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**Analyzing the Low Manufacturing Driven Economy of Kerala, India**

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***Disclaimer:***

This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

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### **List of Acronyms**

ADF	Augmented Dickey Fuller test
EDA	Exploratory Data Analysis
FDI	Foreign Direct Investment
FYP	Five Year Plan
GDP	Gross Domestic Product
GOI	Government of India
GSDP	Gross State Domestic Product
IBEF	Indian Brand Equity Foundation
IEMs	Entrepreneur's Memorandum
IT	Information Technology
ITES	Information Technology Enabled Services
KSPC	Kerala State Planning Commission
LOI	License of Industry
LPG	Liberalization Privatization Globalization
OGD	Open Government Data
OLS	Ordinary Least Squares

## **Abstract**

The objective of this paper is to analyze the low contribution of the manufacturing sector in Kerala, an Indian state. The research paper tries to provide theoretically evidence to support the importance of manufacturing for the progressive economic development of Kerala. The paper will attempt to reveal to the extent to which manufacturing sector helps create jobs, expands the use of technology and in the long-term acts as an assurance to for a smooth economy. Kerala is supposed to be a model state for developing countries in terms of high Human development factors, however, the state experiences low growth performance. In India, for the last few decades, the state of Kerala is known to have one of the highest educated migration rate to the Gulf countries. As a result, the state is majorly driven by the remittances received.

Kerala, geographically small but it is well connected with sea ports to expand its exports further globally. Therefore, with the help of Exploratory Data Analyses (EDA) and some econometrics the paper will pursue a comparative Analysis with two other Indian states of Gujarat and Tamil Nadu. The paper also attempts to recognize the possible policy initiatives and changes for Kerala which will help Kerala be on track for long-term economic growth.

### **Relevance to Development Studies:**

The manufacturing sector is a vital part of the development process of a developing country/state. Though India is a service led economy yet eventually the government is moving towards manufacturing with initiatives like Make in India. Manufacturing, locally helps reduce cost and dependency on imports. It helps create employment opportunities for the citizens. If manufacturing sector of a country can grab attention of other nation, it then gives them the power to capture global consumers. In this case the best example would be China. Therefore, for the progressive development of a nation it is essential to balance between the service and manufacturing sector.

**Keywords:** Low Growth Performance, Kerala, Labor Migration, Remittance, Manufacturing Sector Comparative Analysis, service-led growth.

# Chapter-1

## Introduction

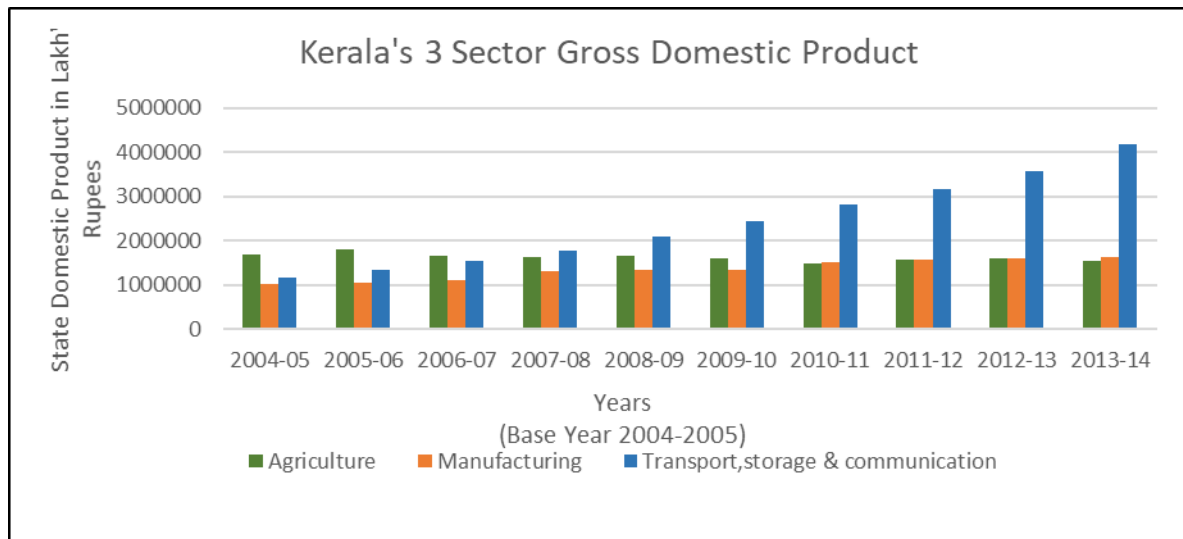
### 1.1 Background

Kerala is a small state in India. The state is well known for its Kerala Development Model both nationally and internationally by various renowned economist like Amartya Sen. The Kerala Model stands out as an exceptional model as the state has managed to maintain high social indicators even though it is present in a developing country. Parayil (1996) mentioned in a journal article that the state of Kerala can be associated with one of the earliest example from the third world as a state which reflects characteristics of a sustainably developed state in terms of social indicators such as Kerala has managed to control population growth rate, it has reduced infant mortality and it has the highest educated population in India.

However, though the state reflects high HDI value of 0.79 but the economic growth of the state is not significant. Moreover, the state of Kerala has been experiencing Dutch Disease like circumstance since the 1980s as a large portion of Keralites migrate to the Gulf countries and as a result the economy of the State depends largely on the remittances received (George 2011). Kerala's state revenue expenditure is spent largely for salaries and pensions, the state is mostly concerned about the social factors ('White Paper'2016). Additionally, the state like most of the states in India is chiefly driven by the service sector and as a result the importance of the agriculture sector has declined and manufacturing sector growth is stagnant. Figure1.1 below depicts the rising service sector (transport, storage and communication) from 2004 to 2014 in Kerala. However, the other two sectors remain low. Basically, the economy of the state is not balanced in terms of sectoral growth.



Figure 1.1 Kerala's three sector Gross Domestic Product (GDP) from 2004-2014



Source: Author's Construction based on data from Open Government Data (OGD), India (2015)

Though the dependence on the service sector or what is known as the service led economy is applicable for the entire country of India. However, the situations are changing; Prime Minister Narendra Modi's government has implemented various policies to push start India's internationally competitive growth with the aim of becoming a manufacturing nation. Modi introduced the *Make in India* programme in 2014 with the aims to encourage and support the citizens of India to start building their own products for domestic consumption and international trade (Yadav 2015). Furthermore, under the same programme *National Manufacturing Policy* (NMP) was introduced. "The policy is the first of its kind for the manufacturing sector as it addresses areas of regulation, infrastructure, skill development, technology, availability of finance, exit mechanism and other pertinent factors related to the growth of the sector" ('National Manufacturing').

## 1.2 Justification

Firstly, the justification of the field of the research paper is as mentioned above that since Prime Minister Narendra Modi had taken office in 2014, he introduced the Make in India program to encourage all the states, small businesses and upcoming entrepreneurs to expand their manufacturing sector. Prior to becoming the Prime Minister of India, he was the Chief Minister of Gujarat from 2002 to 2014. Gujarat is the state which successfully

followed the path of economic growth through expansion of the industrial sector. Hence, Modi's initiative reflects his work in Gujarat (Mallet 2014).

Secondly, Gopikuttan (1990) mentioned that the economy of Kerala had a major impact from the Construction sector in the state since the 70s. It was an independent investment made by the state of Kerala in the hope to help the growth of other domestic sectors. But unfortunately, the housing boom led to the increase in the factors of productions; the construction related material also had an inelastic domestic supply and on top of it many construction workers moving to the Gulf for work. Therefore, all the efforts to improve the economy backfired, Kerala failed to stimulate growth in the rest of the domestic sectors. The state's growth is marginally dependent on agriculture and industry. On the contrary, Kerala has been greatly involved in the services and construction sector; as per Kerala's Net Domestic Product for the year 2011-2012, around 81% of the economy is run by these two sectors (Thomas 2016).

