i

An Empirical Investigation on the Problem of Aggregate Demand in the Indian Economy

An Empirical Investigation on the Problem of Aggregate Demand in the Indian Economy

This dissertation submitted in partial fulfilment of the requirements for the award of the degree of **Master of Philosophy in Applied Economics** of the Jawaharlal Nehru University

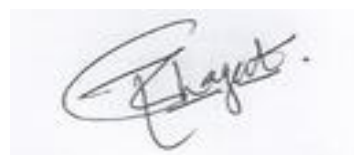**Bhagat Umesh Rambhau**

MPhil Programme in Applied Economics

2019-2021

Centre for Development Studies

Thiruvananthapuram

June 2022

Certificate

I hereby affirm that the work for this dissertation, **"An Empirical Investigation on the Problem of Aggregate Demand in the Indian Economy"** being submitted as a part of the requirements of the MPhil Programme in Applied Economics of the Jawaharlal Nehru University, was carried out entirely by myself. I also affirm that it was not part of any other programme of study and has not been submitted to any other Institutions/ University for the award of any degree.

28, June 2022   **Bhagat Umesh Rambhau**

It is certified that this study is the bona fide work of **Bhagat Umesh Rambhau** carried out under our supervision at the Centre for Development Studies, Thiruvananthapuram.
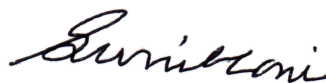
Dr. Hrushikesh Mallick   **Dr. Chidambaran G Iyer**

Associate Professor   Associate Professor

Centre for Development Studies   Centre for Development Studies

Prof. Sunil Mani

Director

Centre for Development Studies

Dedicated to

My Beloved Parents, Teachers, Sisters and Friends.

I extend my gratitude to all my M.Phil. batchmates Sam, Subal, Shubham, Likitha, and Rahul in CDS for their companionship and for their supports in building this thesis work.

Finally, without the unrelenting love and affection of my farmer parents and other family members, it would have never been possible to complete this work, to whom I will always remain indebted.

Abstract of the Dissertation

An Empirical Investigation on the Problem of Aggregate Demand in the Indian Economy

Bhagat Umesh Rambhau

M.Phil. Programme in Applied Economics, Jawaharlal Nehru University,

Centre for Development Studies.

2019-2021

_____

The Indian economy which was fastest growing economies in the world over few decades earlier till just start of the 21st century, the problem began in the initial phases of 21st century and become worse in the wake of the 2008 global financial crisis. Before the economy recovers to maintain the same initial steady growth momentum, the problem has been persisting until recently till it went to the ICU stage after stricken with Covid-19. Recently, it is showing a clearly visible sign of an economic slowdown. Now, the Indian economy has been declining for six consecutive quarters, with growth falling to 4.5 per cent in the second quarter of 2019-20. This negative trend has been mirrored in a reduction in labour force participation and growing unemployment, a decline in rural consumption, a lower rate of capital creation, declining core sector production, a reduced rate of growth in exports, and advance tax collection far below the fiscal year objectives. Although the recent economic declines are mainly due to health pandemic led economic crisis but the economic declines in the prior years are structural in nature and have their attributes in more fundamental economic factors, which might have some bearing in the economic performances of recent years as well.

The negative functioning of the economy on many economic parameters is frequently linked to other fundamental structural changes in economic policies such as demonetisation, improper enforcement of the Goods and Services Tax (GST), the banking sector and non-banking financial businesses crisis, the reduction in aggregate demand including world demand, and agrarian hardships. However, on the factors responsible for the economic slowdown of the

economy, two kinds of debates exist. The first group of arguments centres on the structuralists' viewpoint, which assigns the problem to restrictions like labour and land restrictions, governance, or income disparity. The other issue is about cyclicalists, which focuses on recent occurrences, such as relating the downturn to a drop in aggregate demand caused by agricultural hardship, demonetization and GST implementation and government policies and political uncertainties. To understand whether the economic downturn of the Indian economy can be attributed to a demand-side or supply-side problem, the characteristics of the economy need to be examined. Since a plethora of studies on this ascertain that the economy is presently suffering low levels of capacity utilisation, stockpiles of food grains, and banks encumbered with excess liquidity. It might be claimed that the economy is facing demand constraints. In this instance, policy rate cuts by Reserve Bank of India (RBI) and corporate tax cuts by the union government may be ineffective in correcting the negative trend growth of GDP since these policy moves primarily address supply-side variables. Against this background, the current study attempts to empirically investigate the problem of aggregate demand in the Indian economy.

Data for the study is mainly drawn from the National Account Statistics of India, an electronic database provided by the Economic and Political Weekly Research Foundation (EPWRF) and various rounds of NSSO consumer expenditure surveys covering our study period from 1951-2019. The current study uses the Autoregressive Distributed Lag (ARDL) model to capture the dynamics of aggregate demand components and GDP growth. Results indicate that all the expenditure components such as private final consumption expenditure, gross fixed capital formation, government final consumption expenditure, imports and exports significantly influence the economic growth. However, the household consumption expenditure, which constitutes more than 57 per cent of the gross domestic product (GDP) during 2019 seems to have a dominant influence on growth, among the aggregate demand components. Lastly, our analysis of decile-wise household consumer expenditure based on various NSSO consumption expenditure survey rounds (1983-2017) infers that there is a greater inequality in consumption expenditure across various decile households. Using panel linear fixed effect and panel fixed effect threshold estimating models to establish the relationship between household consumer expenditure and household income of various deciles, our findings demonstrate that, while there is a substantial positive link between the two variables, but the MPC of the bottom decile households are greater in comparison to the top decile households. This is observed across all the households at the all India level as well as for both the rural and urban India, along with a

sharp and relative declining share of consumption spending by the bottom decile households across India, including both urban and rural India. This is the main and immediate cause of a prolonged economic slowdown and this has trickled down to affecting the investment and derailed the economic growth. Thus, the study comes out with conclusion that the revival of consumption demand in India most especially for the bottom decile households holds the key, which should receive utmost policy attention for the revival of the economy.

Keywords: *Aggregate demand, economic slowdown, capacity utilization, household consumption expenditure, household income.*

Contents

List of Tables

List of Figures

Abbreviations

ARDL   Autoregressive Distributed Lag Model

GDP   Gross Domestic Product

GFCE   Government Final Consumption Expenditure

GFCF   Gross Fixed Capital Formation

M   Imports

MPCE   Monthly Per Capita Consumption Expenditure

PFCE   Private Final Consumption Expenditure

X   Exports

IMF   International Monetary Fund

CPI   Consumer Price Index

NSSO   National Sample Survey Organisation

EPWRF   Economic and Political Weekly Research Foundation

ICE   India's Consumer Economy

PRICE   People's Research on the Consumer Economy

ADF   Augmented Dicky-Fuller

PP   Phillips-Perron

RBI   Reserve Bank of India

GST   Goods and Services Tax

MPC   Marginal Propensity to Consume

MGNREGA   Mahatma Gandhi National Rural Employment Guarantee Scheme

Chapter 1

Introduction

1.1 Introduction

The Indian economy which was fastest growing economies in the world over few decades earlier till just start of the 21st century, the problem began in the initial phases of 21st century and become worse in the wake of the 2008 global financial crisis. Before the economy could recover to maintain the same initial faster growth, the problem has been persisting until recently till it went to the ICU after stricken with Covid-19. Recently, it is showing a clearly visible sign of an economic slowdown.

Now, the Indian economy has been declining for six consecutive quarters, with growth falling to 4.5 per cent in the second quarter of 2019-20 (Subramanian and Felman,2019). This negative trend has been mirrored in a reduction in labour force participation and growing unemployment, a decline in rural consumption, a lower rate of capital creation, declining core sector production, a reduced rate of growth in exports, and advance tax collection far below the fiscal year objectives (Singh, 2019; Subramanian and Felman,2019).

The negative functionality of the country is frequently linked to demonetisation, improper enforcement of the Goods and Services Tax, the banking sector and non-banking financial businesses crisis, the reduction in aggregate demand, and agrarian hardship.

However, in exploring the factors that have caused slowdown of the Indian economy, two kinds of debates exist. The first group of arguments centres on the structuralist's viewpoint, which assigns the problem to restrictions like labour and land restrictions, governance, or income disparity. The other issue is about cyclicalists which focuses on recent occurrences, such as relating the downturn to a drop in aggregate demand caused by agricultural hardship, demonetization and GST implementation and government policies and political uncertainties. To understand whether the economic downturn of the Indian economy can be attributed to a demand-side or supply-side problem, the characteristics of the economy need to be examined.

Since a plethora of studies on this ascertain that the economy is presently suffering low levels of capacity utilisation, stockpiles of food grains, and banks encumbered with excess liquidity, it might be claimed that the economy is facing demand restrictions (Anand and Azad, 2019; Ghatak et al., 2020; Damodaran, 2019; Singh, 2019; Subramaniam, 2019; Ghosh 2019; Nagraj, 2020; Subramanian and Felman, 2019; Kotwal and Sen, 2019; Goyal and Dev, 2019). In this instance, policy rate cuts by RBI and corporate tax cuts by the union government may be ineffective in correcting the negative trend of GDP growth since these policy moves primarily address supply-side variables. Against this background, the current study attempts to empirically investigate the problem of aggregate demand in the Indian economy.

The notion of aggregate demand and aggregate supply is central to economics. The ability of the economy to generate goods and services at certain prices is referred to as aggregate supply, while the capacity or desire of consumers to acquire goods and services at particular prices is referred to as aggregate demand. The dynamic interplay of supply and demand dictates the path of production and inflation. The economic growth depends on the aggregate demand in the economy. The lack of consumer demand leads to low investment and that in turn, manifests into slower growth, which develops a vicious cycle until it eventually rejects the growth spike from its long-run trend. In a recent survey of CEOs (The Mint-Bain India CEO survey, 2020) nearly two-thirds of the 105 respondents expressed their worries about the decline in consumer purchasing power and nearly the same percentages also were concerned about India's limited fiscal and monetary policy leverage for providing a desired demand stimulus to the economy. It is clearly visible that there is slackening of demand in the Indian economy which is having its effects on the growth prospects. Essentially, a large portion of business hesitation stems from investors' assessment of only moderate growth in demand for their products. Following section brings out the important insights from the literature survey on the issue and points out the research gap in the context.

1.2 Historical Context

In the 1970s, East Asian nations expressed a tremendous pool of untapped demand ready to be tapped by richer nations. They used a very simple strategy- begin by exporting primary items, then purchase modern technologies from the developed nations, supply skills and training to their labour force, make cheaper goods using cheaper domestic labour, and deluge developed-

country markets with their products. Asian Tigers achieved fast growth through the process of transformation of their economy from low-productivity to a high-productivity one. This could be possible by adopting a combination of structural reform strategies such as technological adaptation, integration with rest of the world, incentivising private sector participation along with social sector policies. As a greater share of the labour force moved from the informal to a formal sector, it led to increase in their income and subsequently generated greater domestic demand. Furthermore, as economy changes, national income rises, and domestic demand increases, and this leads to more virtuous cycles of economic expansion. However, the first requirement for such a cycle to take place is a sizable source of untapped demand. Similarly, China, the world's most populous country, adopted Asian Tigers' export-driven approach. It was able to capture the international markets with its own exports while sustaining its position as the fastest growing economy for a lengthy period of time and lifting 800 million people out of poverty (Ghatak et al. 2020). During the period 2002-2012, the Indian economy saw significant expansion, which was fuelled by a surge in exports of software sector in particular. It occurred that there was spike in demand for software and its services all over the world at the turn of the millennium, at which moment India had surplus supply of suitably skilled labour (Kotwal et al. 2011). Similarly, certain manufacturing sectors, such as medicines and autos, have found niches in export markets. Both had positive spillover impacts on the economy. It increased the incomes of people and so also their levels of consumption. They bought houses, vehicles, and hotel meals, among other things, which created jobs in manufacturing, services, and construction, with favourable spillover effects on the rest of the economy. People whose incomes were directly derived via export prospects, on the other hand, made up a relatively tiny proportion of the labour force. There are other factors that are unique to India that work against the export-led growth model. First, because of a lack of resources, confusion about the regulators' independence, or an excessive reliance on legal review, the infrastructure sector that may support industrial growth and exports are subject to varied levels of regulations (Khosla and Kapur, 2019). Second, there is an indisputable tendency toward protectionist policies of trade that restrict global commerce at the moment. Third, although it is widely acknowledged that our labour and land laws do not promote justice or growth, our democratic federalist polity is unable to make significant changes to them. Without such reforms, it is difficult to establish or support large-scale manufacturing units that can compete on a global basis. Two key drivers of economic growth of India i.e. investment and exports are falling along with declining domestic consumption expenditure. In such circumstance, there is a role for increased domestic aggregate demand to substitute for the falling export demand. Given such settings, the foremost

goal of this study is to empirically analyse the problem of aggregate demand in the Indian economy. Before we empirically establish this, we review some key studies to provide us some better insights about the state of the economy and the factors which might have worked in favour of the economy and the factors which might have dragged the economy.

1.3 Literature Review

Subramanian and Felman (2019) stated that the present downturn in the Indian economy is India's Great Slowdown, in which the economy appears to be in urgent care. However, the Indian economy is not hit by any standard triggers of slowdown, what Damodaran (2019) pointed out about the 3Fs. i.e., the food harvest has not fallen, global fuel costs have not increased, and the budget deficit has not gotten out of hand. If we look back further, since the Indian economy witnessed the peak of the 2000s, which Nagaraj (2013) termed "India's Dream Run," the boom of initial decade of 2000s changed into a dramatic decline in only a few years.

However, on the factors that caused slowdown of the Indian economy, two kinds of debates exist. The first set of the debate revolves around the structuralists' arguments who ascribe the issue to structural constraints such as labour and land limits and governance (Sharma, 2019; Rajan, 2019) or policy and income disparity (Mukherjee 2019; Roy, 2019).

The other set of debate is of the cyclicalists which focuses more on the recent developments i.e. attaching the downturn to a decline in aggregate demand, (Ghosh 2019; Kotwal and Sen, 2019; Dev and Goyal, 2019; Damodaran, 2019); demonetization and introduction of GST (Subramaniam, 2019; Banerjee, 2019); monetary tightening (Balakrishnan, 2019); or unpredictability in politics and policy (Basu 2019; Singh 2019). But the important question is how to recognise whether the economy is facing demand or agricultural or credit constraints or both. According to Azad and Anand (2019), if the economy is experiencing low levels of capacity utilisation, stockpiles of food grains, and banks encumbered with surplus money, it might be claimed that the economy is experiencing demand problem.

According to Subramanian and Felman (2019), the two main forces of Indian economy such as export and investment have decelerated due to the stagnation of the world trade and two waves of Balance Sheet Crisis, after global financial crisis (GFC). At the peak of the surge in 2006, Kohli (2012), a political scientist, warned about the implication of changes which are not so much pro-market (as pledged) as pro-business in actuality, with advantages flowing

primarily to powerful corporate organisations. Kohli's (2012) book, "Poverty Amid Plenty in the New India", substantiated argument by demonstrating uneven dispersal of the rewards of market-oriented changes and prosperity. Bhaduri (2008) made the case that in the name of liberal reforms, big corporations destroyed forests and rural land, obliterating the lives of the poor and disadvantaged in the informal economy and agriculture. He referred to the decade's economic expansion as "predatory growth".

If the distribution of income turns viciously against the poor and the opportunities for reasonable employment and livelihood do not expand in correspondence with high growth, then it leads to decline in income of people as well as widening of the gap between rich and poor. A sustainable growth pattern involves a continual upward migration of individuals from poverty to middle income and eventually to higher income. A process like this generates a steady growth in new demand, pushing companies to spend and increase output. For the process to be sustained, the income-generation mechanism and accompanying demand generation patterns must be in sync (Murphy et al. 1989).

Babu and Jithin (2020) argued that industrial growth in the Indian economy has been deteriorating from the last decade because of domestic slowdown and global disruptions. However, the nature of the problem is structural in nature. To tackle the problem mere cyclical solutions could not review the economic slowdown. Instead, the government should create cycles of demand in the economy through long-term demand stimulating policies.

Nagraj (2020) emphasised that the Indian economy witnessed economic boom in 2000s but after 2010 the growth trajectory started to decline. This is because of problems such as drastic job losses from 6.2 million to 15.5 million, raise in rate of unemployment from 3.3 per cent to 8.8 per cent of workforce, stagnation of rural wages, slump in per capita consumption, absolute poverty rising by 30 million and also a decrease in the labour force participation. The boost in public infrastructure investment and MGNREGA Scheme would push private sector demand up, tackle the agrarian distress and create jobs in rural economy respectively.

The Indian economy has been heading from jobless to job-loss growth. Around 90 per cent of the population employed in the unorganised sector of the economy. The job loss in the unorganised sector leads to employment and income deficit in the unorganised sector. This leads to consequent fall in aggregate demand in the Indian economy. Furthermore, to address the demand deficiency problem there is a need to focus more on the revival of the rural economy. However, the current government is implementing pro-corporate and pro-urban

biased policies for the revival of the economy, which indeed is worsening the situation and posing a bigger challenge to boost the informal economy (Kannan and Raveendran, 2019).

John (2015) writes in How to Speak Money, "GDP can be thought of as a measure not so much of size... It measures the movement of money through and around the economy; it measures activity." In short, it reveals that how the economic activity transforms into GDP. In other words, expenditure of one economic agent becomes the income of another and further that income can be spent and so on. In this way the cycle of aggregate demand operates and leads to economic activities.

Tamilarasi and Cherian (2020) attributed the current economic slowdown to the internal factors in the Indian economy such as banking crisis, stagnant corporate sector, automobile sector and real estate sector. These sectors are linter-linked with each other through backward and forward linkages. So, slackening of demand in the one sector affects the demand in another sector.

The government has recently initiated the structural reforms in the form of introducing the insolvency and bankruptcy code (2016) and other financial regulatory measures to tackle the problem of non-performing asset (NPA) and slow credit growth. Aggregate demand has significant effect on credit growth as well as NPAs. In other words, higher aggregate demand in the economy can get reflected from increased profit shares of the private sector and help reduce the NPAs. However, slackening demand in the economy reduces credit growth and also increases the NPAs in the economy. Thus, to recover NPAs and spurt credit growth in the Indian economy, demand boost is a necessary condition (Goyal and Verma, 2018).

The Kaleckian model analysed the relationship between income distribution and growth rate. This model reveals that the workers have greater consumption propensity than that of the capitalist's class (Dasgupta, 2022). Furthermore, during the production process of an economy the share of profit is divided between the workers (wages) and capitalists (profit). If wage share of the workers is reduced it will have two opposite directional impacts on the economy. First, the consumption of workers primarily depends on their income from wages. So, reduction in the wage share of workers reduces their consumption of the economy and finally leading to a reduction in the output growth. Second, the reduction in the wage share of workers increases the profit share of the capitalist's class. If capitalists foresee an increased demand for their products in the economy that would pull up their investment, in turn, has potential to stimulate economic growth (Marglin and Bhaduri, 1990) or net exports (Blecker, 2001). Moreover, Dasgupta (2022) empirically analysed the relationship between aggregate demand and income

distribution in the Indian economy. His study ascertains that lower wage or income share of workers has a negative impact on the Indian economy as it adversely affects the consumption and import propensity. The lower wage share of the workers pulls down the aggregate demand and it leads to decline in the investment and output growth in the economy.

Khundrakpam (2012) examined the influence of monetary policy on aggregate demand in India empirically. He shows that an increase in interest rates has a large negative influence on aggregate demand growth. Moreover, the change in interest rate demonstrates more than one-third of the volatility in the aggregate demand growth. It reveals that interest rate significantly determines the fluctuations in economic activity in India. At a disaggregated level, the study reveals that interest rate significantly impacts the growth of all components of aggregate demand, except government consumption in India. Furthermore, a study on the European Countries (EU) by Barran et al (1996) showed that aggregate demand is affected by monetary shocks mainly through its impact on investment.

Summarising the above literature, it provides us the insight about the determinants of aggregate demand along with its components. It also shows that these components can translate into affecting the economic growth, implying the components of aggregate demand are determinants of economic growth. However, when it comes to India, empirical literature hardly studied the relating components of aggregate demand and growth and consumption demand and inequality in a society with highly unequal distribution of incomes.

1.4 Research Gap

It is established that the Indian economy is clearly showing the signs of an economic slowdown. A plethora of studies have argued that the economy is confronting demand constraints (Dasgupta, 2022; Anand and Azad, 2019; Damodaran, 2019; Babu and Jithin, 2020; Singh, 2019; Ghosh 2019; Nagraj 2020; Ghatak et al., 2020; Murphy et al., 1989; Felman and Subramanian, 2019; Cherian and Tamilarasi, 2020; Kotwal and Sen, 2019; Subramaniam, 2019; Goyal and Dev, 2019). Despite a lot of policymakers and academic attention on the deteriorating health of the Indian economy and its implications for the future growth prospects, the role of aggregate demand in the Indian economy remains an unexplored area in the Indian context. More especially, the studies have not related consumption demand with the income

inequality prevalent in the Indian context. In times when Indian economy is confronting severe economic slowdown, it becomes even more important to study the problem of aggregate demand and major components of it in the Indian economy. Against this background, the present study attempts to empirically investigate the problem of aggregate demand in the Indian economy and suggest some policy directions.

