross domestic investment (GDI) does not lead to broad money ($M_3$) and broad money ($M_3$) does not lead to gross domestic investment (GDI) in long run.

The result of the Block Exogeneity Wald Tests indicated that the narrow money ($M_1$) lead to gross domestic investment (GDI), but gross domestic investment (GDI) does not lead narrow money ($M_1$). The broad money ($M_3$) lead to gross domestic investment (GDI), but gross domestic investment (GDI) does not lead broad money ($M_3$) in short run.

7.3.4 Savings, Investment, Growth and Inflation.

The Johansen’s-Juselius test showed that Inflation (WPI) is co-integrated with Gross domestic savings (GDS) and Gross domestic investment (GDI). It expressed that there is a long-run equilibrium relationship between that Inflation (WPI) Gross domestic savings (GDS) and Gross domestic investment (GDI).

The Vector error correction method indivated that inflation (WPI) lead to gross domestic product (GDP) but gross domestic product (GDP) does not lead to inflation (WPI).

The Block Exogeneity Wald Tests showed that gross domestic product (GDP) does not lead to inflation (WPI) and inflation (WPI) does not lead to gross domestic product (GDP). The gross domestic savings (GDS) lead to inflation (WPI) but inflation (WPI) does not lead to gross domestic savings (GDS). The gross domestic
investment (GDI) lead to inflation (WPI) but inflation (WPI) does not lead to gross domestic investment (GDI) in short run.

7.3.5 Savings, Investment, Growth and Interest Rate.
The result of The Johansen’s-Juselius test showed that Interest Rate (IR) is co-integrated with Gross domestic product (GDP) and Gross domestic savings (GDS). It expressed that there is there is a long-run equilibrium relationship between Interest Rate (IR), Gross domestic product (GDP) and Gross domestic savings (GDS).

The outcome of the Vector error correction method concluded that gross domestic product (GDP) lead to interest rate (IR) but interest rate (IR) does not lead to gross domestic product (GDP). The gross domestic savings (GDS) lead to interest rate (IR) but interest rate (IR) does not lead to gross domestic savings (GDS) in long run.

The result of The Block Exogeneity Wald Tests showed that gross domestic product (GDP) lead to interest rate (IR) but interest rate (IR) does not lead gross domestic product (GDP). The interest rate (IR) lead to gross domestic savings (GDS) but gross domestic savings (GDS) does not lead to interest rate (IR) in short run. The interest rate (IR) lead to gross domestic investment (GDI) but gross domestic investment (GDI) does not lead to interest rate (IR) in short run.

7.4 Policy Implications
The result of this study suggests that long run gross domestic savings (GDS) and gross domestic investment and (GDI) individually and jointly lead to gross domestic product (GDP) only in long run. So policy maker should formulate and implement monetary policies that promote domestic savings (GDS) and gross domestic investment and (GDI) will lead to economic growth. The empirical result suggest that gross domestic product (GDP) lead to private sector savings (PS), private sector investment (PI), private corporate sector savings (PCS), private corporate sector investment (PCI) and household savings. So policy makers should formulate and implement policies that promoting growth of real GDP will rapid growth of private sector savings (PS), private sector investment (PI), private corporate sector savings (PCS), private corporate sector investment (PCI) and household savings.