Thirdly, quarter of the country's manufacturing value added is by the four south Indian states<sup>1</sup>. However, the size of the manufacturing sector differs within these states; Tamil Nadu's economy has a large manufacturing sector, Karnataka and Andhra Pradesh have a medium size and a small sector is present in Kerala. In the southern region of India, the major manufacturing activity includes transport and machinery equipment or mineral or metal products. Basically, the manufacturing industries are closely associated. Therefore, as mentioned above, Kerala's manufacturing sector is not only small, it is declining as well (Thomas 2002). However, as per Mani "Kerala is one of the least industrialized states although it has all the potential of being one. Historically speaking the state has attracted very little industrial investments especially in manufacturing" (2014).

Lastly, Kerala lacked diversification of the manufacturing sector as the state mostly received investments for one industry, that is, chemical-producing industrial units. It is true that Kerala cannot compete with its neighboring states because of its small size, however the state does have the advantage of skilled labor and good infrastructure. Therefore, the state has the potential to once again be a model state for India (Thomas 2016).

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<sup>1</sup> The state of Andhra Pradesh in 2014 bifurcated into two states Telangana and Seemandhra.

### 1.3 Research Objective and Question

#### **Objective of the Research:**

- The objective of this Research paper is to analyze the low manufacturing led growth in Kerala.
- The research paper tries to highlight the obstacles in manufacture sector development in the Kerala.
- The findings of the research will attempt to contribute to the policy implications for Kerala to encourage manufacturing.

#### **Research Question(s):**

**Main research question:** To what extent is weak economic growth of Kerala due to low contribution from the manufacturing sector?

**Sub Question:** To what extend does manufacturing contribute in state GDP of Gujarat and Tamil Nadu?

### 1.4 Hypothesis and Theoretical Framework

The Hypothesis of the research paper is to explain the extent to which lack of manufacturing driven growth translates into low economic growth in the state of Kerala in India. In the case of Kerala manufacturing has been decelerating majorly due to the continued migration of the labor force to the Gulf. Migration is a common phenomenon in the state; consequence of migration is the remittance driven economy and un-availability of labor force. However, that is not the only reason for the decline in manufacturing sector; the labor force expects higher wages; at the same time, the labor unions emphasize on their labor rights as a result Kerala is known for the factory strikes and disputes. Additionally, it is vital to note that the state has a different political party compared to that of other manufacturing driven states of India (Mani 2014).

The flow of migrants increased since the 1970s, hence the low manufacturing led growth has been present for a long period in Kerala. Nevertheless, the research paper has tried to analyze the economy of Kerala since 1980s, covering the 1990s period as the year 1990 marks the strategic introduction of the Liberalization, Privatization, and Globalization (LPG) reform in India. The research also tries compare the major policy initiatives taken by the state government in Kerala. Though compared to other states in India, Kerala has a

weaker and smaller manufacturing sector but in the recent years the state has realized industrial importance. The recent fluctuation in the oil prices in the Gulf and the increased returning migrants has risen concerns about the state's economic functioning. As a result, Kerala state government independently is trying to set targets in the budget to improve and encourage manufacturing. ('Budget Speech' 2017; Zachariah and Rajan 2014).

## **1.5 Methodology**

### **Approach and Methodology:**

Based on a critical background review, the method of analysis used in this research paper will be Exploratory Data Analysis (EDA) supported by some econometric analysis. The research paper focuses on the use of EDA mechanism to scrutinize the studies done on Kerala's economy and comprehend its relevance in the present economic circumstances. At the same time, the research performs an Ordinary Least Square (OLS) regression analysis to understand the relationship between economic growth and manufacturing sector in Indian states of Kerala, Gujarat and Tamil Nadu.

Following are the various source from which the data for the research will be collected:

- State government website of Kerala and relevant states for comparison
- Ministry of Statistics and Programme Implementation (Government of India)
- Open Government Data (OGD) Platform India (A digital India Initiative)
- Kerala Migration Survey Reports (compiled by the Centre of Development Studies, Kerala for the State government of Kerala)

### **1.6 Scope and Limitations of study:**

The research paper will focus on the underperformance of Kerala's economy due to low level of industrialization. The main motif of the research is to emphasize on the economic importance and long-term assurance of the manufacturing sector. The research tries to identify the strategic loopholes in the Kerala state government's budget policies towards economic growth. It recognizes to what extent have they neglected the importance of the manufacturing sector and focuses majorly on improving the social factors alone. It will also mention the obstacles faced by Kerala in expanding its manufacturing sector. The paper recognizes the different structure of Kerala's economy, yet it tries to enlighten the state's capabilities in the manufacturing sector.

The limitations of the study under consideration for the research paper is that firstly, the research is not an analysis of the Kerala Development Model, the research is strictly focusing

on the low level of manufacturing driven economy of the state, therefore the paper is looking at one sector. Furthermore, the research paper is conducted under a limited period and with the data available for public use only. The research paper does not undergo a panel data analysis as the research is restricted to a comparative analysis within three<sup>2</sup> states of India, namely Kerala, Gujarat and Tamil Nadu. Therefore, the research paper performs a time series analysis using an OLS regression for the three states under consideration. Thirdly, Kerala is the small and socially differently structured south Indian state, therefore, the economic strategies adopted by Kerala will differ and might not be able to replicate growth strategies from other states, but it can definitely alter strategies. Though the paper recognizes the increasing service sector in Kerala and other states of India, however, since the paper is meant to scrutinize the manufacturing led growth, the paper does not elucidate much on the service sector driven economic growth. The paper looks at the positive economic outcomes due to the manufacturing sector. Therefore, the paper suggests industrial development strategies and policies to improve the just the manufacturing sector alone.

### **1.7 Structure of Research Paper**

The division of the rest of the paper is into six chapters- literature review/ theoretical framework, description of the economy of Kerala, analysis based on the graphical evidences and the OLS model, lastly the conclusion. Chapter-2 the literature review, this chapter deals with the theoretical understanding of the role of manufacturing in economic growth, it presents a general point of view, followed by a short literature on the relation of remittance and Dutch Disease, then a review of the Indian manufacturing and lastly the literature related to the Kerala's manufacturing journey. Chapter 3- this chapter gets into the depth of Kerala economy in terms of its sectoral growth, trends in economic growth and the composition of GDP, Kerala's external and internal migration issue is highlighted and it finally mentions in a chronologically the major growth policies by the state government of Kerala since the 1980s. Chapter 4- deals with the graphical analysis the Kerala economy along with answering the research question(s); here the weak economic growth due to stagnant manufacturing is discussed further in detail, a comparison of state-wise and country wise manufacturing sector is performed. Chapter 5- displays the OLS regression analysis done for the State of Kerala, Tamil Nadu and Gujarat to confirm the role and level of the manufacturing sector in each of the states. Chapter 6- concludes with certain policy implication for Kerala.

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<sup>2</sup> Among the three states, Kerala is the first as the research is on the state itself. Then the second state is Gujarat, which may represent as Prime Minister Narendra Modi's example state for Make in India Program. Lastly, Tamil Nadu which is considered to have similar social conditions to Kerala but different path of growth.

## Chapter-2

### Literature Review and Empirical Evidence

#### 2.1 Introduction

In this chapter, the theoretical framework of the relationship between the manufacturing sector and the economic growth is further elaborated with empirical evidences. On one end, there is the Kaldorian theory that, “manufacturing is the engine of growth” (Kaldor 1966), however opposing this idea there is Rodrik theory of Premature Deindustrialization, which basically tries to demonstrate that most of the developing countries except for the East Asian countries end up in declining manufacturing employment and value added per capita income (Murshed 2015).

The chapter describes the theories associated with manufacturing led economies; it is accompanied with the theories’ criticism and counter criticisms. The chapter also includes a small section on theories associated with Dutch Disease like circumstances as Kerala is a victim of the same. In the later parts of the chapter, the theoretical framework of Indian manufacturing sector is mentioned generically for the better understanding of the comparative situation of Kerala versus the rest of India in terms of the manufacturing sector. the chapter briefly mentions the reasons for the choice of the states of Gujarat and Tamil Nadu for the comparative analysis. The last part discusses in-depth the industrial literature about the state of Kerala.