1.5 Research Questions

On the basis literature survey, the study raises the following research questions:

1. What are the dynamics between economic growth and the aggregate demand components in India? Alternatively, which component of aggregate demand among different components crucially matters for economic growth?

2. Can we establish some pattern of relationships between the consumption expenditure and income levels by decile-wise households (reflecting the distribution of consumption and income) in India and thereby get a better insight if aggregate demand is constrained on account of income inequality prevailing in India?

1.6 Research Objectives

We have divided our aim of studying the problem of demand in the Indian economy into two parts. Based on this idea, we have set the following objectives for the present study:

 1. To analyse the dynamics between aggregate demand components and economic growth in India.

2. To analyse the relationship between consumption expenditure and income levels across various decile households in India.

1.7 Data Sources and Methodology

1.7.1 Data Sources

The data to analyse the above objectives is drawn from various secondary sources such as National Accounts Statistics data collected from the Economic and Political Weekly Research Foundation (EPWRF) and different rounds of the National Sample Survey Organisation on the consumption expenditure survey.

1.7.2 Methodology

1st Objective: To analyse the dynamics of aggregate demand components and economic growth in India, the data on the Gross Domestic Growth (GDP), Gross Fixed Capital Formation (GFCF), Private Final Consumption Expenditure (PFCE), Government Final Consumption Expenditure (GFCE), Imports (M) and Exports (X) at market prices are collected from National Accounts Statistics as reported in the Economic and Political Weekly Research Foundation (EPWRF) at the 2011 prices covering the period from 1951 to 2019.

Then, we have used the statistical measures to understand the trends, degree of variations and decomposition of aggregate demand components and economic growth from 1951 to 2019. Furthermore, we have also used the Autoregressive Distributed Lag (ARDL) Bounds test to cointegration model as given by Pesaran et al. (1996), Pesaran et al. (2001) and Pesaran et al. (1999) to analyse dynamics of aggregate demand components and economic growth in India.

2nd Objective: In order to analyse the relationship between consumption expenditure and income levels by decile households in India, we have collected the data on the decile-wise average monthly per capita consumption expenditure (MPCE) from 18 rounds of National Sample Survey Organisation (NSSO) on the consumption expenditure survey from 1983 to 2017. The 18 rounds of consumption expenditure survey of NSSO are 38th round (1983), 43rd round (1987-88), 46th round (1990-91), 48th round (1992), 50th round (1993-94), 51stround (1994-95), 55th round (1999-2000), 68th round (2011-12), 56th round (2000-01), 53rd round

(1997), 57th round (2001-02), 59th round (2003), 52nd round (1995-96), 66th round (2009-10), 61st round (2004-05), 62nd round (2005-06), 63rd round (2006-07) and 75th round (2017-18)[1].

Furthermore, we have converted the data on nominal average monthly per capita consumption expenditure at 2010 prices by using Consumer Price Index (CPI) from International Monetary Fund (IMF). Then, we have considered the decile-wise average household size from all the consumption expenditure survey rounds of NSSO and multiplied it with the average decile-wise monthly per capita consumption expenditure in order to get the overall average household monthly consumption expenditures for respective deciles. We have used the decile-wise saving rates from the India's Consumer Economy (ICE) Survey of the People's Research on the Consumer Economy (PRICE) undertaken in 2013-14. We have used the average savings rate of various income decile households and then they have added that with the decile-wise average household consumption expenditure in order to derive the decile-wise average household incomes[2]. However, since the average saving rates for all income decile households are not available for all the periods except for 2013-14, so we had to assume the constancy of savings rates (savings as a proportion to income) for each decile to be maintained throughout all the rounds considered in our analysis as per the year 2013-14 and computed their average household savings over different periods in order to compute the average household income.[3]

Then, we have used the statistical measures to understand the trends, pattern and inequality in decile-wise household consumption expenditures. Furthermore, we have used the panel linear fixed effect and the panel fixed effect threshold model as developed by Hansen (1999) to analyse the relationship between household consumption expenditure and household income level for the all India level, as well as for rural and urban India levels separately.

---

[1]The data on the 75th round of NSSO consumption expenditure survey was not released by government. The decile-wise average MPCE data for 75th round is taken from secondary source i.e. Subramanian (2020).

[2]We have followed the Ghatak et al (2020) and Shukla and Sharma (2016) methodology to calculate the decile-wise household incomes from decile-wise average household consumption and saving rate by income deciles.

[3]The constancy of household average savings rate as per 2013-14 across respective deciles is assumed for other rounds in view of the data being unavailable for other rounds. This is done in order to obtain decile-wise average household incomes. This was a hard choice adopted which may compromise with real variations in the unobserved statistics over the years across survey rounds which constitutes one of the main limitations of this analysis.

1.8 Chapter Scheme

The dissertation consists of four chapters including the current one. The dissertation is organised as follows:

Chapter 1: Introduction

1st chapter motivates the thesis by reviewing the existing literatures and outlines the research gap based on the literature review. This chapter also gives detailed explanation of the methodology and data sources.

Chapter 2: Dynamics between Aggregate Demand Components and Economic Growth in India

Chapter 2 looks at the dynamics of economic growth and aggregate demand components in India using secondary data from EPWRF. We have shown the patterns and trends of aggregate demand components through appropriate tables and graphs and for further empirical analysis, we have used ARDL time series model to get deeper insight about the dynamics involving the components of aggregate demand and economic growth in India over a long-run.

Chapter 3: Analysis of Consumption Expenditure and Income Levels in India

Chapter 3 mainly focuses on relationship between decile-wise household monthly consumption expenditure and household income levels in India using the NSSO consumption expenditure survey data. In this chapter, we have used both the panel linear fixed effect model and panel fixed effect threshold model to show the relationship between decile-wise household consumption expenditure and household income levels for India as whole as well as for rural and urban regions of India.

Chapter 4: Conclusion and policy suggestion

Chapter 4 concludes and provides the policy recommendations based on our findings and analysis.

Chapter 2

Dynamics of Aggregate Demand Components and Economic Growth in India

2.1 Introduction

Economic growth is nothing but the long-term increase in the potential of the economy to produce goods and services. This growth is driven by the components of aggregate demand. The demand-side economics demonstrates that output of an economy is determined by effective demand (Harvey, 2012). The investment in an economy depends on the demand for products produced by the producers. If consumer spending is higher on the goods and services produced by the businesses, then it pulls up the investment in the economy. Higher investment creates more job opportunities and it leads to rise in income levels. Thus, income can have spillover effects which further drive aggregate demand, resulting in surge in economic growth (Liu & Nick, 2011).

Furthermore, at a disaggregated level, the aggregate demand components such as gross fixed capital formation (GFCF), private final consumption expenditure (PFCE), imports (M), exports (X) and government final consumption expenditure (GFCE), have major influence on economic growth. Bouyon (2015) analysed the dynamic relationship between economic growth and private final consumption expenditure and found that household consumption expenditure is the key driver of economic growth. Moreover, Wagner's law (1883) states that increase in national income leads to expansion of public expenditure, while Keynes (1936) postulates that public expenditure causes national income. However, in case of India, Srinivasan (2013) empirically verified operation of Wagner's law of public expenditure and proved that in both short and long-run, economic growth causes public expenditure.

Kaushik et al (2008) demonstrate that investment and export have significant positive impact on economic growth and for rapid and sustained economic growth, India should promote export-oriented policies. Venkatraja (2018) conducted an empirical study looking at the dynamics between aggregate demand and economic growth for European Countries and

revealed that aggregate demand components have major influence on economic growth. Similarly, the goal of this chapter is to empirically analyse and understand the dynamics of aggregate demand components and economic growth in India.

2.2 Theoretical Framework

Gross Domestic Product (GDP) refers to market value of all total goods and services produced inside the territory of the country during a year. Analysis of economic performance of a country not only depends on the total output of goods and services produced but also the allocation of total output into various demand components. According to Keynesian economics, the combined effect of four demand-related components leads to GDP. Both internal and international influences may affect the demand for domestic goods. Household final consumption expenditure (C), domestic investment spending (I), and government spending are the drivers of domestic demand (G). Domestic demand from residents includes both domestic and foreign items, or imports (M), whereas exports are the result of foreign demand for domestic goods from non-resident buyers (X). The component needs of C, I, G, and net exports (X-M) are combined to create the Keynesian aggregate demand. These four aspects of GDP interact with one another to define total demand, which is then accurately reflected in terms of the gross output produced as measured by GDP. Aggregate demand factors play crucial role in determining economic growth. The current study adopts Keynesian aggregate demand model to examine the dynamics between various aggregate demand components and economic growth in India. The aggregate demand can be represented in terms of the following equation - called as the National Income Accounting Identity.

$$GDP = C + I + G + NX \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2.1)$$

The real GDP can be examined by dividing aggregate demand into five major components: government final consumption expenditure (GFCE), gross fixed capital formation (GFCF), private final consumption expenditure (PFCE), imports (M) and exports (X). This five components of aggregate demand all have a substantial impact on GDP growth.

Furthermore, the five factors of aggregate demand are also interlinked with each other. For instance, an increase in private final consumption expenditure (PFCE) incentivizes the investors to go for more investment on production activities. The objective of this chapter is to

empirically analyse and understand the dynamics of aggregate demand components and economic growth in India.

2.3 Data Sources

This study measures performance of the economy by considering the gross domestic product (GDP) and its components, including as government final consumption expenditure (GFCE), gross fixed capital formation (GFCF), private final consumption expenditure (PFCE), imports (M) and exports (X) at market prices as constituents of aggregate demand. We have used the relevant statistical information from the online database provided by the Economic and Political Weekly Research Foundation (EPWRF) from 1951 to 2019. It provides information relating to the National Account Statistics of India and other macro indicators. We used the time series data for above mentioned variables at the 2011 prices.

2.4 Analysis of Aggregate Demand Components

Figure 2.1 depicts trends of growth rates of GDP, PFCE and GFCE over a long period of 1951 to 2019. It indicates the fluctuations in the growth rates of all three macroeconomic indicators of the Indian economy. There is an increasing trend in the growth rate of GDP, PFCE and GFCE over time. However, it shows the growth rate of PFCE is rising faster than the growth rate of GDP and GFCE during same period. Moreover, the fluctuations in growth rate of GFCE is higher as compared to other two variables. The fluctuations in the growth rate of GDP and PFCE show about similar pattern across different time points.

Figure 2.1 Trend Growth Rate of GDP, PFCE and GFCE (%)
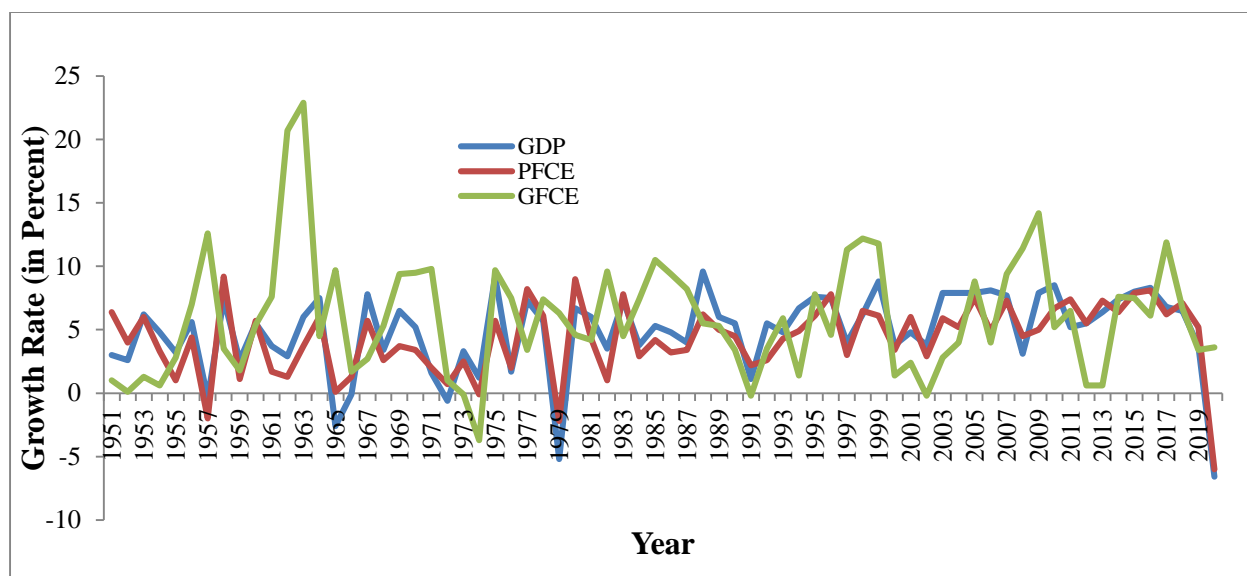
Source: Author's Calculation.

Similarly, figure 2.2 presents the growth rate trends of GDP and GFCF for the period, 1951 to 2019. Although both the growth rates of GDP and GFCF show rising trend over the period, however, GFCF has witnessed more fluctuations as compared to GDP. Recently, there is a drastic fall in growth rate of both GDP as well as GFCF from 2017 to 2019, which is really a great concern for the Indian economy.

Figure 2.2 Trend Growth Rate of GDP and GFCF (%)
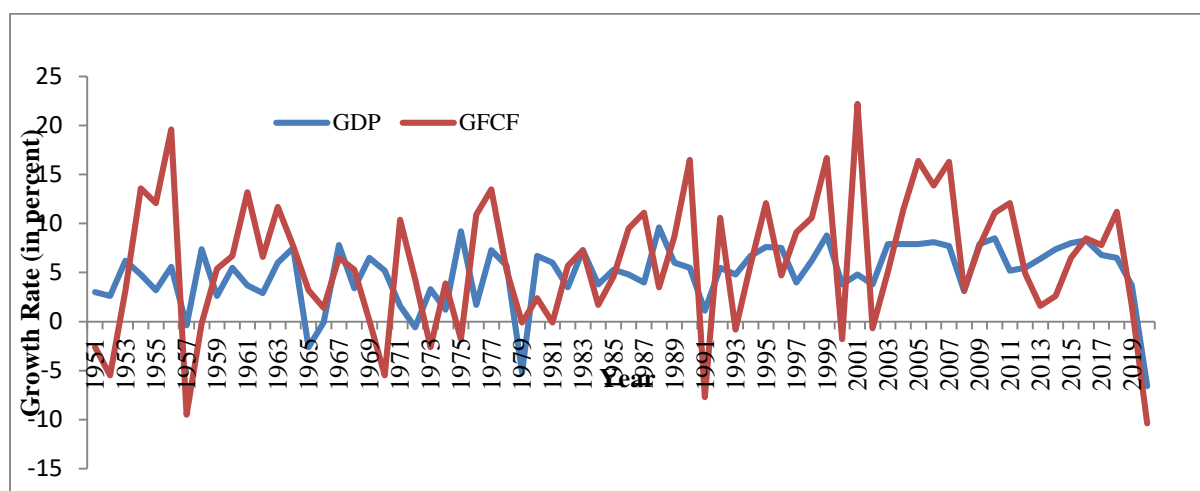
Source: Author's Calculation.

Further, the figure 2.3 shows the growth rate trends of GDP, imports and exports. All of them indicate rising trends over the period from 1951 to 2019. Both the growth rates of imports and

exports fluctuate more as compared to the fluctuation in the growth rate of GDP. Although the figure clearly indicates that there is a gap between exports and imports across various time periods. However, it is also seen that the growth rate trends of imports and exports converge to each other in the long-run.

Figure 2.3 Trends of Growth Rate of GDP, Exports and Imports (%)
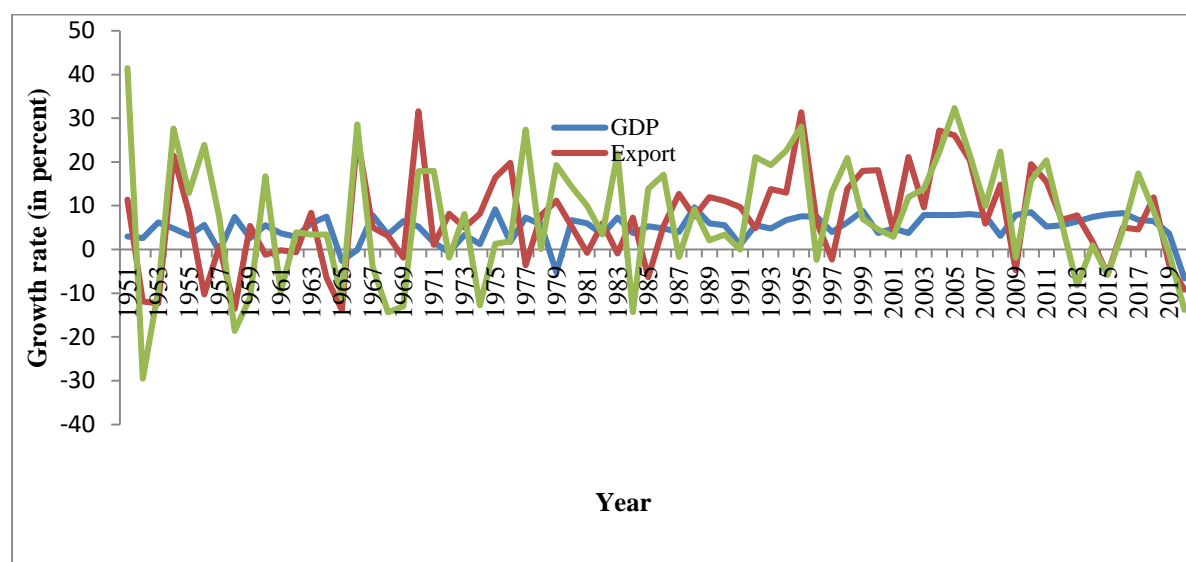
Source: Author's Calculation.

Figure 2.4 presents the share of various aggregate demand components in GDP from 1950 to 2020 reflecting demand trends. It reveals that PFCE share in GDP was more than 80 per cent in 1950s, which continued to decline and reached to 56 per cent in 2020. However, despite its decline, PFCE yet constitutes a lion's share of expenditure component in the GDP for all the time. On the other hand, share of GFCF in the GDP shows increasing trend from 1950 to 2020. GFCF is the second largest component of GDP in India. However, GFCE has become almost stable at around 10 per cent of GDP throughout since 1972. Further, both the import and export shares in GDP were almost stable from 1950 to 1990. There were increases in the shares of exports and imports in GDP only after 1991 characterizing post-liberalization periods. This may be the effect of new economic reforms adopted in India in 1991, which integrate the India with the world economy or the rest of the economies in the world. However, recently there is a decline in both the shares of imports and exports in relation to GDP since 2012. The decline in imports sometimes may be a good signal of self-reliance but decline in exports does not paint a healthy sign.

Figure 2.4 Share of Aggregate Demand Components in GDP (%)
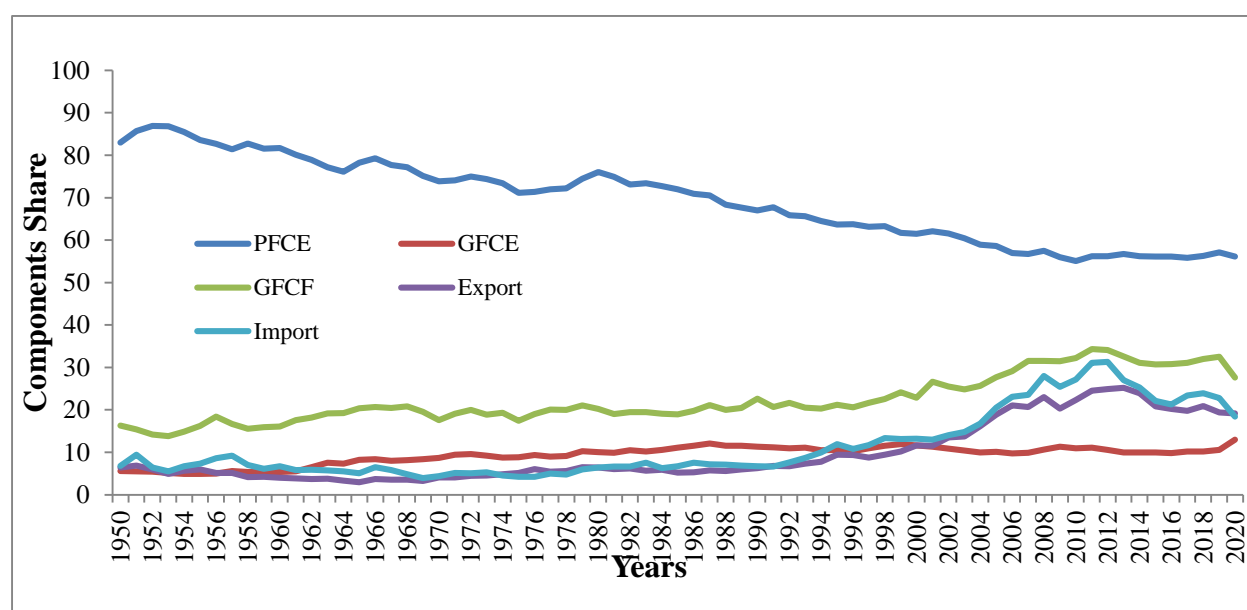
Source: Author's Calculation.