#### 2.2 Theories of Manufacturing Sector Driven Economic Growth

The theoretical perspective of this research paper is driven by Kaldor’s first law of growth, that is “there exists a strong relation between the growth of manufacturing output and the growth of GDP (Gross Domestic Product)” (Thirlwall 1983:347). This basically means that a fast-growing manufacturing sector of an economy will influence the GDP to grow at an equally fast pace.

##### Model of Kaldor’s first law

The first law is described in the following form:

$$Y_t = \alpha + \beta X_t, \beta > 0$$

Where,  $Y_t$  = The Gross Domestic Product (GDP) growth rate

$\alpha$  = The Y intercept

$X_t$  = The manufacturing output growth rate

Based on the above equation it can be concluded that as the coefficient associated to manufacturing, that is  $\beta$  is greater than zero, meaning there is a positive relation between

growth of GDP and growth of manufacturing output. Kaldor found the results displayed in equation (1) below. He considered a cross section data for twelve developed countries during 1952-54 to 1963-64 for the analysis (Kaldor 1966).

$$G_{GDP}=1.153+0.614(g_m), R^2= 0.959 \quad (1)$$

(0.040)

Equation (1) suggests that a 1% increase in manufacturing will result in 0.61 % increase in the growth rate of GDP. “since the regression coefficient is significantly less than unity, the equation also implies that the greater the excess of the rate of growth of manufacturing output over the rate of growth of the economy as a whole, the faster the overall growth rate” (Thirlwall 1983). This equation also has a high  $R^2$  of .95. Kaldor initiated another equation, that is equation (2) to further analyze the relation between economic growth and the difference between manufacturing growth rate and non-manufacturing growth rate. Equation (2) shows that relation with a coefficient of 0.95 in terms of economic growth exists. This equation also suggests a similarly relation between the manufacturing and non-manufacturing as between GDP and manufacturing outcome. To confirm the same, he ran a third equation (3), whose results are similar to equation (1) (Kaldor 1966; Thirlwall 1983).

$$G_{GDP}=3.351+0.954(g_m - g_{nm}), R^2= 0.562 \quad (2)$$

(0.267)

$$G_{nm}=1.142+0.550(g_m), R^2= 0.824 \quad (3)$$

(0.080)

However, Kaldor (1966) in the paper mentioned the laws of growth was designed for the advanced economies. But later the law has been tested<sup>3</sup> by other economist and it was proven applicable for developing countries like China for the period of 1979-2004, India for the period f 1990-2000 and Latin America for the period of 1981-2006 (Jeon 2006; Dagupta and Singh 2006; Libanio and Moro 2014).

Another argument supporting manufacturing was by Kitson and Michie (1997). They justified their claim by a simple pun that, “what will the service industries be serving when there is no hardware” (Kitson and Michie 1997:71); they tried to prove that even the service sector

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<sup>3</sup> Explained further in Empirical Findings, section 2.3.

requires the existence of the manufacturing sector. They understood the global influence of the service sector is increasing output and employment, however, the paper argues that the service sector would not be able to achieve the goal of full employment without the help of demand for manufactured goods. Their argument tries to display the potential of the manufacturing sector towards driving a nation as “self-serving” with the help of the manufacturing industry; this is explained with a small example of production of televisions replacing the service provided by the theaters.

To further support the above point in terms of developing countries, Tybout (2000) in his paper elaborated on the presence of manufacturing firms in the Developing countries. According to him through the manufacturing sector a country steps into the era of modernization, it is a source of job creation for the citizens and overall it has a positive spillover effect<sup>4</sup> in the economy. Though he also mentions the existence of certain level of trade barriers and certain level of regulation instabilities in developing countries, but at the same time he does not fail to mention the concessional benefits provided by the government to purchasing equipment and machinery for factories.

Rodrik (2007) in his study on industrial development did indicate that rapid economic growth does not necessary be related to manufacturing. However, he did mention that, “growth accelerations are associated with structural changes in the direction of manufacturing” (Rodrik 2007). He describes rapid economic growth with the example of the East Asian countries due to the presence of large manufacturing sector. He further elucidated that manufacturing may simultaneously increase employment and international trade, that is, expansion of exports; which basically again contributes to the GDP growth.

Additionally, Szirmai and Verspagen (2011) argued in similar lines with Kaldor; in their paper, they discuss the role of the manufacturing sector and its effects on economic growth particularly in developing countries during the period of 1950 to 2005. They tried to emphasis the role of manufacturing for the economic development of a nation. In their paper, they have argued about the concept of manufacturing being the engine of growth; firstly, it was mentioned that productivity in the manufacturing sector is higher than the agriculture or the service sector.

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<sup>4</sup> In this case the concept of spillover effect is in terms of spillover of technical knowledge from one industry to another.



Secondly, in the case of the agriculture based developing countries a shift to the manufacturing sector will have greater capital accumulation. As in comparison to the service sector, manufacturing sectors requires the involvement of greater capital stocks to produce goods. Thirdly, the manufacturing sector provides economies of scale more than the agriculture or service sector. Additionally, the manufacturing sector also is an opportunity to improve the technical progress/ use of technology through the implementation of technically advanced machinery. Lastly, but most importantly the manufacturing sector has strong spillover and backward and forward linkages<sup>5</sup>.

Manyika et al. (2012) is a report published which examines the changing role of manufacturing and its future growth. The analysis<sup>6</sup> mentioned the continued importance of the manufacturing sector both in the developed and developing countries due to its contribution towards economic growth and the improvement of the living standards of the citizens. However, the report does talk about the changing nature of manufacturing. The report emphasizes on the current shifting trends of manufacturing towards the developing countries, for instance the popularly known service led economy India has recently set goals to develop its manufacturing sector share in GDP from “16 percent to 25 percent by 2022” (Manyika et at. 2012). The report also mentions about the role of the manufacturing as a source of employment opportunity and at the same time through this sector an economy opens prospects for the local industries to capture the local markets and later export, resulting in a trade surplus.

Andreoni and Gregory (2013) discuss about both the initial global growth of the manufacturing sector followed by the service sector which de-industrialized many economies; however, the paper explains the recent initiatives of economies to again encourage manufacturing due to its potential of technological innovation and to contribute to the development of the country .In their study it is expressed that some economist encourage manufacturing oriented growth as manufactured goods are expected to have greater income elasticity of demand. Here the authors refer to the Engel law which is stated- “as per capita income increases demand decreases for agricultural products and increases for manufacturing products” (Andreoni and Gregory 2013:29). The authors do not completely disagree with the service sector led economy because

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<sup>5</sup> This concept was introduced by Hirschman, forward linkages in this case would for instance be one factor’s final product used as part of another factory’s raw material. On the contrary backward linkage is basically when a factory or industry grows it indirectly influences the growth of the sectors providing the input/ raw material.

<sup>6</sup> Further empirical evidences are mentioned in section 2.3

as income increases people demand for more services and the modern service sector did include higher technology. Therefore, the rise of the service sector economic growth was no longer equated to manufacturing. However, in recent times there is again a wave of manufacturing with the observation of the interdependency of manufacturing and service sectors.

Haraguchi et al. (2016) prepared a report for United Nations Industrial Development Organization (UNIDO) focusing on the importance of the manufacturing in economic development. The report is designed to question the low rate of manufacturing in the developing countries. The authors here argue from the point that the manufacturing sector's potential was not properly utilized or recognized in various developing countries. One of the studies mentioned was by Kathuria and Raj; they conducted a test on 15 Indian states for the period of 1994-95 to 2005-06 to check the role of manufacturing in economic growth and conclusion was that despite the falling effect of manufacturing, the sector did significantly take part in the growth of India (as cited in Haraguchi et al. 2016:4). The report concludes that though manufacturing might have a decreasing importance in many developing countries but it still has a significant role in the economy. Thus, it can be presumed that these developing countries have failed to properly develop the manufacturing sector to realize its full potential benefit to the economy.