Table 2.1 presents the decadal growth rates and volatility of growth rate of GDP and its components from 1951 to 2019. The volatilities in growth rates of GFCE, GFCF, imports and exports are observed to be more as compared to the volatilities in growth rates of PFCE and GDP over the 69 year periods. The volatility in growth rates of export and import was nearly one and half times more than volatility in growth rate of GDP, PFCE and GFCE. The volatilities in growth rates of GDP, PFCE, GFCE and GFCE have increased from 1980s onward. However, the volatilities in growth rates of exports and imports have increased from 1970s onward till 2010. It declined over the last decade. It is also evident from the table that the higher decadal growth rate is accompanied with a higher volatility of GDP growth rate and its constituents. This indicates that there are fluctuations in the GDP growth rate and its components across periods within each decade. This may be the result of various macroeconomic shocks arising in the Indian economy and rest of the world in a more integrated world.

Table 2.1 Growth and Volatility

	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000	2001-2010	2011-2019	1951-2019
GDP								
Growth (mean)	4	4	3	6	6	7	5	5
Coefficient of Variation	13.14	11.50	11.05	16.55	18.45	20.58	17.8	104.73
PFCE								
Growth (mean)	4	2.95	3.39	4.25	4.69	5.59	6	4.33
Coefficient of Variation	11.44	9.31	11.20	12.76	15.64	16.78	18.04	93.44
GFCE								
Growth (mean)	4	9.4	4.59	6.8	5.97	6.2	5	6
Coefficient of Variation	13.87	22.28	13.88	21.34	21.93	22.33	18.43	107.88
GFCF								
Growth (mean)	4	5.02	4.61	6.85	5.93	10.66	4	6
Coefficient of Variation	17.54	13.37	14.30	21.84	23.61	30.04	15.87	125.32
Export								
Growth (mean)	-0.18	5.08	7.93	5.4	12.68	14.41	4	7
Coefficient of Variation	8.79	15.88	25.74	18.56	35.81	39.77	9.07	149
Import								
Growth (mean)	6	0.5	7.57	6.52	13.44	15.1	3	7
Coefficient of Variation	20.40	10	21.73	17.71	38.36	45.07	10.30	148.19

Source: Author's Calculation.

Table 2.2 represents the decomposition of the growth rate of the GDP into its aggregate demand components from 1951 to 2019. It shows that the contribution of private final consumption expenditure (PFCE) in growth rate of GDP was 81 per cent in 1951-60 and it fell to 60 per cent in 2011 – 2019. It indicates its highest contribution to the GDP growth rate. In long-run, the share of the PFCE to the GDP growth rate was 61 per cent from 1951 to 2019. Then the gross fixed capital formation (GFCF) is the second most important source to GDP growth rate. Its contribution increased from 17 per cent in 1951-60 to 45 per cent in 2001-10 and then declined to 32 per cent in last decade of 2011-2019. The gross fixed capital formation contributes 27 per cent to the GDP growth rate of GDP over the 70 years. The government final consumption expenditure is also an important component of aggregate demand. The GFCE raised from 5 per cent in 1951-60 to 9 per cent in 2011-2019. The exports and imports also contribute to the growth rate of GDP. The export and import contributed 14 per cent and 18 per cent to the growth rate of GDP, respectively from 1951 to 2019.

Table 2.2 Decomposition Analysis, 1951-2019

	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000	2001-2010	2011-2019	1951-2019
PFCE	81	57	81	54	54	48	60	61
GFCE	5	18	14	13	12	10	9	11
GFCF	17	24	29	25	23	45	32	27
Export	-0.2	5	14	6	20	39	17	14
Import	11	1	12	8	26	46	19	18

Source: Author's Calculation.

Although there are many studies looking at the component contributions of aggregate demand to the GDP (Balakrishnan et al., 2017; Mihir, 2007; Gupta, 2018; Venkatraja, 2018), but there are no rigorous time series empirical analysis in uncovering the true statistical relationship of the GDP with the aggregate demand components in India. Thinking that these components are part of the same national income identity, it hardly makes sense for empirical economists to go for making any rigorous statistical analysis by relating the whole with just its component parts/elements, when their relationships can be examined in terms of their percentages and growth rate trends. However, while the argument sounds quite reasonable and valid, the fact is that the demand components can have both direct and indirect impacts on the GDP which remains intrigue, which the study tries to investigate and uncover in terms of their total impacts of individual demand components on the GDP or growth of the economy. Towards this endeavour, the following section discusses the methodology for uncovering the true dynamic relationship between the components of aggregate demand and growth rate performance of the economy. Although similar kinds of analysis have been undertaken for other countries' context, this kind of analysis is not there for India to develop our understanding on their dynamic relationships. In this context, this is modest attempt to uncover the relationship between aggregate demand components and GDP.

2.5 Methodology

This study investigates the dynamics of aggregate demand components and economic growth in India. For this, we used the Bound Autoregressive Distributed Lag (ARDL) model as proposed by Pesaran et al. (1999), Pesaran et al. (1996) and Pesaran et al. (2001). This model performs better in a situation when some variables are either I(1) or I(0) or there is presence of mixture of both. It is also evidenced from applied econometric literature that this econometric

technique provides robust and consistent long-run coefficient parameters in the context of a small sample size data series. Since our analysis rests on a small sample size of 69 observations; therefore, ARDL bound test to cointegration model is considered an appropriate estimation framework for the analysis. The model can be represented in the following equation form:

Long-run Equation

$$lnGDP_t = \alpha_{0i} + \sum_{i=1}^{p} \beta_{1i} \; lnGDP_{t-i} + \sum_{i=1}^{q} \beta_{2i} \; lnPFCE_{t-i} + \sum_{i=1}^{q} \beta_{3i} \; lnGFCE_{t-i} +$$

$$\sum_{i=1}^{q} \beta_{4i} \; lnGFCF_{t-i} + \sum_{i=1}^{q} \beta_{5i} \; lnExport_{t-i} + \sum_{i=1}^{q} \beta_{6i} \; lnImport_{t-i} +$$

$$\varepsilon_{it} \; .... \; (2.2)$$

Error Correction Model Equation

$$\Delta lnGDP_t = \alpha_{0i} + \sum_{i=1}^{p} \beta_{1i} \; \Delta lnGDP_{t-i} + \sum_{i=1}^{q} \beta_{2i} \; \Delta lnPFCE_{t-i} + \sum_{i=1}^{q} \beta_{3i} \; \Delta lnGFCE_{t-i} +$$

$$\sum_{i=1}^{q} \beta_{4i} \; \Delta lnGFCF_{t-i} + \sum_{i=1}^{q} \beta_{5i} \; \Delta lnExport_{t-i} + \sum_{i=1}^{q} \beta_{6i} \; \Delta lnImport_{t-i} + \lambda ECM_{t-i} +$$

$$\varepsilon_{it} \; .... \; (2.3)$$

Furthermore, the Bound ARDL model for structural changes can be specified in the following equations:

Long-run Equation

$$lnGDP_t = \alpha_{0i} + \sum_{i=1}^{p} \beta_{1i} \; lnGDP_{t-i} + \sum_{i=1}^{q} \beta_{2i} \; lnPFCE_{t-i} + \sum_{i=1}^{q} \beta_{3i} \; lnGFCE_{t-i} +$$

$$\sum_{i=1}^{q} \beta_{4i} \; lnGFCF_{t-i} + \sum_{i=1}^{q} \beta_{5i} \; lnExport_{t-i} + \sum_{i=1}^{q} \beta_{6i} \; lnImport_{t-i} +$$

$$\sum_{i=1}^{q} \beta_{7i} \; Dummy1991 +$$

$$\varepsilon_{it} \; .... \; (2.4)$$

Error Correction Model Equation

$$\Delta lnGDP_t = \alpha_{0i} + \sum_{i=1}^{p} \beta_{1i} \; \Delta lnGDP_{t-i} + \sum_{i=1}^{q} \beta_{2i} \; \Delta lnPFCE_{t-i} + \sum_{i=1}^{q} \beta_{3i} \; \Delta lnGFCE_{t-i} +$$

$$\sum_{i=1}^{q} \beta_{4i} \; \Delta lnGFCF_{t-i} + \sum_{i=1}^{q} \beta_{5i} \; \Delta lnExport_{t-i} + \sum_{i=1}^{q} \beta_{6i} \; \Delta lnImport_{t-i} +$$

$$\sum_{i=1}^{q} \beta_{7i} \; Dummy1991 + \lambda ECM_{t-i} +$$

$$\varepsilon_{it} \; .... \; (2.5)$$

Whereas, $i = 1, 2, \ldots\ldots, k$, α stands for intercept term, β's stants for coefficients, p and q are optimal lags for dependent and independent variables respectively, GDP denotes Gross Domestic Product, PFCE denotes private final consumption expenditure, GFCF denotes gross fixed capital formation, Import denotes imports of services and goods, Export denotes exports of services and goods, GFCE denotes government final consumption expenditure, λ stands for adjustment speed of parameter, Dummy1991 stands for dummy variable for economic refors of 1991, ECM signifies error correction term and ε_{it} stands for error term.

Before proceeding to report the estimated results from our specified model, it is necessary to examine and know the nature of the stationarity of the time-series data. Otherwise, the analysis of the non-stationary time series data could turn to spurious or inconsistent estimates. The statistical method used to determine the stationarity of a series is called the 'unit root test'. Furthermore, the non-stationarity problems have been checked by conducting the Phillips-Perron (PP) and Augmented Dicky-Fuller (ADF) unit root tests. Table 2.3 represents the PP and ADF unit root test results for different variables used in the present study. It reveals that although many of the variables were non-stationary at levels, but all are becoming stationary at the first difference. On the basis PP and ADF unit root tests, all the variables are found to be purely stationary at I(1) or integrated of first differences.

Table 2.3 Unit root test

Variable	ADF test results		PP test results		Decision
	C	C+T	C	C+T	
lnGDP	1.940	-1.362	2.078	-1.352	I(1)
ΔlnGDP	-7.002***	-7.412***	-7.063***	-7.291***	
lnPFCE	2.335	-0.775	2.671	-0.674	I(1)
ΔlnPFCE	-7.839***	-9.037***	-8.301***	-9.037***	
lnGFCE	-0.301	-3.811	0.092	-2.832	I(1)
ΔlnGFCE	-5.412***	-5.360***	-5.021***	-4.948***	
lnGFCF	0.890	-1.729	1.008	-1.754	I(1)
ΔlnGFCF	-7.626***	-7.625***	-7.585***	-7.540***	
lnExport	1.430	-2.491	1.273	-2.496	I(1)
ΔlnExport	-7.052***	-7.500***	-7.120***	-7.514***	
lnImport	0.681	-1.767	0.717	-1.747	I(1)
ΔlnImport	-8.029***	-8.344***	-8.047***	-8.342***	

Note: ∗∗∗, ∗∗ and ∗ show the significance level at 1 per cent, 5 per cent, and 10 per cent respectively.

Source: Author's Calculation.

Table 2.4 shows Bound test results. It reveals that although the computed F- statistic value is within the lower and upper bound at 1 per cent significance level but it evidently exceeds upper value at 5 per cent significance level. This proves that there is a long-run relationship between the dependent variable gross domestic product (GDP) and the independent variables such as government final consumption expenditure (GFCE), private final consumption expenditure (PFCE), gross fixed capital formation (GFCF), imports and exports.

Table 2.4 Bounds test results

K	Significance	I0 Bound	I1 Bound	F-Statistic
5	10%	2.08	3	3.692
	5%	2.39	3.38	
	2.5%	2.7	3.73	
	1%	3.06	4.15	

Source: Author's Calculation.

Table 2.5 presents the long- run bounded ARDL results. It shows that in long-run 1 per cent rise in the PFCE leads to on an average 0.96 per cent increase in the GDP at the 1 per cent significancelevel. Moreover, 1 per cent increase in GFCE causes on an average 0.07 per cent increase in the GDP at the 5 per cent significance level. On the other hand, in long-run, the relationship of the GDP with the GFCF and import is negatively and positively related to each other respctively althoughthey are found to be statistically insignificant. In the long-run, import has positive impact on GDP i.e. 1 per cent rise in the import leads to 0.075 per cent rise in GDP at 5 per cent significance level.

Table 2.5 Long-run bound ARDL model results

Dependent-variable: lnGDP			
Variable	Coefficient	Std. Error	t-Statistic
lnPFCE	0.962***	0.110	8.677
lnGFCE	0.072**	0.039	1.858
lnGFCF	-0.032	0.068	-0.476
lnExport	0.004	0.034	0.129
lnImport	0.075**	0.037	1.989
Constant	-0.512	0.660	-0.777

Note: ∗∗∗, ∗∗ and ∗ show the level of significance at 1 per cent, 5 per cent, and 10 per cent respectively.

Source: Author's Calculation.

Table 2.6 provides short-run cointegartion estimates for the selected bounded ARDL model. It reveals that the ECM(-1) has a correct negative sign which is significant with a coefficient estimate of -0.376. This indicates that the adjustment speed towards long-run equilibrium is 37.6 per cent per annum or the system corrects the previous period disequilibrium at a speed of 37.6 per cent within one-year period. The t-statistic is -5.028 and its coefficient is statistically significant at the 1 per cent level.

Table 2.6 indicates that there exist a short-run cointegraton relationship of GDP with PFCE, GFCE, GFCF, export and imports. The private final consumption expenditure, government final consumption expenditure, export and import are significant at the 1 per cent level. Moreover, it shows a positive relationship of GDP with the PFCE, GFCE, GFCF and exports. It reveals that a 1 per cent rise in the PFCE it leads to on average 0.93 per cent rise in the GDP. The influence of PFCE is higher as compared to the other components of aggregate demand. This is well in conrguent with our trend analysis. The 1 per cent rise in the GFCE causes 0.14 per cent increase in GDP. Similarly, 1 per cent increase in export causes 0.059 per cent increase in GDP, while 1 per cent increase in imports leads to -0.047 percent fall in GDP. However, although GFCF is found to have a positive impact on the GDP, but it is statistically insignificant in the short-run. These findings are similar with the results of Venkatraja (2018).

Table 2.6 Short-Run Cointegration Results

Dependent-variable: ΔlnGDP ARDL (1, 3, 1, 0, 3, 3); Lag: AIC			
Variable	Coefficient	Std. Error	t-Statistic
ΔlnPFCE	0.939***	0.069	13.545
ΔlnPFCEt-1	-0.094	0.071	-1.335
ΔlnPFCEt-2	-0.240***	0.071	-3.365
ΔlnGFCE	0.142***	0.036	3.872
ΔlnGFCF	0.002	0.005	0.004
ΔlnExport	0.059***	0.020	2.975
ΔlnExportt-1	0.077***	0.021	3.586
ΔlnExportt-2	0.051***	0.021	2.418
ΔlnImport	-0.002	0.015	-0.013
ΔlnImportt-1	-0.047***	0.015	-3.172
ΔlnImportt-2	-0.022	0.014	-1.576
ECM (-1)	-0.376***	0.074	-5.028
Breusch-Godfrey Serial Correlation LM Test	0.97		
Heteroskedasticity Test: Breusch-Pagan-Godfrey	1.21		
Jarque-Bera Normality test	0.30		
Ramsey RESET Test	2.92		

Note: ∗∗∗, ∗∗ and ∗ indicate the levels of significance at 1 per cent, 5 per cent, and 10 per cent respectively.

Source: Author's Calculation.

We also carried out a set of diagnostic test statistics for the selected bound ARDL model. We carried out Diagnostic tests of Breusch- Godfrey serial correlation LM test, and Breusch-Pagan-Godfrey test to check for serial correlation, and heteroscedasticity respectively. The Breusch-Godfrey serial correlation LM test suggests that there is no problem of autocorrelation in the error term. Moreover, Breusch-Pagan-Godfrey test proves that the residuals obtained from the bounded ARDL model are free from the heteroskedasticity problem and the model is free from non-normality and specification biasness as suggested by Jarque-Bera Normality test and Ramsey RESET test results (Table 2.6).

Stability Diagnostics

Figure 5 and Figure 6plot the CUSUM and CUSUM of Squares tests. Both tests reveal that CUSUM and CUSUM of Squares remained within 5 per cent critical bounds and henceforth prove that the parameters of bounded ARDL model are stable.

Figure 2.5 CUSUM Test
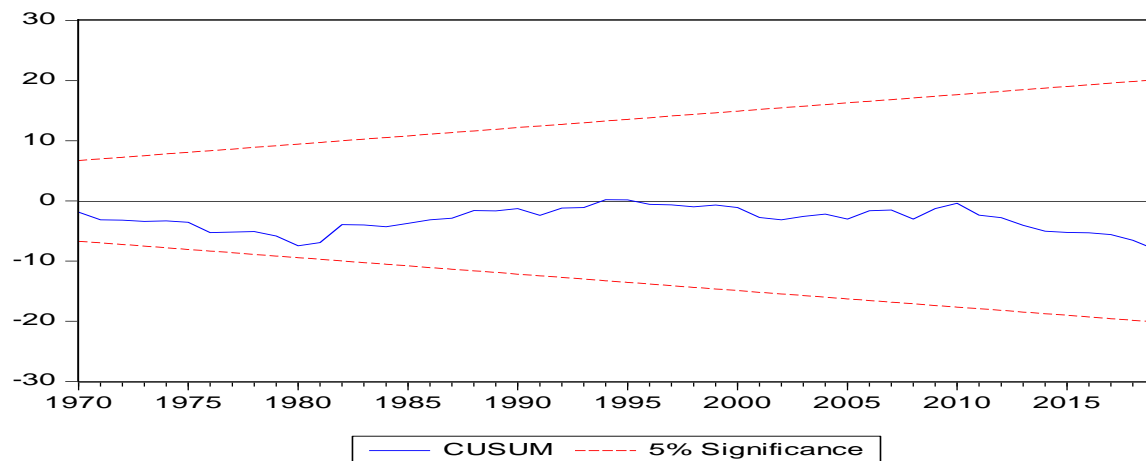
Source: Author's Calculation.

Figure 2.6 CUSUM of Square Test
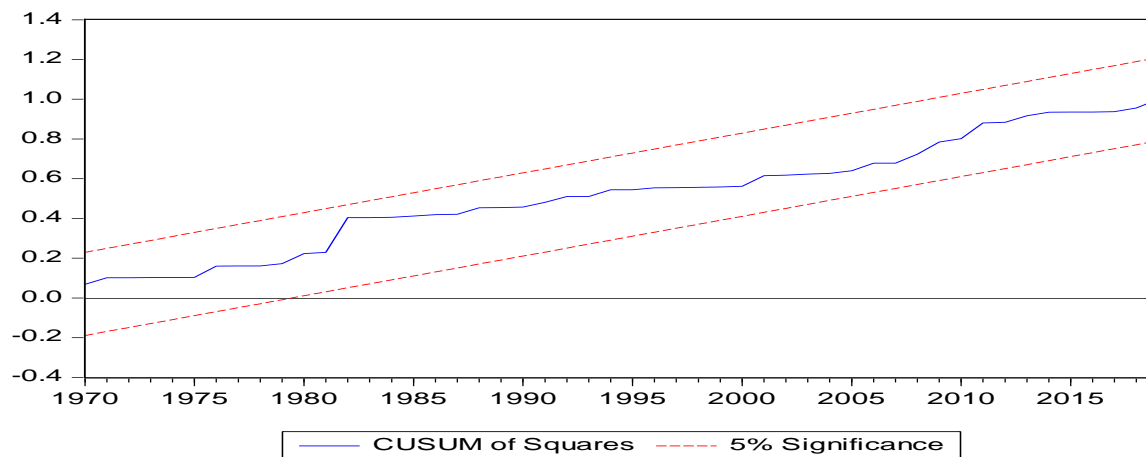
Source: Author's Calculation.

2.6 Incorporating the structural policy changes in 1991

In India, policymakers initiated the new economic reforms in 1991. These reforms accelerated the economic growth by encouraging private investment and trade liberalization. These reforms have had the influence on the economic growth and aggregate demand components. To examine any changing dynamic relationships between aggregate demand components and economic growth, we incorporated the structural policy changes occurred in the Indian economy in 1991. The structural policy changes may matter in the relationship of components of aggregate demand with the growth.

Furthermore, we have used the Chow breakpoint test to check the structural breakpoint in 1991.Table 2.7 presents the Chow breakpoint result. It clearly reveals that the structural break in the gross domestic product (GDP) has occurred in 1991 at the 1 per cent significance level with introduction of liberalisation reforms in India.

Table 2.7 Chow Breakpoint Test for 1991

| F-statistic	208.735	Prob. F(1,68)	0.0000
Log likelihood ratio	98.248	Prob. Chi-Square(1)	0.0000
Wald Statistic	208.735	Prob. Chi-Square(1)	0.0000

Source: Author's Calculation.

Table 2.8 shows the bound test results. Similar to the preceding results, it also reveals that although the computed value of F-statistic is within the lower and upper bound at 1 per cent significance level, but clearly exceeds the upper value at 5 per cent significance level. This evidently proves that there is a long-run relationship between the dependent variable gross domestic product (GDP) and the independent variables such as government final consumption expenditure (GFCE), private final consumption expenditure (PFCE), gross fixed capital formation (GFCF), imports (M) and exports (X).

Table 2.8 ARDL Bounds Test Results

K	Significance	I0 Bound	I1 Bound	F-statistic
6	10%	1.99	2.94	3.077
	5%	2.27	3.28	
	2.5%	2.55	3.61	
	1%	2.88	3.99	

Source: Author's Calculation.

Table 2.9 shows the long-run bound ARDL results. It reveals that in the long-run 1 per cent increase in GFCF leads to 0.08 per cent increase in the GDP at the 5 per cent significance level. Moreover, 1 per cent rise of the export causes 0.03 per cent increase of the GDP at 5 per cent significance level. Then GFCF and export both shows the postive relationships with the GDP after incorporating the structural break due to the structural reforms of 1991.

Table 2.9 Long-run Bound ARDL model results

Dependent-variable: lnGDP			
Variable	Coefficient	Std. Error	t-Statistic
lnPFCE	0.855***	0.068	12.434
lnGFCE	0.070***	0.024	2.901
lnGFCF	0.081**	0.044	1.847
lnExport	0.039**	0.022	1.773
lnImport	-0.002	0.024	-0.113
Dummy 1991	0.048***	0.014	3.316
Constant	0.046	0.413	0.113

Note: ∗∗∗, ∗∗ and ∗ show significance level at 1 per cent, 5 per cent, and 10 per cent respectively.

Source: Author's Calculation.

Table 2.10 provides short-run cointegartion estimates for the selected ARDL bounds model. It reveals that the ECM (-1) has a correct negative sign and which is significant with a coefficient estimate of -0.49. This demonstrates that the speed of adjustment towards long-run equilibrium is 49 per cent. The t-statistic is -4.740 and its coefficient is statistically significant at 1 per cent level. We also carried out a set of diagnostic test statistics for the selected ARDL model. The Breusch- Godfrey serial correlation LM test exhibit that there is no problem of autocorrelation in the error term. Moreover, Breusch- Pagan- Godfrey test proves that the residuals obtained from the ARDL model is free from any heteroskedasticity problem and the model is free from non-normality and specification biasness as revealed by Jarque-Bera Normality test and Ramsey RESET test results.

Table 2.10 Short-run Cointegration results

Variable	Coefficient	Std. Error	t-Statistic
Dependent-variable: lnGDP ARDL(2, 3, 1, 0, 2, 2, 1); Lag: AIC			
ΔlnGDP t-1	0.218**	0.121	1.793
ΔlnPFCE	0.954***	0.070	13.563
ΔlnPFCEt-1	-0.228*	0.134	-1.701
ΔlnPFCEt-2	-0.226***	0.071	-3.165
ΔlnGFCE	0.128***	0.039	3.242
ΔlnGFCF	0.006	0.005	0.128
ΔlnExport	0.049***	0.019	2.474
ΔlnExportt-1	0.047***	0.020	2.375
ΔlnImport	-0.013	0.015	-0.880
ΔlnImportt-1	-0.032***	0.014	-2.255
Δdummy1991	-0.003	0.012	-0.260
ECM(-1)	-0.490***	0.103	-4.740
Breusch-Godfrey Serial Correlation LM Test	1.733		
Heteroskedasticity Test: Breusch-Pagan-Godfrey	1.191		
Jarque-Bera Normality test	0.942		
Ramsey RESET Test	2.439		

Note: ∗∗∗, ∗∗ and ∗ show the significance level at 1 per cent, 5 per cent, and 10 per cent respectively.

Source: Author's Calculation.

Stability Diagnostics

Figure 2.7 and Figure 2.8 are the plots of CUSUM and CUSUM of Squares tests. Both the tests reveal that CUSUM and CUSUM of Squares remained within 5 per cent critical bounds and henceforth prove that the parameters of ARDL bounds model are stable.

Figure 2.7 CUSUM Test
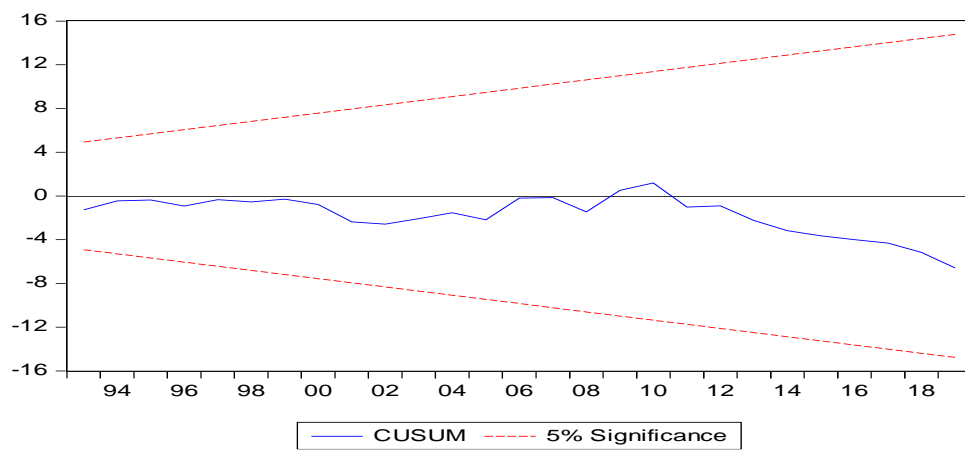
Source: Author's Calculation.

Figure 2.8 CUSUM of Square Test
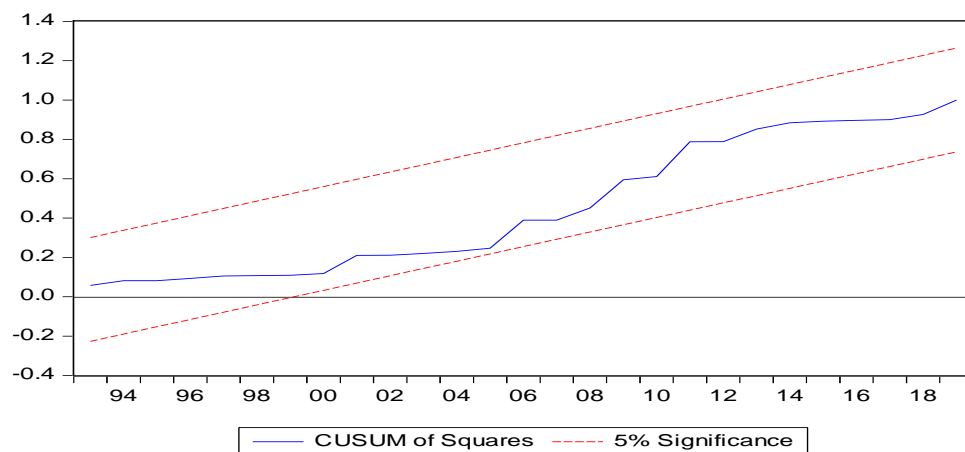
Source: Author's Calculation.

2.7 Concluding Remarks

This chapter analysed the dynamics of aggregate demand components and economic growth in India over a long period from 1951 to 2019. The above analysis reveals that the private final consumption expenditure is a lion's share of expenditure component in GDP for all the time. Its share in the gross domestic product declined from the around 80 per cent in 1951 to 56 per cent in 2019. The gross fixed capital formation is the second largest aggregate demand component after the private final consumption expenditure. The government final consumption expenditure, imports and exports also significantly contribute to the economic growth of India over the period. It is found that since all the four aggregate demand components are interlinked with each other, all the aggregate demand components significantly influence the economic growth of India.

Furthermore, the estimation process includes the Autoregressive Distributed Lag Model (ARDL) bound model. The results prove that the there is significant relationship between the aggregate demand components and the economic growth in India. The ARDL bounds model reveals that there is a long-run and short-run relationship exists among the gross domestic product (GDP) and the independent variables such as gross fixed capital formation (GFCF), private final consumption expenditure (PFCE), government final consumption expenditure (GFCE), imports (M) and exports (X). The private final consumption expenditure (PFCE) contributes more than 50 per cent to the GDP. It shows that in the long-run 1 per cent increase in the PFCE leads to on an average 0.96 per cent increase in the GDP. Since, from 1951 to 2019 which is quite a long period where there might have lot of changes witnessed in the economy reflecting structural evolution of the economy, we tried to incorporate the structural changes initiated since the 1991. The result also reveals that these reforms accelerated the pace of economic growth by encouraging private investment, and trade liberalization, etc. by creating more employment opportunities in the economy. It has created the virtuous cycles of economic growth in the economy.

To sum up, the study finds that the four components of the aggregate demand significantly influence the economic growth of India. The private final consumption expenditure plays a crucial role in the economic growth followed by private fixed investment. Therefore, the policy priority should receive attention on raising these aggregate demand components to bolster up the economic growth of India and our next chapter narrows down the analysis by considering

which decile income household classes' consumption demand got affected, thereby influencing the overall growth rate of the economy, given that there is an ongoing debate that there is an overall decline in consumption to demand contributing industrial stagnation and thereby halting the speedy growth of the Indian economy. In this context, identifying which decile income classes' consumption has declined would be quite imperative to target those sections for raising up the overall aggregate demand and thereby accelerating the pace of economic growth of India.

Chapter 3

Analysis of Consumption Expenditure and Income Levels in India

3.1 Introduction

Mostly, in developing countries economic growth is led by consumption expenditure rather than production or investment. This might be because of dominant share of consumption expenditure in gross domestic product (GDP). The consumption expenditure motivates private sectors production. Hence, as the consumption expenditure rises consumption-led growth would turn into investment-led or production-led growth and it spurts in higher economic growth (Mishra, 2011). Household consumption is determined by household income level. Income inequality leads to deterioration in the consumption expenditure. The low consumption demand results in low investment and it further feeds into economic growth. Household consumption expenditure, which accounts for around two-thirds of GDP, is an important financial planning instrument. Household consumption expenditures are another important indication of economic well-being. As a result, it is fundamental to both macroeconomic theory and empirical investigations in the discipline.

In the Indian economy, the share of private final consumption expenditure (PFCE)[4] was 85 per cent in 1951 and it has dropped to 57 per cent in 2019 (EPWRF, 2020). Observing this, Ghatak et al. (2020) implied that the fate of growth episode is not inclusive. To ensure India's economic growth success on a sustained basis, it needs to generate the complementary aggregate demand cycles between rural and urban India, which can boost economic growth over a longer period. In addition, the poor tiers of population create more aggregate demand as their income increases and spend their income on the services and goods which are manufactured by low-skilled workers. Further, it will generate sustained virtues cycles of economic growth. Moreover, Karl Marx demonstrated the "profit-realisation problem" and stated that, "the

---

[4] According to Economic and Political Weekly Research Foundation National Account Statistics, the Private final consumption expenditure (PFCE) includes consumption expenditure by households on 1) health, education, food, beverages, electricity, gas and other fuels, clothing, footwear, water, housing, communication, transport, recreation and 2) Consumption expenditure on durable goods, semi-durable goods, non-durable goods.

ultimate reason for all real crises always remains the poverty and restricted consumption of the masses" (Sebastiani, M, 1989). This chapter aims to analyse the relationship between the consumption expenditure of households and their income levels in India over the time span of 1980's to 2017-18. The private final consumption expenditure shares in GDP started to decline in 1980's onwards, so we decided to analyse the relationship between the consumption expenditures and income levels in India over a longer duration from 1980's covering the latest survey rounds of NSSO on household consumption expenditures.

In the previous Chapter 2, we have examined the trends of key components of aggregate demand and observed that consumption demand constitutes more than 57 per cent of GDP in 2019-20. This chapter is specifically motivated to analyse the household consumption expenditures and household incomes across households at pan India level, including both rural and urban regions. This is because it is the household consumption demand, which can provide necessary stimulus for the investment and that can translate into higher economic growth. Since inequality of income is an important critical factor influencing aggregate consumption demand, this study analyses the distribution of consumption expenditures across various deciles of households and studies their potential demand by studying the observed variations in their marginal propensity to consume corresponding to various threshold levels of household incomes. This is done for the all India level, rural households and urban households, which is hardly empirically studied in the Indian context.

3.2 Data Sources

To analyse the relationship between household consumption expenditures and household income levels in India, data on the decile-wise average monthly per capita consumption expenditure is collected from 18 consecutive rounds of National Sample Survey Organisation (NSSO) on the consumption expenditure survey from 1983 to 2017. We have used the following 18 rounds of consumption expenditure survey NSSO – 38th round (1983), 43rd round (1987-88), 46th round (1990-91), 52nd round (1995-96), 48th round (1992), 50th round (1993-94), 51st round (1994-95), 55th round (1999-2000), 56th round (2000-01), 57th round (2001-02),

59th round (2003), 66th round (2009-10), 61st round (2004-05), 53rd round (1997), 62nd round (2005-06), 63rd round (2006-07), 68th round (2011-12) and 75th round (2017-18)[5].

Given that our purpose is to relate decile-wise household consumption expenditures with household incomes, in the absence of available data on decile-wise household incomes, we had to generate the household incomes for various deciles. This necessitated certain assumption to make. At first, we have converted the average monthly per capita consumption expenditure data at 2010 prices by using CPI from International Monetary Fund. Then, we have considered the decile-wise average household size data from the all consumption expenditure survey rounds of NSSO and converted the average MPCE into average household monthly consumption expenditures. We have used the decile-wise saving rates from the ICE Survey of the People's Research on the Consumer Economy (PRICE), which was conducted in 2013-14. We have also reported the savings rate by income deciles to convert the decile-wise household consumption expenditures into the decile-wise household incomes[6]. We do not have the saving rates for various household deciles for all the periods. Thus, we have assumed it to be a constant over the period in order to calculate the household income.

3.3 Trends of Average MPCE across Deciles, 1983- 2017

3.3.1 Average MPCE at all India and Sectoral level

Figure 3.1 shows the average MPCE for all India from 1983 to 2017. It reveals that the average monthly per capita consumption expenditure of 10th decile is higher as compared to the other deciles, but their MPCE is found to be more volatile. The average MPCE of first five deciles remains stable over the period of time. Furthermore, the average monthly per capita consumption expenditures (MPCE) of 6th, 7th, 8th and 9th decile show an increasing trend over the period. It seems that at all India level, the average MPCE of upper strata of the households is higher as compared to the lower strata of the households.

---

[5]The data on the 75th round of NSSO consumption expenditure survey was not released by the government of India. The decile-wise consumption expenditure data for the 75th round is taken from a secondary source i.e. Subramanian (2020).

[6]We have followed the Ghatak et al. (2020) and Shukla and Sharma (2016) methodology to calculate the decile-wise household incomes from decile-wise average household consumption and saving rate by income deciles.

Figure 3.1 Average MPCE across Deciles for All India, 1983- 2017
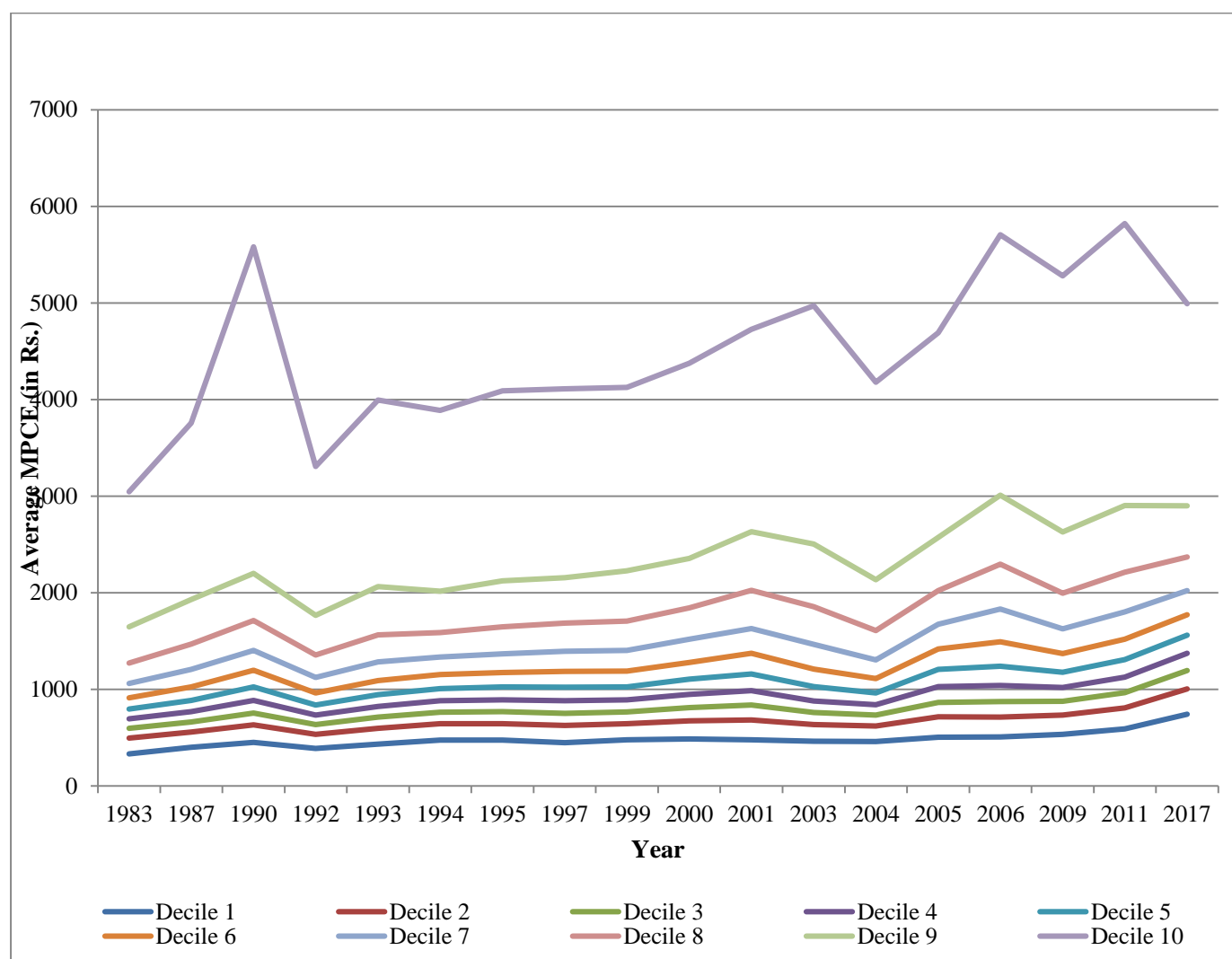
At the sectoral levels, the average MPCE of 10th decile in rural region during same time period is also observed to be higher as compared to the other deciles, but it is more volatile. The average MPCE of first five deciles remains stable over the period of time. Furthermore, the average MPCE of 6th, 7th, 8th and 9th decile show an increasing trend over the period. It seems that for the rural region, the average MPCE of upper strata of households is higher as compared to the lower strata of the households (Figure 3.2).