Adding to the above supportive arguments in this section it is vital to pay attention to the various changes or Transition Mechanism which will be attainable if the manufacturing sector contributes largely to the economic growth of an economy:

- Firstly, it is of utmost importance to mention that Kaldor explained that once manufacturing is driving the economy, it will be a transition of the economy from “immaturity to maturity”, which indicates shift from low productive in other sectors like agriculture sector to high productive industrial sector. This is shift is driven by surplus labor, however, Kaldor argued that if there is shortage of labor then economies may experience “deceleration of growth”. Kaldor emphasized on manufacturing sector by calling it the “engine of growth”. (Jeon 2006; Thirlwall 1983).
- Secondly, by the first law he also declared that if an economy has an increasing manufacturing output it will be translated into an increasing return to scale in all aspects of the economy (Thirlwall 1983).

- Thirdly, manufacturing output does not have a negative effect on other traditional sectors. Rather, manufacturing sector will be able to balance the export demand and propensity to imports in an economy through the industrial output as manufacturing has income elastic demand. (Thirlwall 1983; Andreoni and Gregory 2013)
- Lastly, (Szirmai and Verspagen 2011) as mentioned in this section that the manufacturing sector has the capability in terms of forward and backward linkages, therefore, it has the ability of connecting and benefiting other sectors.

### **2.3 Criticisms and Counter Criticism**

#### *Criticism*

On a general level, the most basic criticism is that the path of industry driven growth might not be applicable for all nations. Some nations might even have a comparative advantage in primary products. Therefore, there is no single solution for economic growth for all (Chenery 1960). The most evident criticism of a manufacturing led economy is the concept of Premature deindustrialization. Rodrik (2016) in his paper on the same issue elucidates that though manufacturing has been related to concepts of innovation and a path for the poorer countries to converge with richer countries. However, based on evidences from advanced countries which were involved in manufacturing eventually started to fall; it is like an inverted U relation. Moreover, Premature Deindustrialization leads to political and economic instabilities in a country. He explains with the example of Latin America and Africa's position with their manufacturing sectors shrinking. Basically, economies which fail in the manufacturing sector driven growth tend to move towards maybe the service sector. however, it is vital to realize that the service sector demands for highly skilled workers, who are generally low in number in majority of the developing and least developed countries.

The manufacturing sector has been criticized in terms of the increase in technology leading to machines taking over the roles of humans resulting in loss of jobs especially of the low skilled laborers. Technology is evolving at such a fast pace; now even routine work might be done by robots ('Automation and Anxiety' 2016). A more case specific alternative involves India. India also was not able to become a manufacturing expert, however unlike Latin America or Africa it was able to establish a prosperous service led economy. Ghani (2010) mentioned in an article complimenting India's efforts to choose an alternative route to economic growth. If a country has enough skilled labor working in the service sector, it has the potential to match the level productivity like the manufacturing sector. In the same article, the author mentions that India's

service led growth provides hope to “latecomers to development” in African countries. Similarly, Mohan (2011) in an article indicated that the ever-growing service sector in India has higher contribution to the GDP than the manufacturing sector. He suspects that this service growth will continue as the foreign companies most definitely will outsource the work to India for smooth and cheap service provision.

#### *Counter-Criticism*

Countering the criticism mentioned above the process of deindustrialization can be argued against from the point of Rostow or Kuznets; who describe the decrease in manufacturing as a cycle or stage of growth which is somewhat inevitably present in every economy (as cited in Kitson and Michie 2011:3-4). Likewise contradicting the service led economic growth example of India, Banga (2005) firstly discusses in her paper that though the service sector has risen the country but the amount of service in total employment has not increased. Secondly, she points out the uneven growth of service sectors, that is limiting to the telecommunication and the software sector is not promoting the entire concept of a service led economy. Therefore, the sustainability of the service led economy is under question.

Helper et al. (2016) reported that even for United States the manufacturing sector is required for economic stability. It is mentioned that it provides for jobs, commercial innovation and helps maintain a low trade deficit. Similarly, Govindarajan and Bagla (2015) mentioned that in recent times advanced countries like United States are considering building factories in India. At the same time the Prime Minister of the country, Mr. Narendra Modi announced about the Make in India initiative to promote local businesses. Therefore, though India is excelling in the service sector but the wave is changing again towards expanding the manufacturing sector.

## **2.4 Empirical findings**

This section deals with the empirical evidences of the theories mentioned in section 2.2. The findings mentioned in this section supports the benefit of the manufacturing sector in an economy. Most of the evidence is in support of the first law of growth presented by Kaldor. The evidences are gathered from analysis done on different countries, especially the developing countries.

Jeon (2006) examined the kaldorian approach on China during the period of 1979-2004 for 24 regions. Both time series and cross section analysis was done separately. Data for the

manufacturing sector was not available separately, hence, secondary sector data was taken, the secondary data included manufacturing, electricity, mining and quarrying, water and gas. The result of the analysis conducted concluded a strong correlation between the secondary sector and the increase in the GDP.

Libanio and Moro (2014) in their paper analyzed the Kaldor's law for Latin America for the period of 1980-2006. The analysis concluded that there was a positive effect of the manufacturing sector on the economy specifically due to the movement of the labor force to the industrial sector. However, it is vital to note that the Latin American informal working sector is quite huge. Therefore, the increase in the labor force engagement in the industrial sector did not hamper other traditional sectors, rather contributed to the growth of the economy at large.

Dasgupta and Singh (2005) in their paper studied the Kaldor's first law with a data from 48 developing countries from the period of 1990 to 2000. Later they also analyzed the Indian economy separately through the formal and informal sector involved in manufacturing. During this period in the states of India the manufacturing employment data in the formal sector showed only 0.87 percent growth and on the contrary the informal manufacturing employment was 2.95 percent at the same time it was noticed that the GDP in the informal manufacturing sector increased 8.66 percent and the 7.31 percent in the GDP in the formal manufacturing. Hence, though the formal sector did not show a significant increase in employment yet the Kaldor's law stands true for India.

Andreoni and Gregory (2013) provided evidence for the shift of the manufacturing sector from the advanced countries to the developing during the period 1950 to 2005, in the study of the share of manufacturing in GDP it was noticed that China's growth was distinct in terms of the other economies. Latin America and other developing countries except Africa were increasing at a slow pace. However, the advanced economies displayed a gradual downfall in terms of manufacturing share in the GDP.

Manyika et al. (2012) mentioned in their report that in the year 2010 three developing countries that is China, India and Indonesia were part of the top fifteen largest manufacturing economies. However, China and India have been part of the list since 1990s. Advanced economies like United States were involved in outsourcing the manufacturing and even certain services.

However, this led to loss of jobs in the economy, eventually when the US economy hit the recession period the situation got worse. The report mentioned that during 2000 to 2010 around 400,000 jobs were lost mostly in the electronic industries. Data from the year 2008 suggested that developed countries are spending greatly on the Research and Development (R&D) in the manufacturing account; for instance, Germany, South Korea, Japan and China spent around 87-89 percent. However, surprisingly United Kingdom spent only 39 percent.

## **2.5 Dutch Disease**

Acosta et al. (2009) in their paper examined the data for El Salvador in terms of the increasing inflow of remittance, resulting in Dutch Disease<sup>7</sup> like scenario. In general, the flow of remittance to developing countries have been increasing. In the year 2007 the remittance of the developing countries amounted for 21 % of the GDP. Remittance driven Dutch Disease expands the spending effect. The spending effect expands the non-tradable goods resulting in resource reallocation towards the same; this is known as resource movement effect. At the same time, the inflow of remittance also declines the supply of labor because of remittance driven rise in reservation wage. In this paper, it was studied that the remittance was sent to- firstly, family members back home for independent household benefits; secondly, some individuals send the money for investment purposes. The work concludes that money sent back home to family completely utilized in the form of greater leisure and higher consumption.

Dorantes and Pozo (2004) mentioned that the remittances sent by workers to their home countries can be considered as a vital source of earnings from foreign exchange. Like the above analysis, this paper also discusses the appreciation of the real exchange rates due to the increasing flow of remittances; based on the regression run apart from the evident contribution of the technological growth of 77% the workers remittance increased in the real exchange rate by 23%. The paper concludes that even though the individuals sending money intend to provide a better lifestyle to their families back home. These remittance recipients tend to spend the money more on non-tradable goods harming the country's market for the tradable goods. Additionally, the appreciation in the real exchange rates makes the exports weak in the international market which results in a big loss for the entire economy.