Figure 3.2 Average MPCE across Deciles for Rural India, 1983- 2017
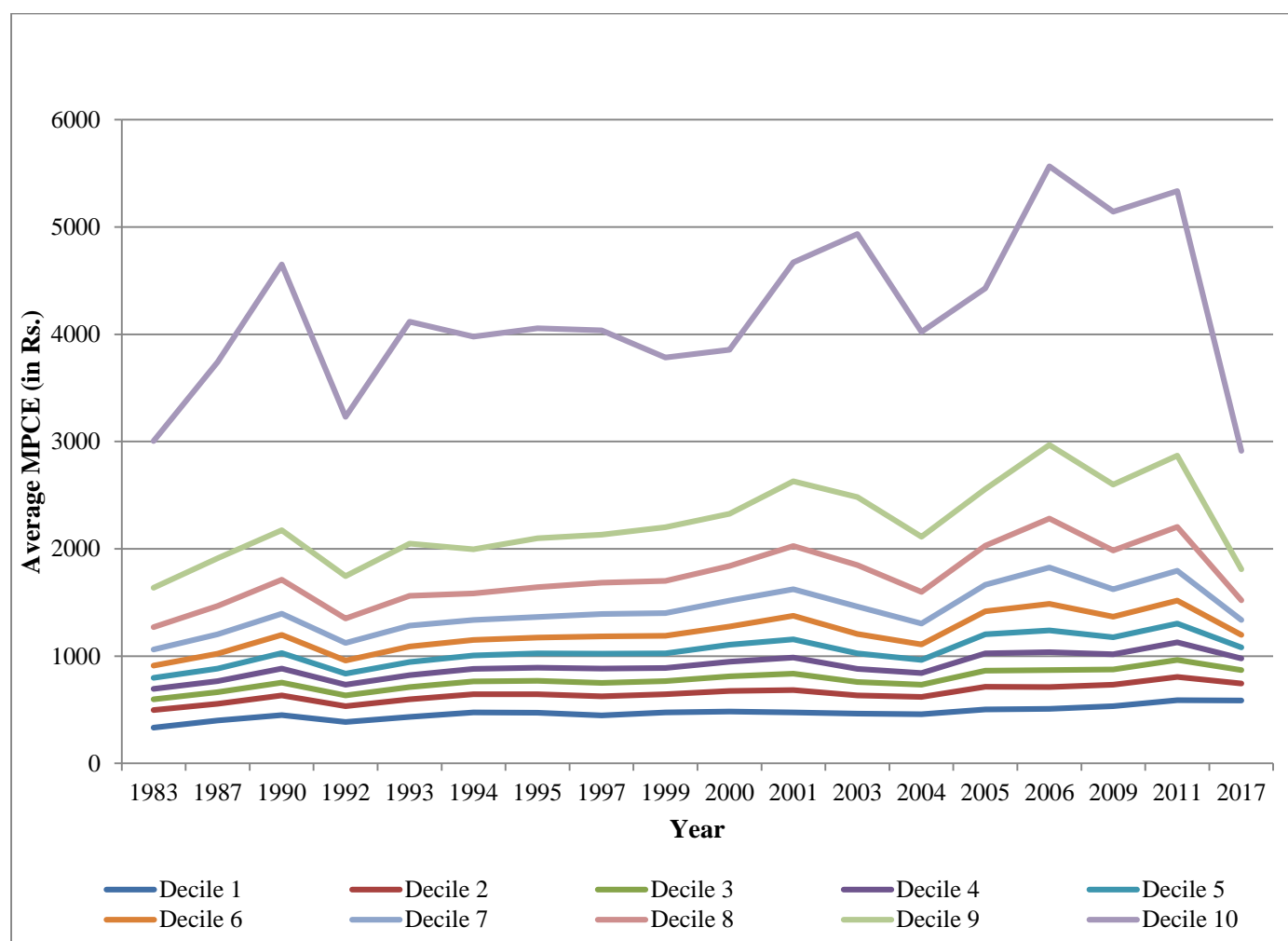
Source: Author's Calculation.

Similarly, the average MPCE of 10th decile in urban regions for same time period is also higher as compared to the other deciles and it is showing increasing trend over the period. The average MPCE of first six deciles remains stable over the period, while the average MPCE of 7th, 8th and 9th deciles are showing increasing trend over the period. It seems that in the urban India level, the average MPCE of upper strata of households is also higher as compared to the lower strata of the households (Figure 3.3).

Figure 3.3 Average MPCE across Deciles for Urban India, 1983- 2017
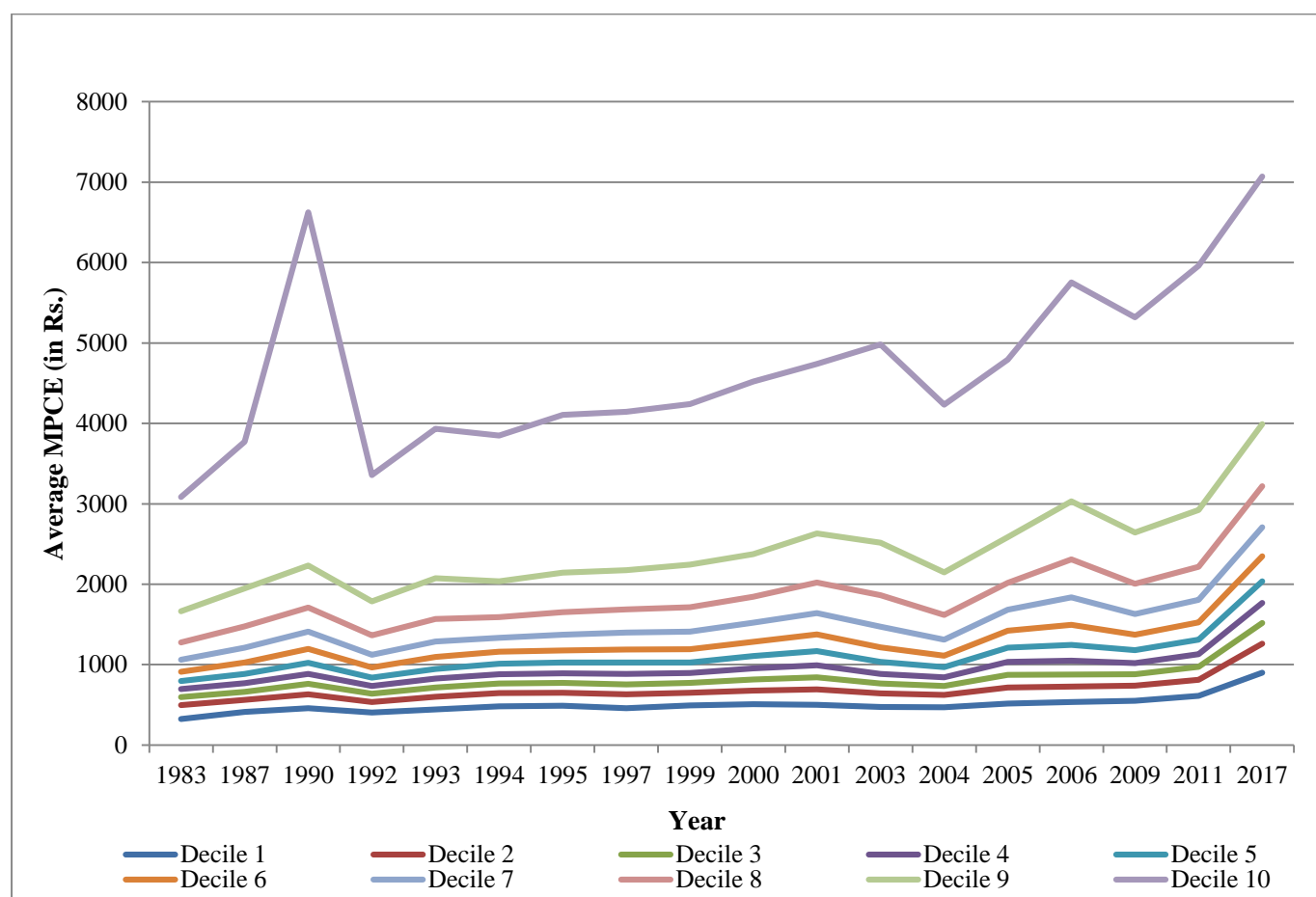
Source: Author's Calculation.

3.3.2 Ratio Analysis of MPCE at all India and Sectoral Level

Figure 3.4 represents the ratio of average MPCE of household deciles for all India level from 1983 to 2017. It reveals that the MPCE of top 10th decile households are more than 9 times the bottom 1st decile over the period. It means the consumers in the top 10th decile spend 9 times more than that of the bottom 1st decile household. We take the ratio of top three deciles (decile 8th, 9th and 10th) to bottom three deciles (decile 1st, 2nd and 3rd). It seems that the average MPCE of top three deciles is four times more than the bottom three deciles. Similarly, when we consider the ratio of top five deciles (decile 6th, 7th, 8th, 9th and 10th) to the bottom five deciles (decile 1st, 2nd, 3rd, 4th and 5th) shows that an average MPCE of the top five deciles is three times higher than the bottom five deciles at the all India level. It clearly reveals that there is

high inequality between the upper and lower strata of the population in the consumption expenditure in India.

Figure 3.4 Ratio of Consumption Expenditure Deciles- All India, 1983-2017
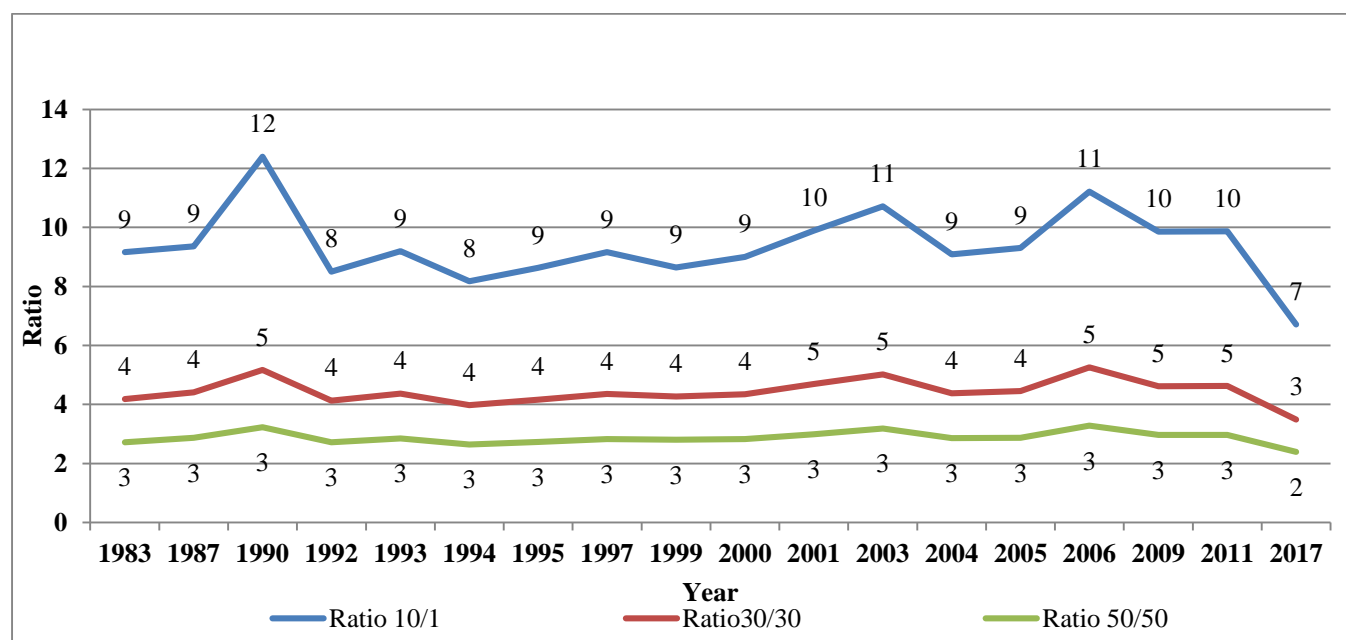
Source: Author's Calculation.

In rural India, the MPCE of top 10th decile for the same time period is more than 8 times the bottom 1st decile over the period. It means the consumers in the top 10th decile spend more than 8 times the bottom 1st decile. Furthermore, the ratio of top three deciles (decile 8th, 9th and 10th) to bottom three deciles (decile 1st, 2nd and 3rd) shows that the average MPCE of top three deciles is four times more than the bottom three deciles. Similarly, the ratio of top five deciles (decile 6th, 7th, 8th, 9th and 10th) to bottom five deciles (decile 1st, 2nd, 3rd, 4th and 5th) shows that an average MPCE of the top five deciles is three times higher than the bottom five deciles at all India level. It clearly reveals that there is the inequality between the upper and lower strata of the population in the consumption expenditure in the rural India (Figure 3.5).

Figure 3.5 Ratio of Consumption Expenditure Deciles- Rural India, 1983-2017
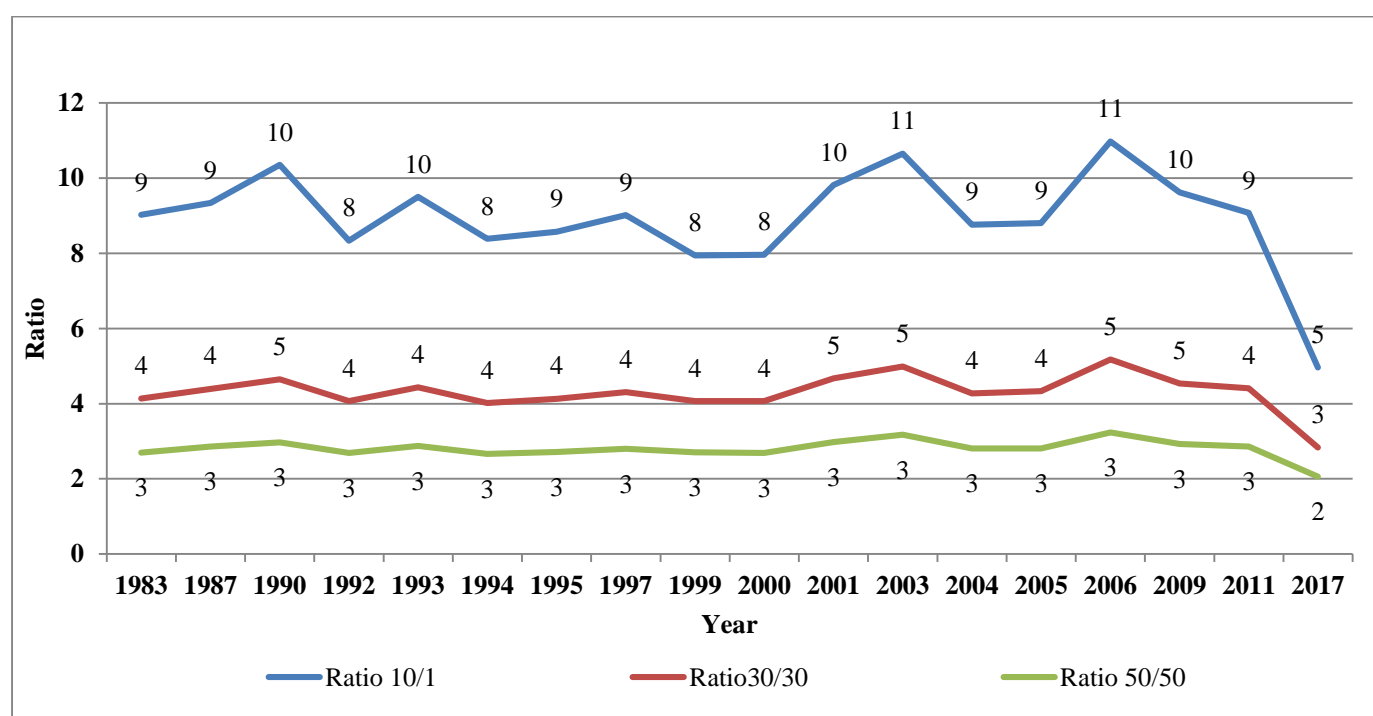
Source: Author's Calculation.

Similarly, in urban India, the MPCE of top 10th decile households during same period i.e. 1983 to 2017 is more than 8 times that of the bottom 1st decile household over the same period. It means that the consumers in the top 10th decile household spend more than 8 times than that of the bottom 1st decile. In 1990, 2003 and 2006, the MPCE of 10th decile was 14 times, 11 times and 11 times that of the bottom 1st decile, respectively. Furthermore, the average ratio of MPCE of top three deciles (decile 8th, 9th and 10th) to bottom three deciles (decile 1st, 2nd and 3rd) is four times more than that of the bottom three deciles. Similarly, the average ratio of MPCE of top five deciles (decile 6th, 7th, 8th, 9th and 10th) to bottom five deciles (decile 1st, 2nd, 3rd, 4th and 5th) is three times higher than that of the bottom five deciles at the all India level (Figure 3.6). It clearly reveals that there exists inequality between the upper and lower strata of the population in terms of consumption expenditures in the urban India.

Figure 3.6 Ratio of Consumption Expenditure Deciles- Urban India, 1983- 2017
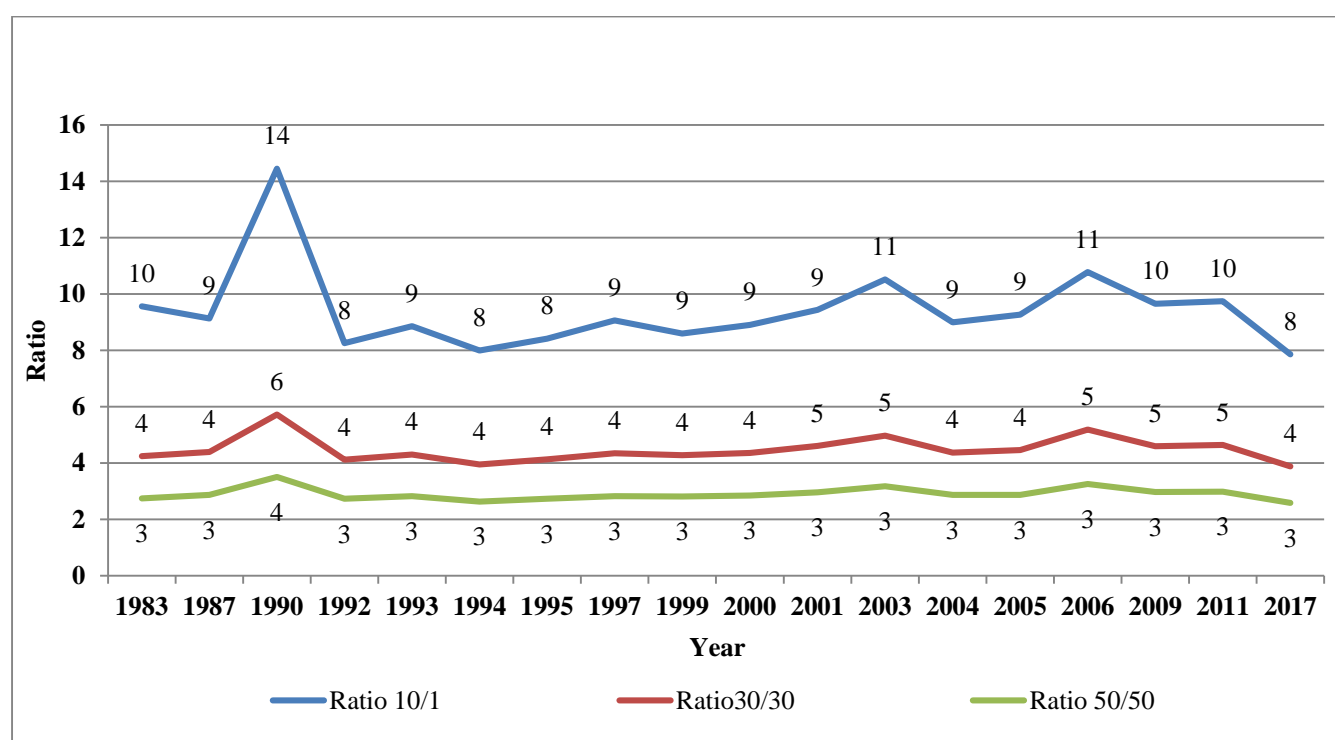
Source: Author's Calculation.

3.3.3 Decile-wise share of Consumption Expenditure (MPCE)

From the Figure 3.7, it can be observed that the consumption expenditure shares of 10th decile is highest i.e. around 30 per cent over the period i.e. 1983 to 2017 as compared to remaining deciles at pan India level. There is a fluctuation in the consumption expenditure share of 10th decile household, while consumption expenditure share of remaining deciles is stable over the period. However, the consumption expenditure shares of 1st to 7th decile are below the 10 per cent. It reveals that the consumption expenditure shares of lower strata of the population are considerably lower as compared to the top 9th and 10th deciles at the all India level.

Figure 3.7 Decile-wise share in Consumption Expenditure- All India, 1983 -2017 (%)
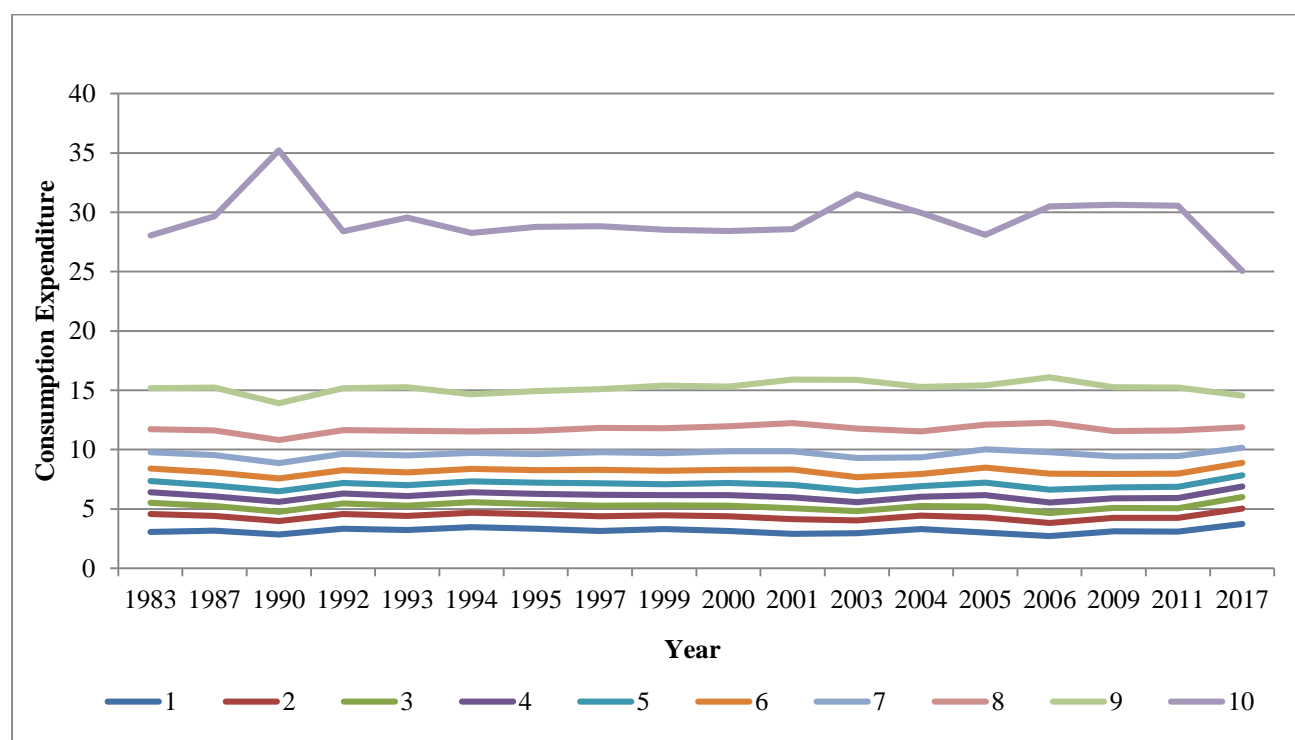
Source: Author's Calculation.