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<sup>7</sup> Dutch Disease effect-when the disposable income increases the aggregate demand especially for higher priced services or non-tradable than manufactured products, that is, basically the spending effect increases. This increase in the non-tradable goods translates into appreciation of the real exchange rate (Acosta et al. 2009)

Harilal and Joseph (2003) attempt to study the role of remittance in the Kerala, India, resulting in stagnant production of the manufacturing sector. They mention that increase in migration to the Gulf from Kerala initiated during 1970s. Through this study the authors want to move a step ahead from the Dutch Disease effect to its structural impact on the sectoral growth in the economy. According to this analysis this remittance dependent situation has eventually caused the decline in the manufacturing sector and shifted the demand to the service sector. In the paper, a table is present describing the sectoral contribution to the Net State Domestic Product (NSDP) from 1960 to 1995, manufacturing in 1960 was 12.45% and 1995 it was 13.52%. On the contrary the service or the tertiary sector was 28.78% in 1960s and it increased to 39.37% in 1995. In conclusion, they did mention that the trend of migration may continue for years. however, it is of utmost importance to think of alternative policies to save the manufacturing sector of the state. Similarly, Parayil and Sreekumar (2007) discussed about the economic development crisis in the state of Kerala due to the Gulf mass-scale migration of the unemployed Keralites. It is of great concern for Kerala's economy as the inflow of remittance from the Gulf is going on since the 1970s, the contribution has a significant portion in the state GDP. This continued dependency on the remittances and the deteriorating manufacturing sector is a great cause of concern for the state in terms of an implausibility of the sustenance of the economy.

## **2.6 Manufacturing in India**

To understand the structure and trends of the manufacturing sector in India it is firstly important to mention about the 1990s reforms, which included policies of Liberalization Privatization and Globalization (LPG). Post the policies years later in 2014 another major initiative of National Manufacturing Policy (NMP) was a central policy initiative under the Make in India policy by Prime Minister Narendra Modi (Dangayach and Deshmukh 2003; 'Assessment of state'2015). "Delicensing" and "deregulation" were among the most important steps taken during the economic reforms of 1990s. The Indian government wanted to promote the role of the private sector and eventually increase Public Private Partnership. This period also promoted more of Small and Medium Sized Enterprises. The leading states in the manufacturing sector were West Indian States of Maharashtra, Gujarat, followed by South Indian states of Tamil Nadu, Karnataka, and Andhra Pradesh (Thomas 2002). Thomas (2003) analyzed the limited extent of regional industrial growth in terms of only certain states being part of the industrial development process. As mentioned above that the western Indian states were heading the list

of industrialized states. Nevertheless, it is significant to mention that the state of Maharashtra and Gujarat have been historically influenced by the business class culture.

Dangayach and Deshmukh (2003) described 1950s to 1990s as the Indian economy trapped in excessive regulatory measures. Thomas (2002) However highlighted that in the latter half of 1980s some foreign equity and technology were welcomed to boost local manufacturing. The historical policy change in 1990s was a result of the manufacturing value added growth of 7.4 per cent in the pre-reform period; this instigated the Government of India (GOI) to take a step ahead the direction of opening and easing the economic relations with other nations. Surprisingly in the 80s and 90s the manufacturing led growth in India was higher than Korea and marginally lower than the other East Asian economies. As a result, the 1990s reforms were made. Post the reform, Indian economy opened doors to participate in the global market. Dangayach and Deshmukh (2003) revealed that during this period in the Indian manufacturing sector's major player were the automobile, electronics, machinery, and processing. Many international companies like Ford, Suzuki, Mercedes entered the Indian automobile market. Similarly, companies like LG, Samsung, Sony got involved in the Indian electronic market. In case of the processing industry, India stood as 4<sup>th</sup> largest cement producing country. However, due to the higher quality of foreign machines and ease of import introduced post the reforms the industries in India mostly imported machineries.

Though the reforms by GOI made efforts to improve the manufacturing sector to be internationally competitive, however, the sector performed less than half of that of China and Korea. Even new entrants like Indonesian surpassed India's manufacturing growth rate. Nevertheless, with the NMP in picture there is hope that the scenario might change. The Small and Medium Enterprises (SMEs) play an important role, approximately 45% of manufacturing output is from the SMEs and it consists of 40% of India's total exports. Therefore, promoting the SMEs further will encourage growth. Further under the NMP the government has planned to make the economic growth more inclusive; it has reforms in financial by introducing the Direct Tax Code (DTC) and Goods and Service Tax (GST) to promote uniform taxations. The government has planned to change the FDI environment to attract more investments (PriceWaterhouseCoopers n.d.).

Kapoor and Sharma (2013) constructed a report to compare the state level competitiveness. In the report they created categories; "Factor Driven economies", "changeover/evolving



economies”, “Transition Economies”, “Investment Driven economies” and “Innovation Driven Economies”. The last two categories include the state responsible for the India’s growth in the global scale. Investment driven economies include the southern and eastern states of India such as Karnataka, Andhra Pradesh, West Bengal, Mizoram. Though some of the individual state economic performance might justify their category yet some state’s result are shocking; for example, the states with high economic growth such as Maharashtra and Gujarat are categorized along with Kerala under the innovation driven economies. This makes one question the lack of utilization of the innovation to contribute to economic growth in the state of Kerala (This topic will be elaborated the rest of the research paper). Though India might be quite behind China but she has the advantage of a younger population. “By 2020, India will be home to 1.35 billion people, of whom 906 million will be of working age” (‘Assessment of state’2015:8). However, the availability of job opportunity is vital to use this spurt of young population as an asset to the Indian economy. Additionally, in various recent survey reports, corruption is ranked as the top constraint in Indian businesses. Similarly, “India ranks 142 out of 189 economies in the World Bank’s Doing Business 2015 report, the second worst performing economy in South Asia. The World Economic Forum’s Global Competitiveness Report ranks India as 71 out of 144 economies. India is ranked at 93rd on irregular payments and bribes, 59th on burden of government regulation, and 57th on the efficiency of the legal framework in settling disputes” (‘Assessment of state’2015:8). Therefore, there is a serious need for the government to intervene and improve the rankings which will help expand investments in the country.

### *Criticism*

Mukherjee and Ray (2005) in their analysis of the pre-and post-period of economic reforms in India concluded the expectations of increase in technical efficiency of the economy failed post the reforms to lack of structured allocation many of the states in India performed poorly compared to pre-reform. Simply liberalization of the economy was not enough, they needed to monitor the efficient utilization and allocation of the resources.

Batra (n.d.) in a report for the World Bank (WB) mentioned constrains in rise in Foreign Direct Investment (FDI) in the Indian economy during the period of 2000 to 2010. She described that majorly there are three barriers; firstly, that the regulations are weak and uneven across states of the country plus there is no consistence of quality in many factories yet the product is not rejected; secondly, unclear laws and taxations and lastly, along with the unevenness across states there is lack of clarity between the central government and the state government powers.

Mani (2014) in his study criticizes the unrealistic goals made by the NMP, firstly the provision of a 200% subsidy scheme on R&D; for this to not hamper the economy the government needs to make sure twice the exports during that period. Secondly, the target of 25% of manufacturing growth by 2022. This would require a 1% growth every year or 10 years on top of the highest growth of 9% achieved in 2009-2010.

Sen (2016) conducted an interview of Professor Pranab Bardhan. In which Bardhan firstly said that the Make in India program for the promotion of the manufacturing is a good idea. However, according to him India's priority needs to be resolving the infrastructure and electricity issues. Further, he criticized the central government for portraying the Gujarat Model as an example state for improvement in manufacturing because the model does not necessarily suggest both economic growth and employment. He criticized that in Gujarat the industries present are capital intensive in nature and the big businessmen are provided with huge subsidies as incentives to invest in the state. Therefore, by following the Gujarat Model job creation may not be the end result.

## **2.7 Gujarat and Tamil Nadu**

In this research paper, Kerala is compared to two other states in India, namely Gujarat and Tamil Nadu. Both these states are considered to be on the higher end in terms of manufacturing driven state economies of India. Moreover, both Gujarat and Tamil Nadu have time and again been compared to Kerala's different path of development. Therefore, this section will justify the choice of the states:

(Balasubramanyam and Balasubramanyam 2015) in their paper describes the contrasting paths chosen by the neighbor states of Kerala and Tamil Nadu in India. The paper elaborates on Kerala social and welfare driven economy, contrasting to Tamil Nadu's manufacturing and Foreign Direct Investments. Kerala's high social development driven policies continued even in years of financial crisis; the state borrowed to fulfil the targets. At the same time Kerala's economy has been continuously dependent on remittance inflow from migrants in Gulf and imports of food grains. On the other hand, Tamil Nadu is also increasing its service sector along with manufacturing. The paper suggested that under the current circumstance Kerala should enhance health and tourism sector; the sectors on which the state has comparative advantage and not dependent on an unstable source like remittance. However, both the states have a declining agriculture sector; Tamil Nadu shifted focus on services and manufacturing, and Kerala's ease of external dependency stagnated internal state driven growth.

The comparison between Kerala and Gujarat has been going on for years. Both the states are unofficially called as models; Kerala, the human development driven economic growth and Gujarat the economic growth contributing to human development model. (Mehra 2017) mentioned in an article about the achievements and drawbacks of both the states. The article states that the Net State Domestic Product (NSDP) is higher in Gujarat; in terms of power generation Gujarat is ahead of Kerala as the state has managed to expand its renewable sources to generate power, but at the same time road networks are considered to be better in Kerala. In terms of social indicators such as health and education, no doubt Kerala has higher achievements. However, both the states are victims of paradoxical achievements when it comes to measurement of poverty and unemployment. Kerala has the highest unemployment rate in the country and the lowest poverty rate. Gujarat has the lowest unemployment rate but quite a high poverty rate.

Lastly, even Gujarat and Tamil Nadu are also sometimes compared with each other. (Kalaiyarasan 2014) In an article discussed about Gujarat and Tamil Nadu in terms of the state's development outcomes. Through this article the author mentions that at present Tamil Nadu might be competitive with Gujarat. However, initially the state was neither as economically productive as Gujarat nor was it as socially developed as Kerala. Yet the state managed to progressively grow due to the presence of state government driven support which has made economic growth in Tamil Nadu consistently high. It has been noted that both these states receive extensive support from the state government in provision of subsidies and formulating policies which help maintain economic growth. However, though Tamil Nadu's social indicators were not as high as Kerala, nevertheless, with time it has been noticed that Tamil Nadu has managed not only to improve its economic growth but also equally worked on the sectors such as education, healthcare and reduction of poverty. On the contrary, Gujarat failed to focus on developmental outcomes.

## **2.8 Case study of Kerala**

Kerala is a small Indian state in the southern part of India. The Kerala Development Model has been appreciated as a sustainable development model. Among all the states in India Kerala is known to have the strongest Marxist influence in the state functioning. Kerala is addressed by the Communist Party of India as an outcome of "revolutionary struggle" (Hardgrave and L.R 1970). The main reasons for Kerala's success lies in the presence of leftist political party and

schemes such as 'food for all', provision of preventive healthcare facilities and free primary and secondary school education. However, the social advancement of the state did not translate into economic profits for Kerala. Rather, the presence of the educated labor made it unsuitable for the capitalists to invest in the state as the labor force for Kerala are popular for its high rate of factory disputes. As a result, it made Kerala an unfavorable destination for industrial investment (Parayil 1996). Additionally, compared to the rest of the south Indian states Kerala somehow was not able to perform in terms of the manufacturing sector, the per capita manufacturing product kept falling as compared to other south Indian states (Albin 1990). On the industry attractiveness matrix prepared, it was revealed that Kerala has factor advantage of rubber, spices, and seafood. However, these products are lower on the state industry policy initiative. On the contrary, coir, food processing, handloom, Tourism etc. are on the higher end in terms of both factor advantage of the state and policy initiatives by the government (India Brand Equity Foundation (IBEF)2010:9). Most of Kerala's development is appreciated for its high human development, followed by a spurt of inflow of money from the Gulf in the form of remittances. (Kannan 2005)

Though there are various interpretation for the of the weak manufacturing sector in the state; such as some blames the low performance of the private corporation in Kerala for the weak industrial performance in the state (Padmanabhan1990). Few argued in lines with the Lewis Dual Sector Model; the article here argues that the state of Kerala has structural weakness in terms of the transition of the labor from agricultural to non-agricultural activities, that is, the excess or surplus labor is not absorbed in the modern sector (Eapen 1994). Mani (2014) mentioned that Kerala needs the state government to intervene and formulate policies to get rid of hindrance in the lack of industrial investment received by the state. According to Mani (2014) the state needs to create employment opportunities for the labor and reduce the level of factory disputes in Kerala; the state needs to consider actions to control the civil societies opposing the industrial growth because of the negative externalities on environment and finally the state government needs to fix the bureaucratic functioning of the government itself to attract investments.

George (2011) also examined the economy of Kerala and noticed a declining role of the manufacturing sector in the economy. He also suggested that the industrial sector has a larger portion of unregistered units. At the same time, the central government sets a way lower fixed capital for the public industrial units; for instance, in the year 2009 only 2.4 percent was assigned for the state of Kerala, on the other hand, 17.8 percent was kept for Maharashtra. In

addition, he mentioned about remittance from the Gulf sent to Kerala. The role of remittance in the Kerala economy is quite peculiar, some might see it as a strength and others see the dependency as a weakness. On a little different note Thomas (2005) mentioned in his article that Kerala's industrial backwardness is because of path dependence of growth, historically it can be noticed that the process of industrialization could not generate opportunities for employment for the educated and skilled population of the state. At the same time since the 1970s a large portion of Keralites has been migrating to Gulf countries for work purposes. This migration trend has been followed over the decades and as a result the remittances received from the workers play a major role in the economy of the state.

*Criticisms:*

The major criticism for the state of Kerala is on the choices made by the state government. Though the Kerala Model of Development is well-known in terms of social indicator. However, the government completely ignored the fact the economy of the state is stagnate. Nevertheless, the economy continued to benefit from the remittances and the issue of economic instability completely went unnoticed. Over the years since the inflow of remittances continued it appreciated the value of rupees and the weakened the manufacturing sector. The remittance recipients started spending more on non-tradable goods, which resulted in a shift in the increase resources effect in the non- tradable goods (George 2011, Harilal and Joseph 2003 and Kannan 2005).

The high human development resulted in highly skilled citizens, out of which a large portion moved to Gulf and the among the remaining left back are part of the large category of educated unemployed. This is again a result of the lack of action taken by the state government to encourage its economy and industrial growth. The state also experiences internal migration from other states for unskilled and semi-skilled labors as firstly there is the less labor force available and secondly, the ones available demand a comparatively high wage. In terms of the investment environment of the state, foreign companies hesitate because the state of Kerala is known to have the highest factory strikes and disputes (Economic Review 2017; George 201)

## **Chapter-3**

### **Kerala Economy Background**

#### **3.1 Introduction**

The great Indian economist, Amartya Sen, complimented the state of Kerala for its human development achievements and for maintaining a higher HDI than rest of India. However, in 1970s Keralite's were allured by the concept of migration to the Gulf in the race of improving their lifestyle and earning a higher income. Eventually the state of Kerala became a victim of backward industrialization and international dependency in the form of remittance. The state has in the recent times become a source of income for individuals from other states of India due to non-availability of labor force in Kerala. The state has neglected its industrial growth for decades and kept expanding the service sector due to its increasing demand (Anand and Sen 2000, George 2011 and Mani 2014). Kerala is stuck in a trap; the people of the state move out of India to uplift their individual families but they end up harming the entire economy of the state. However, the government did not realize this trap either as the inflow of the remittance was part of the Net State Domestic Product which made the economy look prosperous in total, but in reality, the remittance was meant mostly for individual household benefit and not the economy as a whole.