At the disaggregate level, the rural India has witnessed a similar scenario, which can be observed from Figure 3.8. The consumption expenditure share of 10th decile is highest i.e. around 28 per cent as compared to the remaining deciles over the 1983-2017 periods. There is a fluctuation in the consumption expenditure share of 10th decile, while consumption expenditure share of remaining deciles is stable over the period. However, the consumption expenditure shares of 1st to 7th decile is below the 10 per cent. It reveals that the consumption expenditure share of lower strata of the population is quite lower as compared to the top 9th and 10th decile households in the rural India.

Figure 3.8 Decile-wise share in Consumption Expenditure- Rural India, 1983 -2017 (%)
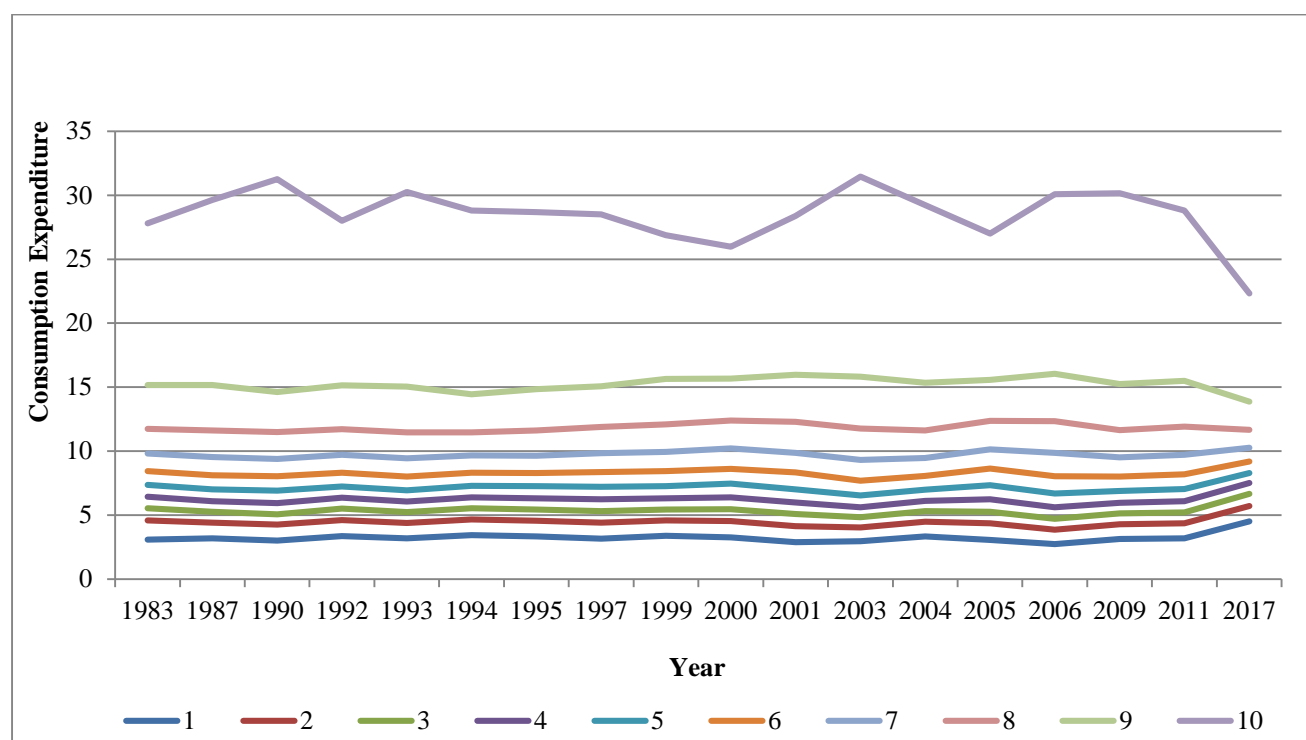
Source: Author's Calculation.

Considering the urban India, the consumption expenditure shares of 10th decile is highest i.e. around 30 per cent over the period as compared to the remaining deciles. This can be observed from Figure 3.9. There is a fluctuation in the consumption expenditure share of 10th decile, while consumption expenditure shares of remaining deciles are stable over the period. However, the consumption expenditure shares of 1st to 7th deciles are below the 10 per cent level. It reveals that the consumption expenditure share of lower strata of the population is lower as compared to the top 9th and 10th deciles for the urban India.

Figure 3.9 Decile-wise share in Consumption Expenditure- Urban India, 1983 -2017 (%)
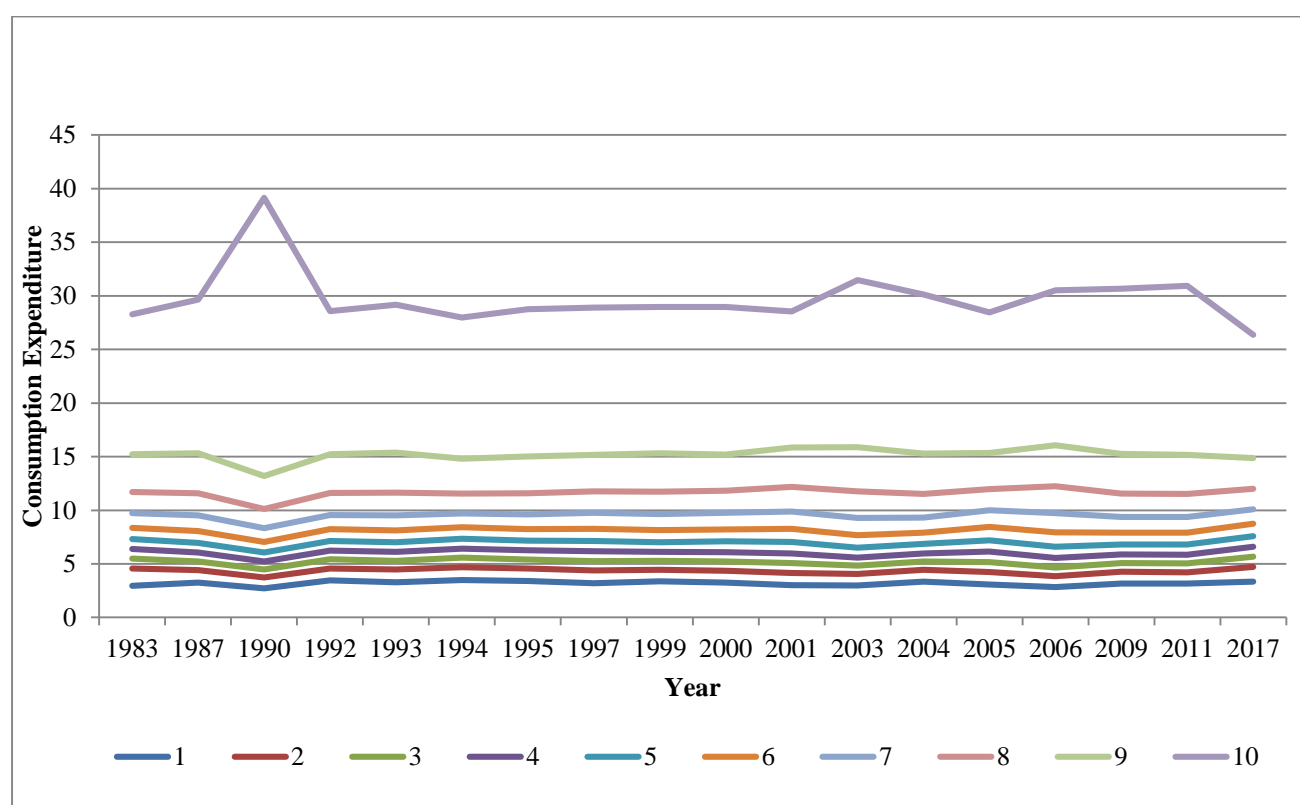
Source: Author's Calculation.

3.4 Lorenz Curves

The Lorenz Curve is a graph that displays the cumulative consumption expenditure share versus the cumulative population share for each decile (or 10 per cent) of the population. If everyone had an equal proportion of total consumer spending in the economy, the poorest 10 percent of the population would account for 10 per cent of total expenditure, the poorest 20 per cent would account for 20 per cent of total expenditure, the poorest 30 per cent would account for 30 per cent of total expenditure, and so on. For a fully equal distribution of incomes or consumption expenditures, the Lorenz Curve would simply lie along the diagonal of the unit square, i.e. the line of equality. However, for a typical uneven distribution, the Lorenz curve would consequently resemble a rising curve that sits below the diagonal, or 'line of perfect equality.' The region encompassed by Lorenz Curve and the perfect equality line measures degree of disparity in distribution of household consumption spending. The lower the Lorenz curve, the larger this region, and hence the level of disparity in consumption spending or

income. The Gini coefficient is nothing but the measure of the deviation from the line of perfect equality.

Figure 3.10 represents the Lorenz curve based on monthly per capita consumption expenditure at the all India level from 1983 to 2017. The X-axis displays cumulative share of population from lowest to highest and Y-axis displays cumulative share of consumption expenditure for respective population. The red line in the figure shows line of equality. The line of equality reveals that the each of the entire population in the economy has the equal share of MPCE. Furthermore, blue line shows the Lorenz curve for all India level from 1983 to 2017. The Lorenz curve and line of equality shows ideal relation between the cumulative share of population and the cumulative share of monthly per capita consumption expenditure. The Lorenz curve in figure 7 shows the actual share of population with their corresponding given shares in consumption expenditure. It clearly reveals that the shares of consumption expenditures of the lower strata of the population are less as compared to the upper strata of the population. For instance, the bottom 50 per cent of households has around 25 per cent shares in monthly consumption expenditures at the all India level. In contrast, the upper strata of the population have higher share in the consumption expenditure in India. It clearly reveals the existence of inequality in the MPCE for India across different rounds of survey periods. When we tried to study for the inequality pattern in monthly per capita consumption expenditure shares across various survey periods, Figure 3.10 surprisingly shows almost similar picture across the period without much differences. This could be because of the monthly per capita consumption shares of various population are quite smaller in their numeric value representations.

Figure 3.10 Lorenz Curve for All India

Lorenz Curves for All India, 1983-2017
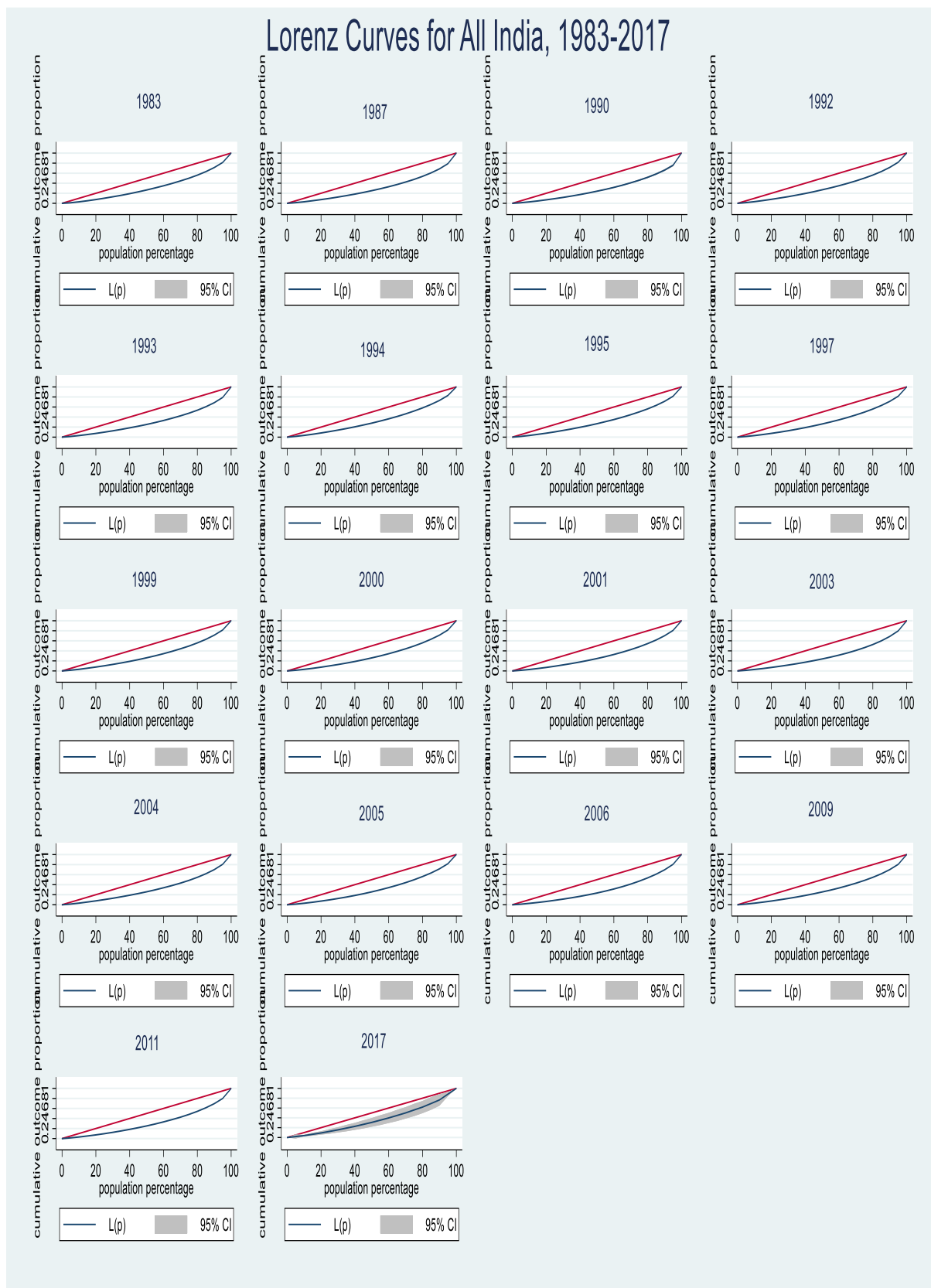
Source: Author's Calculation.

Figure 3.11 shows that Lorenz curves of MPCE for the rural region from 1983 to 2017. The X-axis signifies cumulative share of population from lowest to highest and Y-axis signifies cumulative share of consumption expenditure for respective population. The red line in Figure 8 shows the line of equality. The line of equality reveals that all the people in the economy have equal shares of the monthly consumption expenditure. Furthermore, the blue line shows the Lorenz curve for the rural India from 1983 to 2017. The Lorenz curve shows the actual share of population with their shares in the monthly per capita consumption expenditures. It clearly reveals that the shares of consumption expenditures of the lower strata of the population are lesser as compared to the upper strata of the population. For instance, the bottom 50 per cent of households has around 25 per cent shares in monthly consumption expenditure in the rural India. In contrast, the upper strata of the population have greater share in the monthly consumption expenditure on per capita basis in the rural region. Comparing the MPCE inequality across various rounds of surveys shows that inequality pattern in rural India is surprisingly almost similar across various rounds.
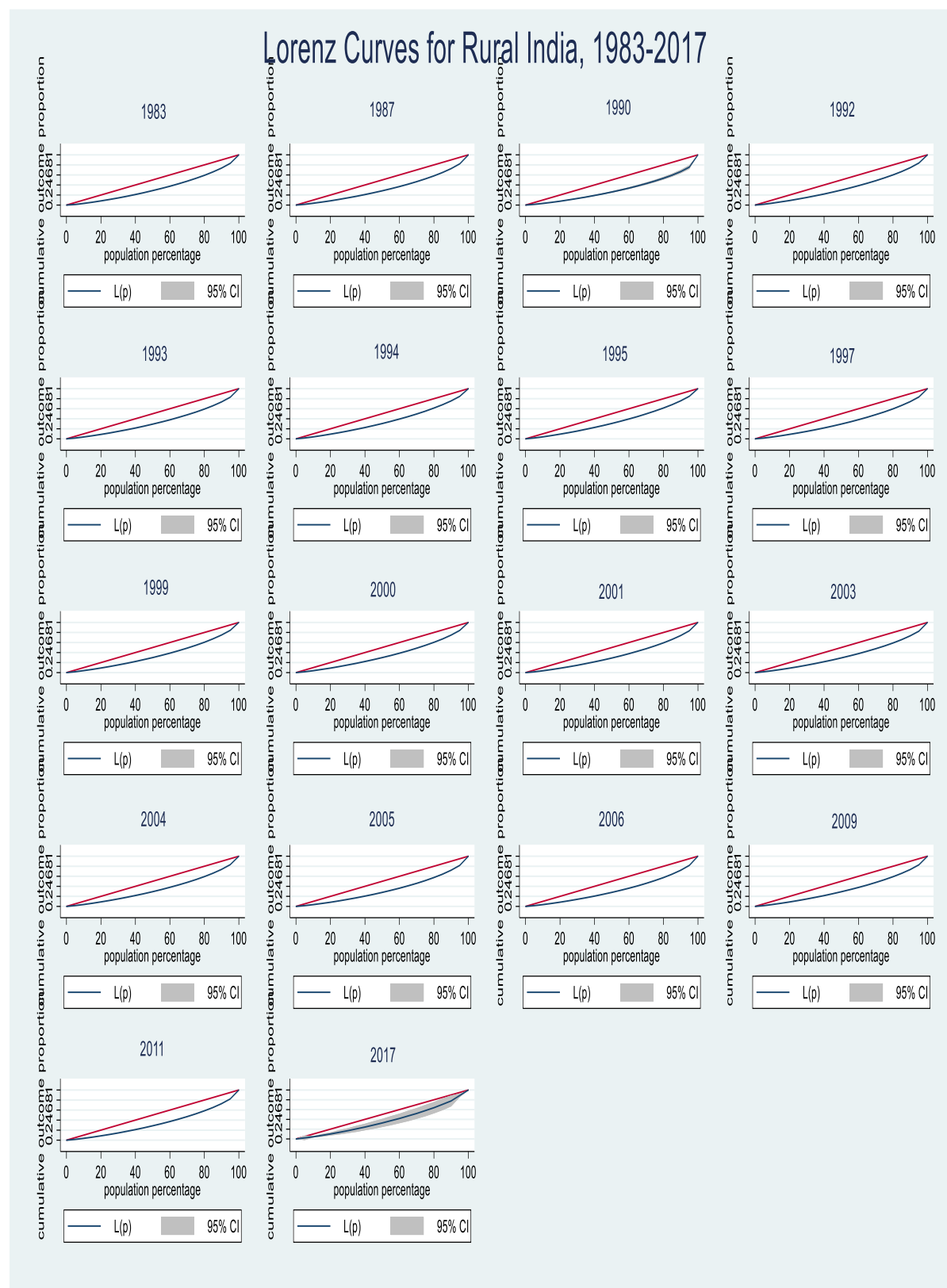
Figure 3.11 Lorenz Curve for Rural India

Lorenz Curves for Rural India, 1983-2017

Source: Author's Calculation.

Figure 3.12 shows that the Lorenz curve of MPCE for the urban region from 1983 to 2017. The X-axis denotes cumulative share of population from lowest to highest and Y-axis denotes cumulative share of consumption expenditures of respective population. The red line in the figure shows the line of equality. The line of equality reveals that all the people in the economy have the equal shares in monthly consumption expenditure on a per capita basis. Moreover, the blue line shows the Lorenz curve for the urban India level from 1983 to 2017. The Lorenz curve this figure shows the actual share of population with their corresponding shares in the monthly consumption expenditures on a per capita basis. It seems that the shares of lower strata of the population in the consumption expenditure are less as compared to the upper strata of the population. For instance, the bottom 50 per cent of the population has around 25 percent share in the monthly consumption expenditure in the urban India. In contrast, the upper strata of the population have higher share in the consumption expenditure in the urban India. Overall, it seems that the bottom strata of the population contribute less in the consumption expenditure as compared to the upper strata of the population.