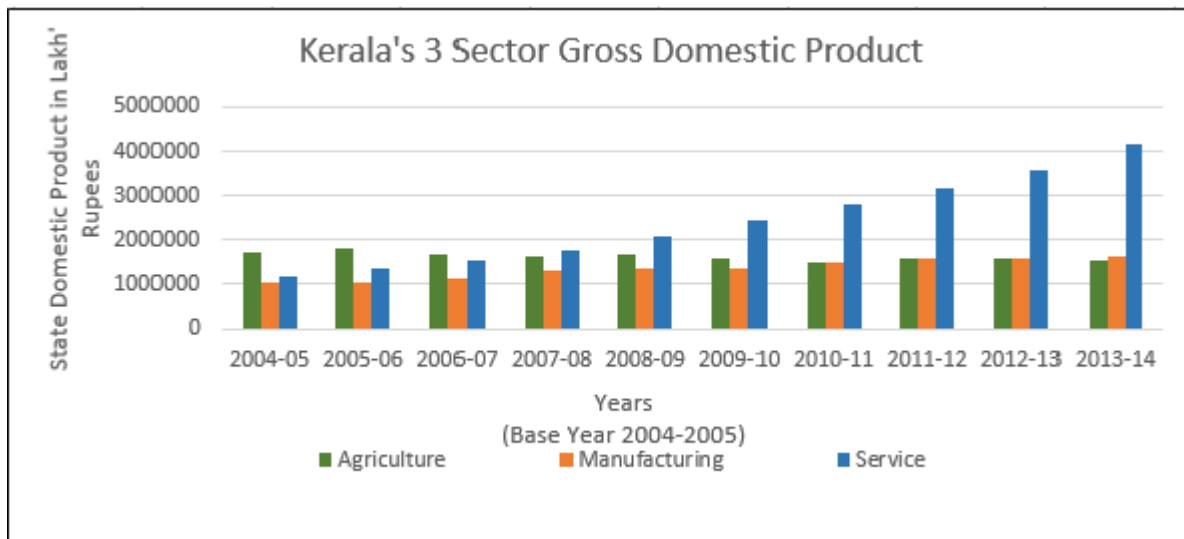
The next section in the chapter discusses the sectoral structure of Kerala's economy, the state's GDP trends and revenue deficits. The section after, explains the manufacturing growth in the Kerala. The chapter has a section on the exports scenario in Kerala. The chapter then elaborates on the internal and external obstacles it faces in the manufacturing sector with special focus on the issue of internal and external migration in the state. Lastly, the chapter mentioned a timeline of major policies by Kerala Government initiatives since the 1980s; this will give a clearer understanding of the choices made by the state government towards growth of the state's economy.

#### **3.2 Economy Structure**

The economic structure of the state of Kerala has been stagnant in terms of the manufacturing sector. however, the economy has faced a declining share agriculture and an increasing share of service sector in the GDP. C P John, member of the Kerala State Planning Board said that, "Manufacturing sector in the state is on a decelerating trend, any growth rate projected in this

sector is not direct; it's indirectly projected through the services sector of IT, ITES and Tourism" (as cited in Prasanna 2012)

Figure:3.1 Kerala's Gross State Domestic Product of 3 sectors (2004-2014)

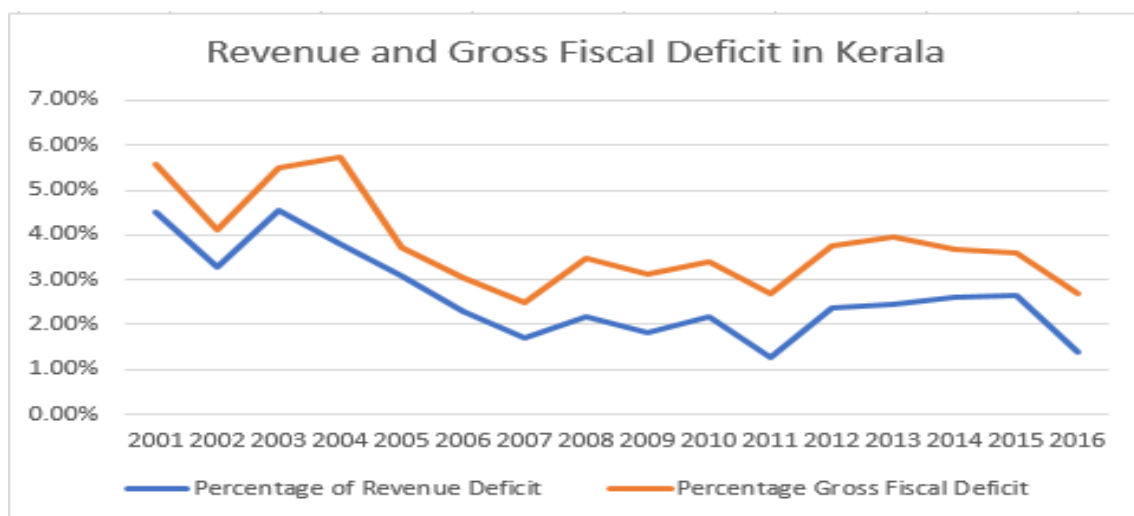


Source: Author's illustration based on Open Government Data (ODG)

Figure 3.1 depicts three sectors, here the service sector includes transportation, storage, and communication; Manufacturing has both registered and unregistered manufacturing units. The figure is clearly depicting the increasing role of the service sector. A slow almost stagnant manufacturing sector and a declining agriculture sector. This figure gives the whole scenario of the economic issue of the state of Kerala.

Along with the decreasing manufacturing sector the Revenue Deficit and Gross Fiscal Deficit to the GSDP of Kerala has been unstable. There are periods of low deficit but it again rises. The situation is explained in the figure 3.2 below:

Figure 3.2 Revenue Deficit and Gross Fiscal Deficit of Kerala to the GSDP (2001-2016)



Source: Author’s interpretation of based on Government of Kerala state finance data (2016)

Figure 3. explains the continuous rise and fall of the percentage of Revenue and Gross Deficit of the Gross State Domestic Product (GSDP) in the state of Kerala. The lowest level of deficit so far was in the year 2011. The state failed to keep the deficit under consist control. Though the percentage deficit in 2016 is again quite low, however, Kerala state Government predicted the deficit for the period of 2017 to 2021, the table is mentioned below for reference:

Table: 3.1 Predicted Deficit percentage

Year	Predicted Revenue Deficit	Predicted Gross Fiscal Deficit
	2017	2.55%
2018	2.74%	4.30%
2019	3.23%	4.95%
2020	3.49%	5.51%
2021	3.68%	6.28%

Source: Government of Kerala financial data (2016)

From table 3.1 it is evident that the projected deficit percentage signals an increasing share of deficit. This is an alarming situation for the Kerala economy as the continuation of the low rate of manufacturing activity and increasing deficits in state GDP is a big cause of concern. There have been different interpretations of the Kerala economy. Some question the structure of the



economy; some believe that the high labor wages could be a problem and some say Kerala is going through a backward Industrialization (Valsa 2007).

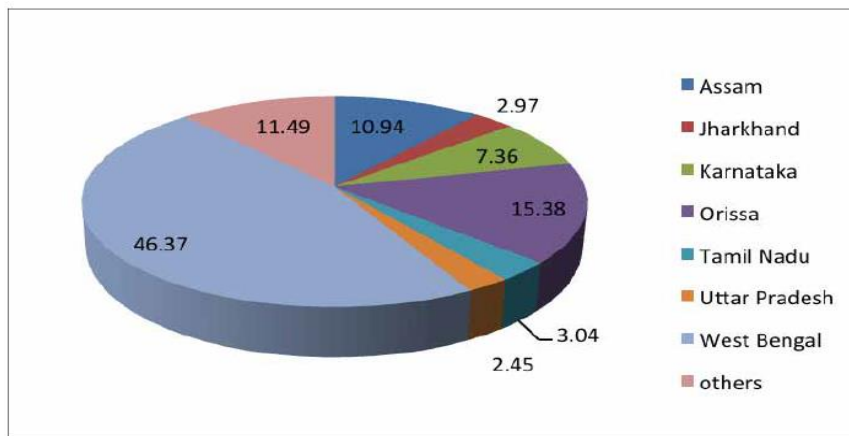
At the time, the state has experienced high fluctuation in the unemployment rates. For instance, in the year 2016, Kerala unemployment rate is higher than most of the state in India and as a result it is more than the national level of unemployment in the country ('Kerala tops'2016). The figure 3.3 depicts the unemployment rate in the state, the years that are highlighted in the graph are the once in which the migration survey for the people migrating from Kerala to Gulf was prepared. Therefore, even after a large number of people moving out of the country, among the remaining people also there is a high level of unemployment. On the contrary, looking at figure 3.4 it can be noticed that Kerala has experienced an inflow of labor force from other states. These migrants from other state are from all over India but the maximum number, that is 46.37% are from West Bengal and then 15.38% Orissa. Therefore, Kerala is stuck in a vicious cycle, Keralites moved to the Gulf and now Kerala does not have the needed labor force because of which now Kerala is getting labor from other states. This labor force working in Kerala sends money to their families living in other states, which is exactly the situation of Keralites working in Gulf.