Figure 3.12 Lorenz Curve for Urban India
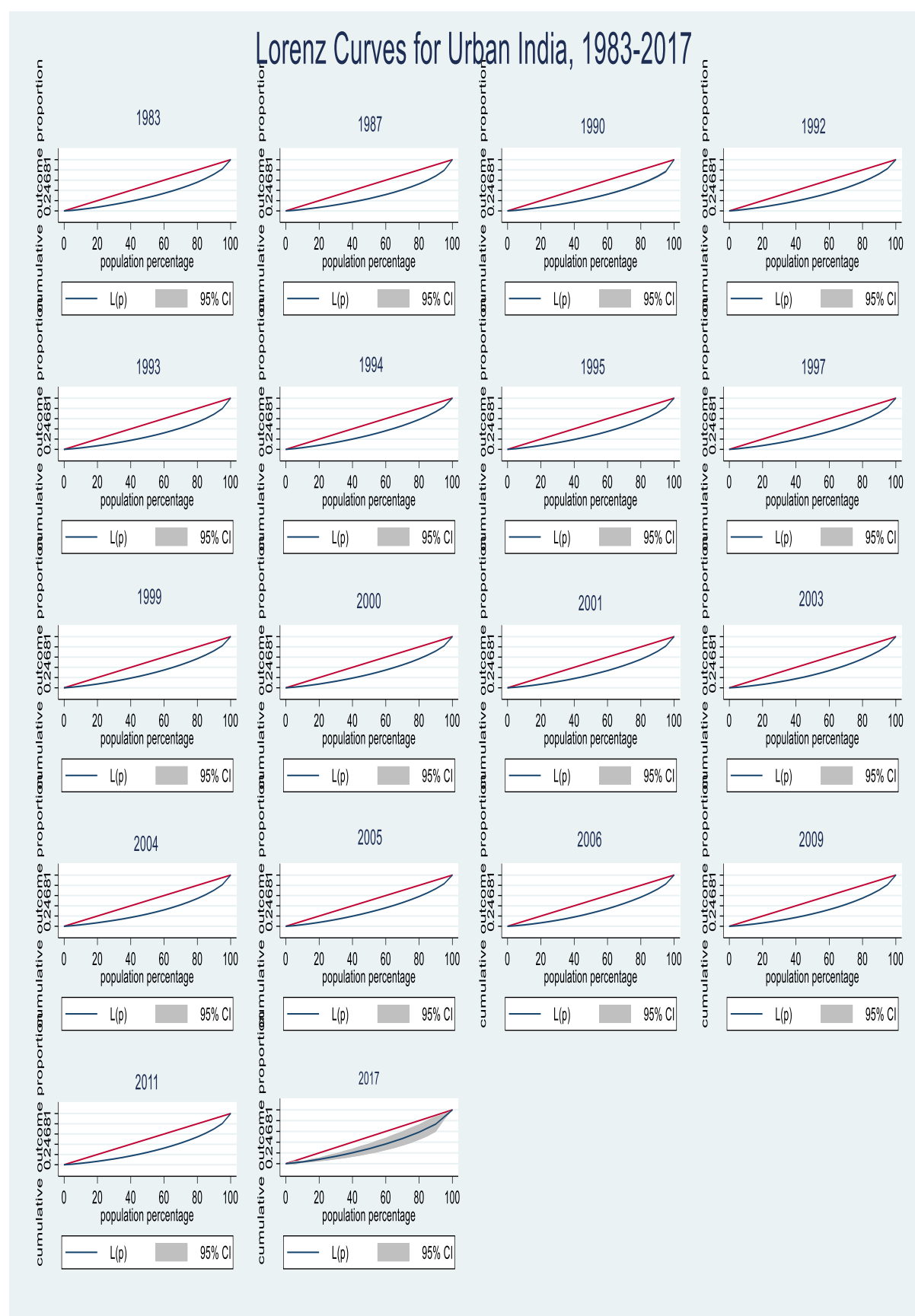
Source: Author's Calculation.

3.5 Panel Fixed Effect Threshold Regression Model

3.5.1 Methodology

To understand if there exists any non-linear relationship between household income and monthly household consumption expenditure in India, we have used panel threshold fixed effect model as developed by Hansen (1999). This is applied for all households belonging to various deciles by taking their respective average income of the corresponding decile households and average of monthly consumption expenditures of respective decile households. Traditionally the threshold effect is measured exogenously by specifying a particular arbitrarily value as threshold value. The speciality of this proposed model is that the threshold value is determined endogenously within the model. This endogenous threshold effect regression is more appropriate than the traditional exogenous threshold regression model by specifying a non-linear functional form. It also applies asymptotic theory to construct the appropriate confidence interval of the threshold value. At the same time, it also uses the bootstrap technique to see the significance level of the threshold effect, to test the null hypothesis of non-linear formulation against the linear fixed effect model.

By assuming the threshold effect of household income on their consumption expenditures in India, we have applied the panel threshold fixed effect model. First of all, we have tested the existence of single threshold effect and then double threshold effect. We have used LR test to check whether the single threshold model is appropriate than no threshold model. The test value signifies that there exists a threshold effect of income on consumption expenditure. After that, we have again used the same technique to check the existence of double threshold effect against a single threshold effect model. The test results confirm different threshold effects by rejecting the null hypothesis of threshold effects. i.e. there does not exist one or double threshold effects in the model.

Here we have employed panel threshold fixed effect model to check presence of threshold effect of average monthly household income on average monthly consumption expenditure by using Hansen (1999) methodology. The non-linear specification of the threshold fixed effect model can be represented as follows:

$$C_{it} = \alpha + \omega' Y_{it} + \theta' h_{it} [Y_1 - \tilde{Y}_1] + u_{it} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.1)$$

$$h_{it} = \begin{cases} One \ if \ Y_1 > \tilde{Y}_1 \\ 0 \ if \ Y_1 \leq \tilde{Y}_1 \end{cases}$$

And $u_{it=} \ \mu_i + \lambda_t + \varepsilon_{it}$

Where,

Y_{it} = monthly average household income.

C_{it} = monthly average household consumption expenditure

$\tilde{Y}_1$ = threshold level of monthly average household income

Above Eq. (3.1) is a standard fixed effect panel data model, whereas the income deciles are indexed as i, the period is denoted by t. The error term u_{it} is the linear combination of three types of error terms. Firstly μ_i represents the random error term, which is time-invariant and cross sectional effects. Secondly, λ_t denotes the error term, which is cross sectional invariant and captures the time-varying effects. Finally, ε_{it} is an idiosyncratic error term which captures both time and varying cross sectional effects. h is an indicator variable and ω and θ are the parameters to be estimated by the data. The same specification of panel threshold fixed effect model is used for the overall macro economy of India and for both the rural and urban India separately.

3.5.2 Panel Fixed Effect Threshold Regression Model for All India

We examine the threshold effect model as developed by Hansen (1999). This is applied by assuming that there may exist non-linear relationship between household income and household consumption expenditure. Firstly, we tested for the existence of a single threshold effect and then for double threshold effect up to triple thresholds in our specified model.

Table 3.1 LR Test for Threshold Effect for the All India Level

Hypothesis	LR Statistics	P- value	Threshold Value	Decision
H_0=No Threshold Effect H_1=Single Threshold Effect	361.91	0.000	3116 [3019-3121]	H_0Rejected
H_0=Single Threshold Effect H_1=Double Threshold Effect	-78.50	1.000	5076 [5069-5097]	H_0 Accepted

Note: *The test result reported in the table is based on following a repeated bootstrap procedure of 500 times for each threshold test.*

Source: Author's Calculation.

Table 3.1 reports the test result for a single threshold and double threshold effects. The result confirms that there exists only one single threshold effect at 1 per cent significance level as the null hypothesis of no threshold effect is rejected against existence of one threshold effect. In contrast, it also finds that there is absence of double threshold effect against single threshold effect, with bootstrap p-value of 1.000. Thus, one cannot rule out the existence of at least one single threshold effect of household average monthly income on household average monthly consumption expenditures in our specified model. Thus, we conclude that there exists at least single threshold effect of income on consumption expenditures.

Table 3.2 Threshold Effect of Household Average Monthly Income on Consumption Expenditure for All India Level

Dependent Variable: Average Monthly Household Consumption Expenditure (C)		
Independent Variable	Linear Fixed Effect Model	Threshold Fixed Effect Model
Average Monthly Household Income (Y)	0.4079*** (0.0060)	0.0654*** (0.0108)
Threshold [Y < 3116]		0.8357*** (0.0259)
Constant	2456.557 (75.66)	441.88 (68.50)
R- Square: Within Between Overall	0.9654 0.9981 0.9394	0.9954 0.9968 0.9952
No. of Observations	180	180

Note: ****, ** and * denote significance at 1 per cent, 5 per cent and 10 per cent significance level respectively*

Source: Author's Calculation.

After ensuring of single threshold effect on our household consumption expenditure model for all India level, the study employed both the panel linear fixed effect and panel threshold fixed effect models. Both the estimated results are presented in Table 3.2. The estimated result of the first model confirms that the household income has significant and positive effect on the consumption expenditure with a coefficient value 0.41. This implies that 1 Rupee increase in the level of household's income on an average leads to 0.41 Rupee rise in the monthly household consumption expenditure. In other words, it states that on an average the marginal propensity to consume is 0.41 for an average Indian household. Applying the non-linear model i.e. panel threshold fixed effect model, the study observes that there exists a single threshold effect of income on the consumption expenditure in India. This demonstrates that when the income level lies within the specified limit of 3116 Rupees, then it has a higher impact on the monthly consumption expenditure with a coefficient value of 0.84 at 1 per cent significance level. In contrast, it also shows that when the level of income exceeds the specified limit, then 1 Rupee increase in the level of household income leads to increase in the monthly household consumption expenditure by 0.06 Rupees. This implies that people with having less income have a higher marginal propensity to consume than the households with higher incomes. This is obvious by going with Keynesian theory on psychological law of consumption, which suggests that as income increases consumption also increases but the increased consumption is less than the proportion of household's increased income. This leads to increased savings in the economy with increased household's income. This also tends to suggest that the lower income households tend to spend larger portion of their income for the purpose of consumption expenditure relative to the higher income households.

3.5.3 Panel Fixed Effect Threshold Regression Model for Rural India

The Table 3.3 reports the test result for a single, double and triple threshold effect. The results of LR test for threshold effect in our specified consumption expenditure model reveals that both single and double threshold effects are significant at 1 per cent level. In contrast, it also finds that triple-threshold is insignificant, with a bootstrap p-value of 0.8464. We cannot reject the null hypothesis of existence of a single threshold effect and double threshold effect of household income on their monthly consumption expenditures in our model. Thus, we prove

that there exists a double threshold effect of income on consumption expenditure for the rural households in India.

Table 3.3 LR Test for Threshold Effect for Rural India

Hypothesis	LR Statistics	P- value	Threshold Value	Decision
H_0=No Threshold Effect H_1=Single Threshold Effect	282.04	0.000	3137 [2927-3168]	H_0Rejected
H_0=Single Threshold Effect H_1=Double Threshold Effect	196.98	0.000	2612	H_0Rejected
H_0=Double Threshold Effect H_1=Triple Threshold Effect	0.04	0.8464	35693	H_0 Accepted

Note: *The test result reported in the table is based on following a repeated bootstrap procedure of 500 times for each threshold test.*

Source: Author's Calculation.

After checking existence of the threshold effect, then we have estimated consumption expenditure model using both the panel linear fixed effect and panel threshold fixed effect models for the rural household in India. The results for both the estimations are presented in Table 3.4. The estimated result from linear fixed effect model confirms that the household income has significant and positive effect on the consumption expenditure with a coefficient value 0.36 per cent at the 1 per cent significance level. This infers that a 1 Rupee increase in the level of household's income in India, it leads to on an average 0.36 Rupee increase in the household's monthly consumption expenditure. In other words, this implies that on an average the marginal propensity to consume for an average Indian rural household is 0.36. However, using the non-linear model i.e. panel threshold fixed effect model, we find that there exists a threshold effect of household income on their monthly consumption expenditure in the rural India. The result demonstrates that, when the income level lies within the specified range of 2612 Rupees and 3116 Rupees, then it has a higher impact on the consumption expenditure with a coefficient value 0.86 at 1 per cent significance level. Furthermore, accounting for the double threshold effect, it reveals that the when the household income level falls below the 2612 Rupees, then it has a higher impact on the household consumption expenditure. The latter

shows that when the households have income level below the threshold of 2612 Rupees, a 1 Rupee increase in their household income on an average leads to 0.91 Rupees rise in their consumption expenditure in rural India.

In contrast, it also shows that when the level of income exceeds the specified threshold value, then 1 Rupee increase in the level of household income leads to increase the household consumption expenditure by 0.03 Rupees at 1 per cent significance level. It reveals that people with having less income have a greater marginal propensity to consume than people with higher income in the rural India. This could signify that given the higher income inequality present in the Indian context the lower income strata households have a greater marginal propensity to increase their consumption spending in rural India as compared to the higher income strata households. This implies that there might be a demand constraint to India's economic growth. Once consumption demand of households is realised to its full potential it may unleash higher economic growth. However, this either may require distribution of income from the rich to the poor through government intervention or some income generation activities, which can raise the income of the lower income strata households, which would push up the overall aggregate demand in the economy and thereby generating higher economic growth rate in India.

Table 3.4 Threshold Effect of Household Average Monthly Income on Consumption Expenditure for Rural India

Dependent Variable: Average Monthly Household Consumption Expenditure (C)		
Independent Variable	Linear Fixed Effect Model	Threshold Fixed Effect Model
Average Monthly Household Income (Y)	0.3582*** (0.0061)	0.029*** (0.0073)
Threshold1 [2612 <Y< 3116]		0.8604*** (0.0484)
Threshold2 [Y < 2612]		0.9133*** (0.0201)
Constant	2483.12 (76.8924)	240.89 (54.0270)

R- Square: Within
          Between
          Overall
	0.9542
	0.9842
	0.9479
		0.9968
		0.9958
		0.9967

No. of Observations	180	180

*Note: ***, ** and * denote significance at 1 per cent, 5 per cent and 10 per cent significance level respectively.*

Source: Author's Calculation.

3.5.4 Panel Fixed Effect Threshold Regression Model for Urban India

The LR test results for a single, double and triple threshold effect are presented in Table 3.5. The results of LR test for the threshold effect on our specified consumption expenditure model suggests that there exist both the single and double threshold effects as the tests are statistically significant at 1 per cent level. However, we do not observe a triple threshold effect in our model as the test statistic is statistically insignificant, with a bootstrap p-value of 0.6716. The Table 3.5 clearly shows that we cannot reject null hypothesis of existence of single threshold effect and double threshold effect of household income on the household consumption expenditure in our specified model. Finally, we conclude that we cannot rule out the existence of a double threshold effect of household income on their consumption expenditures.

Table 3.5 LR Test for Threshold Effect for Urban India

Hypothesis	LR Statistics	P- value	Threshold Value	Decision
H_0=No Threshold Effect H_1=Single Threshold Effect	208.69	0.000	3367 [3325, 3482]	H_0Rejected
H_0=Single Threshold Effect H_1=Double Threshold Effect	171.03	0.000	3095 [2790, 3237]	H_0Rejected
H_0=Double Threshold Effect H_1=Triple Threshold Effect	0.18	0.6716	3740 [3095, 3741]	H_0 Accepted

Note: *The test result reported in the table is based on following a repeated bootstrap procedure of 500 times for each threshold test.*

Source: Author's Calculation.

Table 3.6 reports the panel linear fixed effect model and panel fixed threshold effect models for the urban India. The estimated result of the linear fixed effect model confirms that the household income has statistically significant and positive and effect on the household consumption expenditure with a coefficient value of 0.42 at the 1 per cent level of significance. This implies that a 1 Rupee increase in the level of household income leads to 0.42 Rupees rise in the household consumption expenditure. In other words, it can be said that on an average the marginal propensity to consume is 0.42 for the urban Indian households. However, using the

non-linear model i.e. panel threshold fixed effect model, it reveals that there exists a threshold effect of household income on the household consumption expenditure in the urban India. The result demonstrates that, when the household income level lies within the specified range of 3095 Rupees and 3367 Rupees, then it has a higher impact on the household consumption expenditure with a coefficient value 0.79 at 1 per cent significance level. Moreover, with the double threshold effect, it reveals that when the household income level falls below the 3095 Rupees in the urban India, then it has a greater impact on the household consumption expenditure. It is found that the households with an income level below the threshold level of 3095 Rupees, when they experience 1 Rupee increase in incomes, it leads to on an average of 0.83 Rupees increase in their consumption expenditures in the urban India. In contrast, it also shows that when the level of income exceeds the specified limit of threshold value, then 1 Rupee increase in the level of household incomes will increase the household's consumption expenditure by 0.06 Rupee at the 1 per cent significance level. It implies that households with having less income have a greater marginal propensity to consume than the households with higher income in the urban India.

Table 3.6 Threshold Effect of Household Average Monthly Income on Consumption Expenditure for Urban India

Dependent Variable: Average Monthly Household Consumption Expenditure (C)		
Independent Variable	Linear Fixed Effect Model	Threshold Fixed Effect Model
Average Monthly Household Income (Y)	0.4245*** (0.0064)	0.068*** (0.0108)
Threshold1 [3095<Y < 3367]		0.7964*** (0.0423)
Threshold2 [Y < 3095]		0.8328*** (0.0250)
Constant	2482.88 (77.62)	461.95 (68.03)
R- Square: Within Between Overall	0.9645 0.9953 0.9515	0.9957 0.9943 0.9954
No. of Observations	180	180

*Note: ***, ** and * denote significance at 1 per cent, 5 per cent and 10 per cent significance level respectively.*

Source: Author's Calculation.

In nutshell, the panel fixed effect model and panel fixed threshold effect model analysed the relationship between household income and household consumption expenditure for pan India,

including both rural and urban regions of India. It reveals that on an average marginal propensity to consume is greater for the households in the rural India with a threshold household income less than 2612 Rupees as compared to the all India and the urban India. It implies that the bottom strata of the population have a more capacity to generate higher consumption demand in the economy but they lack the income to meet their consumption expenditures. The similar kind of result is observed by Ghatak et al. (2020); Subramanian (2019), Mishra (2011) and Krishnaswamy (2012).

3.6 Concluding Remarks

This chapter analyses the relationship between the consumption expenditure and income level of households in India during the time span of 1983 to 2017. Drawing the consumption expenditure data from various survey rounds of NSSO, the above analysis reveals that the average MPCE of upper strata of population is higher as compared to the lower strata of the population at the pan India as well as rural and urban regions in India. Moreover, the average MPCE of 10th decile is nine times higher that of the 1st decile households at the pan India level and the same is eight times higher for the rural and eight times higher for the urban India. At the same time, the average monthly per capita consumption expenditures of top five deciles and top three deciles are higher than the bottom five and bottom three deciles at pan India, including both rural and urban regions of India. The results of Lorenz curve reveals that the share of consumption expenditure of lower strata population are less as compared to the upper strata of the population but in contrast, the upper strata population has higher share in the consumption expenditure at pan India and rural as well as urban regions of India. Overall, it seems that the bottom strata population spend less in the consumption expenditure as compared to the upper strata population.

Furthermore, to analyse the relationship between monthly consumption expenditure and income levels of households at India and rural as well as urban India, the study carried out estimating the consumption expenditure model with utilisation of the panel linear fixed effect model and panel fixed effect threshold model. The latter method is to uncover any non-linearity relationship in the model. The results of both the models confirm that the household income has positive and significant effect on the household consumption expenditure over the study period. The results of the panel fixed effect model reports that on an average the marginal

propensity to consume is 0.41 for all India, 0.36 for the rural India and 0.42 for the urban India. Moreover, the panel fixed effect threshold model shows that only single threshold effect is statistically significant at pan India, while double threshold effect is statistically significant for both the rural and urban households in India. For all India level, it demonstrates that when the income level lies within the specified value of 3116 Rupees then it has a higher impact on the consumption expenditure with a coefficient value 0.84 but in contrast when the income level exceeds the specified limit of 3116 Rupees, then 1 Rupee increase in the level of income leads to increase the consumption expenditure by 0.06 Rupees.

When we investigate the relationship between the two for the rural India, it demonstrates that, when the income level of households lies within the specified range of 2612 Rupees and 3116 Rupees, then it has a higher impact on the consumption expenditure with a coefficient value 0.86. And with a double threshold effect, it reveals that the when the household income level falls below the 2612 Rupees, it has a higher impact on the household consumption expenditure i.e. 1 Rupee increase in the household income leads to 0.91 Rupee rise in the household consumption expenditure in rural India. In contrast, when the level of income of household exceeds the specified limit of threshold value of 3116 Rupees, then 1 Rupee increase in the level of household income will increase the household consumption expenditure by 0.03 Rupee.

Similarly, when we consider the same for the urban India, it shows that when the household income level lies within the specified range of 3095 Rupees and 3367 Rupees, then it has a higher impact on the household consumption expenditure with a coefficient value 0.79. Moreover, by accounting the double threshold effect, it reveals that when the household income level falls below the 3095 Rupees, then it has a higher impact on the household consumption expenditure i.e. the households having the income level below the threshold of 3095 Rupees, a 1 Rupee rise in their income leads to 0.83 Rupee increase in household consumption expenditure in urban India. In contrast, it also shows that when the level of income exceeds the specified limit of threshold value (3095 Rupees), then 1 Rupee increase in the level of household income will lead the household consumption expenditure to rise by 0.06 Rupee. To conclude, it reveals that on an average marginal propensity to consume is higher for the households in the rural India having the threshold household income less than 2612 Rupees as compared to the all India and the urban India. It implies that the bottom strata of the population have the higher capacity to generate more demand in the economy. This implies that since the economy is facing a demand constrained growth, as investment is not forthcoming due to lack

of demand, the policy should uplift the income of the poor, whose MPC is quite high. This would potentially raise their potential consumption leading to greater investment, employment and income and leading to a sustainable higher economic growth rate of India through a virtuous cycles of economic growth.

Chapter 4

Conclusion and Policy Recommendations

4.1 Conclusion

The question of whether present economic slowdown in the country is caused by a supply or demand constraint is still being debated. The structuralists' position, which puts the problem on structural restraints including labour and land limits, as well as governance and economic inequality, is at the centre of the discussion. The cyclicalists discussion, on the other hand, is more focused on the recent events, such as ascribing the economic slowdown to a slackening of aggregate demand caused by agricultural distress, demonetization and GST, or other policies and political uncertainties.

In the light of this ongoing debate, the present thesis investigated whether the economy's bad health is linked to the demand-side constraint. A multitude of research on the subject indicates that the economy is presently suffering from poor levels of capacity utilisation, which, along with stockpiles of food grains stacking up and banks saddled with surplus money, pointing out that the economy is facing demand constraints. Given the issue, the current study aimed to comprehend the problem via empirical analysis of the aggregate demand problem in the Indian economy.

The data used to analyse the aforementioned issues is obtained from various secondary sources, including National Accounts Statistics data from the EPWRF and consumption expenditure survey data from the National Sample Survey Organisation (NSSO).

In the second chapter, we have looked at the dynamics of aggregate demand components with economic growth of India over a longer time span of 1951 to 2019. The study demonstrates that private final consumption expenditure has always accounted for the lion's share in the GDP of India. From 1951 to 2019, the percentage share of consumption expenditure in the gross domestic product decreased from roughly 80 per cent to 56 per cent respectively. After private final consumption spending, the gross fixed capital formation is the second largest aggregate demand component. Government final consumption expenditure, exports, and imports all contributed considerably to India's economic growth throughout the period. Examining their

trends, it was observed that all the four aggregate demand components are interconnected with one another, and aggregate demand components have substantial influence on economic growth in India.

Furthermore, Bound Autoregressive Distributed Lag (ARDL) Model is employed to estimate the long-run and short-run dynamic relationships between the components of aggregate demand and the GDP. The results show that there is significant relationship between aggregate demand components and economic growth in India. The ARDL model reveals a long-run and a short-run links between dependent variable GDP and independent variables such as government final consumption expenditure (GFCE), private final consumption expenditure (PFCE), gross fixed capital formation (GFCF), imports (M) and exports (X). PFCE accounts for more than half of GDP. It demonstrates that a 1 per cent rise in the PFCE leads to a 0.96 per cent increase in GDP in the long-run. Furthermore, we incorporated the structural changes initiated from 1991 through introduction of time dummy as the structural reforms in the form of liberalisation, privatisation and globalisation might have mattered in their evolved relationships. The results further demonstrate that the reforms or changes have increased economic growth by stimulating private investment, trade liberalisation, and creation of new job possibilities. This has helped to produce virtuous economic growth cycles in the economy.

This chapter ends up with observation that the five components of aggregate demand have substantial impacts on India's economic growth. Among those, the private final consumption expenditure plays a vital critical role in India's economic growth, as discussed in Chapter 3.

In Chapter 3, we examined the relationship between monthly consumption expenditure and income level in India using decile-wise household data on average monthly per capita consumption expenditure collected from the 18 rounds of NSSO on consumption expenditure surveys from 1983 to 2017. We applied statistical methods to examine the trends, patterns, and disparities in decile-wise household monthly consumer spending. Furthermore, we employed the panel linear fixed effect and panel fixed effect threshold models to investigate the link between household consumption expenditures and household income levels for the pan India as well as rural and urban regions.

The chapter's finding suggests that the average monthly per capita consumer spending of the upper strata population is higher than that of the lower strata population across India, as well as in rural and urban areas. Furthermore, the average monthly per capita consumer spending of 10th decile is nine times that of the 1st decile across all India, eight times that of rural India, and

eight times that of urban India. At the same time, the average monthly per capita consumer expenditures of the top five deciles and top three deciles are higher than the lowest five and bottom three deciles at the pan India, both rural and urban India. This reflects to a large extent the kind of consumption expenditure inequality exists in India across decile households, which might be majorly attributed to inequality in income. This is also supported with our Lorenz curve analysis. The Lorenz curve analysis shows that the lowest strata population have a smaller percentage of consumption expenditure shares than the upper strata population. In contrast, the wealthier strata population has a bigger percentage share of consumption spending at the all India level, as well as in rural and urban India. Overall, it appears that the lower strata population spend less on consumption than the upper strata population which could be due to the income differences across the households.

Furthermore, we have used the panel linear fixed effect model and the panel fixed effect threshold model to examine the link between household consumer expenditure and household income levels for the all India, rural and urban India separately. Both the econometric model results show that household income has a positive and substantial influence on household consumption spending during the study period considering all the NSSO survey rounds since 1983 till the latest survey round. As per the panel linear fixed effect model results, the average marginal propensity to consume in India is 0.41, while it is 0.36 for rural India, and 0.42 for urban India. Moreover, the panel fixed effect threshold model demonstrates that only single threshold effect is statistically significant for pan India, but a double threshold effect is significantly observed for both rural and urban India. For the all India level, it indicates that when the income level is below a specified limit of 3116 Rupees, it has a greater impact on consumption expenditure with a coefficient value of 0.84; however, when the income level exceeds a specified limit of 3116 Rupees, a 1 Rupee increase in income leads to increase in monthly consumption expenditure by 0.06 Rupees. When we consider for the rural India, it is shown that when the income level lies between a specified range of 2612 Rupees and 3116 Rupees, it has a higher impact on the consumption expenditure with a coefficient value of 0.86 and with a double threshold effect, it indicates that when the household income level falls below 2612 Rupees, it has a higher impact on the household consumption expenditure i.e. 1 Rupee increase in household income leads to 0.91 Rupee rise in the household consumption expenditure in rural India. In contrast, it is shown that when the level of household income exceeds a specified threshold value of 3116 Rupees, then 1 Rupee increase in the level of household income increases the household consumption expenditure by 0.03 Rupees.

Similarly, for the urban India, it is seen that when the household income level lies between a specified range of 3095 Rupees and 3367 Rupees, then it has a greater impact on the household consumption expenditure with a coefficient value of 0.79. Moreover, with a double threshold effect, the estimates reveal that when the household income level falls below 3095 Rupees, then it has a higher impact on household consumption expenditure i.e. the households having income level below the threshold of 3095 Rupees, a 1 Rupee increase in the household income leads to 0.83 Rupees rise in the consumption expenditure of households in urban India. In contrast, it also shows that when the level of income exceeds the specified threshold value of 3095 Rupees, then 1 Rupee increase in the level of household income leads to an increase in household consumption expenditure by 0.06 Rupee.

To conclude, in overall, it reveals that on an average the marginal propensity to consume (MPC) for the bottom strata households is quite higher in general irrespective of rural or urban areas in India, while their shares of consumption expenditure are very meagre comparing the top strata households. Further, the bottom strata households in the rural India have a greater MPC (with a threshold household income of less than the 2612 Rupees) comparing the bottom strata households at the all India level and the urban India. This implies that the bottom strata population in general have a higher capacity to generate more aggregate demand in the economy comparing the top strata population in the economy and that would make India's economic growth more sustainable over the long-run.

4.2 Policy Recommendations

1. While private final consumption expenditure is an efficacious component of the entire economy, there is a need to increase the purchasing power of the lowest strata of the population, particularly in rural and urban India, by incentivizing them through various plans and programmes. For instance, GOI has been undertaking a mass employment programme in the rural India by launching schemes like MGNREGA, which might have its effects to reduce poverty and inequality, but this might not be adequate to bridge up the gap between the rich and poor household's consumption expenditures, so as to uplift the demand of the lower income strata population to produce greater impact on economic growth of India. Government also rations essential food items to all the poor households, but this intervention will not lead to increasing incomes and sustainable higher livelihood for the poor households as some more

policy actions are required beyond the distribution of goods and services to the poor. This may include more investment expenditures in improving their ability and skills, which can happen through raising government spending on their education and health of these people.

2. The discrepancy between the lower (poor) and upper (rich) strata in terms of consumer expenditure is increasing; nevertheless, the bottom stratum of population has the greatest power to generate virtuous demand cycles in the Indian economy. Hence, the government intervention is desirable in reducing the existing inequality in consumption between the rich and the poor by undertaking redistribution and reallocation programs which can create ability and skills for the lower strata population. The government interventions can take many forms towards uplifting the economic conditions of poor households. There can be some enabling mechanisms to improve economic conditions of rural poor households like supporting and incentivising them to produce labour intensive urban-demanded-goods for which they have the required skills which would increase their income earning ability. Similarly, given that the bottom half of the rural households have higher marginal propensity to consume, they may demand for urban produced goods and so on. This will generate complementary demand cycles between rural economy and urban economy, which would make India's economic growth more sustainable over the long-run.

4.3 Limitations and Future Research Scope of the Study

A gamut of factors can cause structural transformation in the economy affecting the aggregate demand and economic growth but this analysis restricted to analysing the components of aggregate demand and did not consider other exogenous factors, which future studies can consider.

This study investigated only consumption demand as a predominant component of aggregate demand ignoring the investment demand and external sector demand, which are other crucial components of aggregate demand.

While analysing the relationship between consumption expenditure and income of households, the study tried to analyse only the relationship between the two in a Keynesian framework but household consumption to a greater degree can be influenced by other important extraneous variables like interest rates, inflation rate and holding of other assets like government debt by

households, which the study could not consider due to the limitation of the data at the micro level (household level), whereas such data are easily available at the aggregate or macro context of the economy.

Further, while relating household consumption with their incomes, in the context of the unavailability of information on household income from any source including NSSO, the study measured and constructed the household income variable by adding up household consumption with household savings. While the statistics on household consumption expenditures are available but the household savings are not available. Therefore, we had to estimate the household decile-wise savings by assuming the constancy in decile-wise savings rates, which prevailed during the period of 2013-14. This savings rate is drawn from ICE Survey of People's Research on Consumer Economy (PRICE) as the savings rate for different decile households are not available across any survey round. However, future study may try to construct household total savings based on household's overall savings rate (household domestic savings as a percentage to GDP) available at the aggregate level of the economy prevailed in different year's corresponding to the survey rounds since 1983. By doing so, one may get the variations in savings rate across different periods although there will not be variations across various deciles of households at a given point in time, which the study has incorporated in this analysis.

It is recognised that consumption demand is a crucial component of aggregate demand for an economy confronting investment constrained-growth more particularly during a sluggish investment and low growth period. The studies in future while analysing on the investment demand, they can examine to what extent consumption demand along with external sector demand provide the stimulus to the investment demand, which is not attempted in this analysis. This study restricted to studying and analysing only consumption component of the aggregate demand leaving other components for further future study, requiring separate or independent analysis.

Bibliography

Anand and Azad (2019). India's Slowdown What It is and What Can Be Done, Economic and Political Weekely, vol lIV no 41.

Babu and Jithin (2020). Reviving Industrial Growth Need to Address Demand Constraint, Economic & Political Weekly, Vol. lV No. 30.

Balakrishnan, Das and Parameswaran (2017). The internal dynamic of Indian economic growth, Journal of Asian Economics, Vol. 50, pp. 46-61.

Balakrishnan, Pulapre (2019). Financial Stability and the RBI, The Hindu, October 15, 2019.

Banerjee, Abhijit (2019). Comments on Raghuram Rajan's O.P. Jindal Lectures.

Barran, Coudert, and Mojon (1996). The Transmission of Monetary Policy in European Countries, CEPII Working Paper, February.

Basu, Kaushik (2019). India and the Mistrust Econony, New York Times, November 6, 2019.

Bhaduri (2008). Predatory Growth, Economic and Political Weekly, Vol. 43, Issue No.16, pp 10-14.

Bhaduri, Amit and Marglin, Stephen (1990). Unemployment and the Real Wage: The Economic Basis for Contesting Political Ideologies, Oxford: Cambridge Journal of Economics, Vol 14, No 4, pp 375–93.

Blecker, Robert Allen (2001). Kaleckian Macro Models for Open Economies, Foundations of International Economics: Post Keynesian Perspectives, J Deprez and J T Harvey (eds), London and New York: Routledge, Chapter 5, pp 116–50.

Bouyon, S. (2015). Household Final Consumption in the EU: The key driver for a sustainable recovery? ECRI Commentary, Vol.18, December.

Damodaran, Harish (2019). This is India's first ever slowdown at a time of political as well as macroeconomic stability, Indian Express, November 30, 2019.

Dasgupta, Zico (2022). Income Distribution and Aggregate Demand in the Indian Economy, Economic & Political Weekly, Vol 57 No 7, pp 53-61.

Dev, Mahendra and Ashima Goyal (2019). GDP Measurement and The Slowdown, Business Standard, August 20, 2019.

EPWRF (nd): National Account Statistics Module, EPWRF India Time Series Database.

Ghatak, Kotwal and Ramaswami (2020). What Would Make India's Growth Sustainable?, Ideas for India. https://www.ideasforindia.in/topics/macroeconomics/what-would-make-india-s-growth-sustainable.html.

Goyal and Verma (2018). Slowdown in Bank Credit Growth: Aggregate Demand or Bank Non-performing Assets? The Journal of Applied Economic Research 12 : 3 (2018): 257–275.

Gupta, Isha (2018). Demand Side Components of India's GDP Growth, Ideas for India. https://www.ideasforindia.in/topics/miscellany/demand-side-components-of-india-s-gdp-growth.html.

Hansen, B. E. (1999). Threshold Effects in Non-Dynamic Panels: Estimation, Testing and Inference, Journal of Econometrics, 93, 345-368.

Harvey, A. (2012). Demand Side Economics: Demand Side Minds, Create Space Independent Publishing Platform. pp. 12.

https://data.worldbank.org/indicator/FP.CPI.TOTL

https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1475-4991.1992.tb00421.x

https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/3120

https://www.livemint.com/news/india/ceos-see-fy21-profit-on-track-but-revenue-may-miss-the-bus-11600018017321.html

Kannan and Raveendran (2019). From Jobless to Job-loss Growth Gainers and Losers during 2012–18, Economic & Political Weekly, Vol. lIV No. 44.

Kapur and Khosla (2019). Regulation in India: Design, Capacity, Performance, Bloomsbury Publishing.

Kaushik, Arbenser and Klein (2008). Export Growth, Export Instability, Investment and Economic Growth in India: A Time Series Analysis, The Journal of Developing Area, Vol. 41(2), pp.155-170.

Keynes, J. M. (1936). The General Theory of Employment, Interest and Money, MacMillan and Cambridge University Press.

Khundrakpam, Jeevan (2012). Estimating Impacts of Monetary Policy on Aggregate Demand in India, RBI Working Paper, WPS (DEPR): 24/2012, December.

Kohli (2012). Poverty Amid Plenty in the New India, Cambridge University Press.

Kotwal, Ashok and Mukul Eswaran (1994). Why Poverty Persists in India, Oxford University Press.

Kotwal, Ashok and Sen, Pranob (2019). What Should We Do about the Indian Economy? A Wide Angled Perspective, The India Forum, October 2019.

Kotwal, Ramaswami and Wadhwa (2011). Economic Liberalisation and Indian Economic Growth: What's the Evidence?, Journal of Economic Literature, 49(4): 1152-1199.

Krishnaswamy (2012). Pattern of Consumer Expenditure in India: Some Revelations, Economic and Political Weekly, Vol. 47, No. 36, pp. 80-83.

Lanchester, John (2015). How to Speak Money, Faber & Faber Publication.

Liu and Nick (2011). The Gardens of Democracy, Seattle, WA: Sasquatch Books. p. 11.

Mallick, Hrushikesh (2008). Government Spending, Trade Openness And Economic Growth In India: A Time Series Analysis, CDS Working Papers, No.403. Trivandrum: CDS.

Mishra and Parikh (1992). Household Consumer Expenditure Inequalities in India: A Decomposition Analysis, Income and Wealth, Vol.38, Issue 2, pp. 225-236.

Mishra, (2011). Dynamics of The Relationship Between Real Consumption Expenditure and Economic Growth in India, Indian Journal of Economics and Business, Vol. 4 No. 3.

Mukherjee, Andy (2019). India has People, It Needs Consumers, Bloomberg Opinion, November 16, 2019, https://www.bloombergquint.com/gadfly/india-s-economy-has-a-demand-problem-only-more-consumers-can-fix.

Murphy, Kevin M, Andrei Shleifer and Robert W Vishny (1989a). Industrialization and the Big Push, Journal of Political Economy, 97(5):1003-1026.

Murphy, Kevin M, Andrei Shleifer and Robert W Vishny (1989b). Income Distribution, Market Size, and Industrialization, The Quarterly Journal of Economics, 104(3), 537-564.

Nagaraj R (2013). The Dream Run: 2003-08: Understanding the Recent Boom and its Aftermath", Economic and Political Weekly, Vol. 48, May 18.

Nagraj (2020): Understanding India's Economic Slowdown, The India Forum, January 20, 2020. https://www.theindiaforum.in/article/understanding-india-s-economic-slowdown.

NSSO (2020). Key Indicators of Household Consumer Expenditure, Ministry of Statistics and Programme Implementation, Government of India. http://microdata.gov.in/nada43/index.php/catalog/126

Pesaran, H. and Shin, Y. (1999). An Autoregressive Distributed Lag Modelling Approach to Cointegration, chapter 11. In Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium.

Pesaran, M.H., Shin, Y. and Smith, R.J. (1996). Testing for the 'Existence of a Long-run Relationship, (No. 9622). Faculty of Economics, University of Cambridge.

Pesaran, M.H., Shin, Y. and Smith, R.J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of applied econometrics, 16(3), 289-326.

Rajan, Raghuram (2019). The Indian Economy: What Got us Here, O.P. Jindal Lecture, Brown University.

Rakshit, Mihir (2007). Service-led Growth, Money and Finance, February.

Roy, Rathin (2019). Demand, Supply And Growth Slowdowns, Business Standard, December 6, 2019 https://www.business-standard.com/article/opinion/demand-supply-and-growth-slowdowns-119120600037_1.html.

Sebastiani, Mario (1989). Kalecki and Marx on effective demand, Atlantic Economic Journal, Volume 17, pp 22–28.

Sharma and Mihir (2019). Three Dangerous Myths, Business Standard, December 8, 2019, https://www.business-standard.com/article/opinion/three-dangerous-myths-119120800924_1.html.

Shukla and Sharma (2016). Strengthen Household Saving Data for Effective Policy-Making, The Financial Express, January 08, 2016. https://www.financialexpress.com/opinion/strengthen-household-saving-data-for-effective-policy-making/190004/

Singh, Bijay Kumar (2019). Slowdown Cyclical, Growth Will Pick Up in 1–2 Years: Bimal Jalan, LiveMint, https://www.livemint.com/politics/policy/slowdown-cyclical-growth-will-pick-up-in-1-2-years-bimal-jalan-1564921726247.html.

Singh, Manmohan (2019). The Fountainhead of India's Economic Malaise, The Hindu, November 18, 2019. https://www.thehindu.com/opinion/lead/the-fountainhead-of-indias-economic-malaise/article62108917.ece.

Srinivasan (2013). Causality between Public Expenditure and Economic Growth: The Indian case, International Journal of Economics and Management, 7(2): 335-347.

Subramanian, A. and Felman, J. (2019). India's Great Slowdown: What Happened? What's the Way Out? CID Faculty Working Paper No. 370, December 2019.

Subramanian, Arvind (2019). Validating India's Growth Estimates, CID Discussion Paper, Harvard Kennedy School.

Subramanian, S. (2019). What is Happening to Rural Welfare, Poverty, and Inequality in India? The India Forum, December 2019.

Tamilarasi and Cheriyan (2020). Is India Facing an Economic Slowdown? Our Heritage, Vol. 68, Issue 47, Feb2020.

Venkatraja (2018). Dynamics of Aggregate Demand Factors in Macro Growth: An European Perspective, Economic Studies, Vol. 27 (3), p. 3-21.

Wagner, A. (1883). Three Extracts on Public Finance, in R.A. Musgrave and A. T. Peacock eds. 1958, Classics in the Theory of Public Finance, London: Macmillan.