Figure 3.3 Unemployment rate in Kerala



Source: Author's illustration based on Kerala Migration Survey (Zachariah and Rajan 2014)

Figure 3.4 Inter-state Labor Migrants in Kerala



Source: Economic Review for Kerala (2017)

### 3.3 Manufacturing Sector of Kerala

Table 3.2 District wise industries

District	Industries
Kannur	Handlooms, power looms, beedi
Alappuzha	Coir products
Idukki	Agriculture and forest-based
Thiruvananthapuram	Handlooms, IT
Thrissur	Powerlooms, handlooms, textile, timber, tile, canning
Palakkad	Powerlooms, sericulture
Kollam	Minerals and mining
Kozhikode	Rubber
Wayanad	Minerals and mining
Kasargod	Minerals and mining
Kottayam	Rubber, food products, engineering
Ernakulam	IT

Source: Indian Brand Equity Foundation (IBEF) (2014)

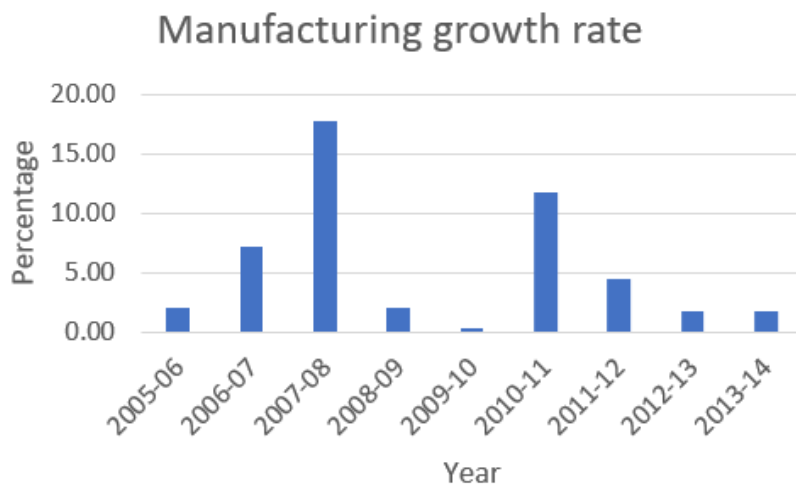
Historically, Kerala was involved in the production of rubber, chemical products, and the coir industry. However, with changing structure of the economy of the state, Kerala moved towards the service sector. Table 3.2 mentions the various industries present in the districts of Kerala. However, apart from all India's most popular Information Technology, the state is also involved in tourism and the healthcare. South Indian states are internationally known for their

medical treatment. However, the ayurvedic medicine industry is quite famous in particularly in Kerala.

Harilal (2009) mentioned that the Ayurvedic medicine in Kerala is natural and traditional, but at the same time it is internationally popular. This industry can be expanded to use it as an advantage for economic growth. Kerala State Industrial Development corporation (n.d.) mentioned in a report that the state has ayurvedic medicines, hospitals and hotels providing ayurvedic therapy. Though this industry will not completely be a manufacturing based industry, it requires the service sector to promote the industry. However, it is a kind of industry which can be expanded under Kerala’s constrained economy. Moreover, with time the ayurvedic industry in Kerala has noticed substantial use of technology as well (Abraham 2013)

Unfortunately, recent data is not clearly available for the Ayurveda Industry. However, the state and national government declared that ayurvedic medicine manufacturing factory is key to Kerala’s economic growth (National Innovation Council 2012). At the same time, this sector will not face much trouble from the civil society as Ayurveda is supposed to a natural and traditional medicinal cure.

Figure 3.5 Manufacturing Growth rate in Kerala GDP



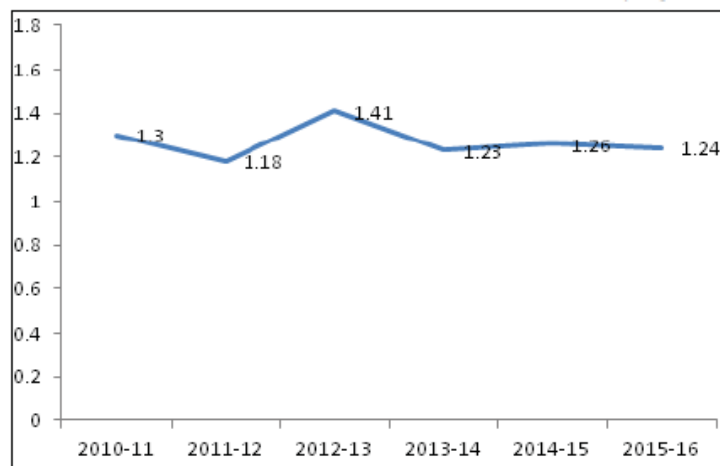
Source: Author’s Illustration based on Open Government Data(ODG)

During the period of 2005 to 2014 the figure 3.5 depicts that expect the year 2007-8 and 2010-11 the manufacturing sector growth rate in the state of Kerala was not considerably large in the GDP of the state. Again, going back to the figure 3.1 which is the sector growth in Lakhs rupees, it can be concluded that the state’s economy is most driven by the service sector.

### 3.4 Exports and Foreign Collaboration in Kerala

Kerala has been involved in the exports of various spices such as pepper, cardamom, clove, turmeric, ginger, cinnamon. At the same time Kerala exports tea and coffee. On the other hand, Kerala for years have exported chemicals, fertilizers, certain machinery. However, one of the most famous product from the state is coir. It is said that around 2/3 of coir products internationally are from India and coir products from Kerala contributes to 85% of these products. Coir is basically made from coconut and Kerala is huge producers of coconut. These products include brushes, broom, doormats, mattress. However, in the recent years as displayed in figure 3.6 that the performance in the coir industry has been low, rather stagnant since 2014. (Economic Review 2017; Coir Board of India).

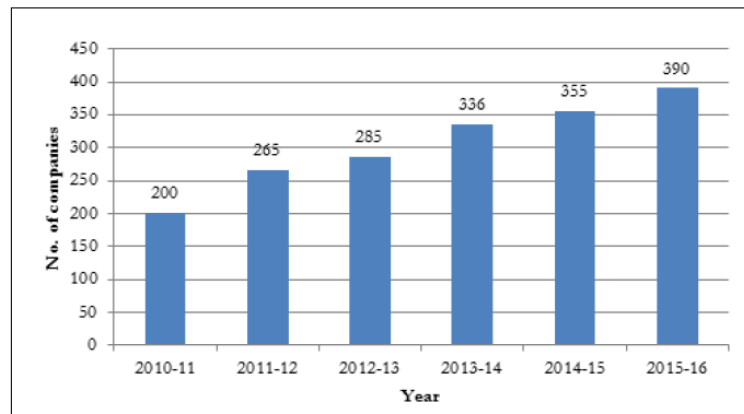
Figure 3.6 coir and coir product performance in Kerala



Source: Economic Review for Kerala 2017

As mentioned in the previous section that the Kerala's economy has been largely influenced by the service sector, this can be confirmed by its initiative of Techno Parks or technology parks. The state of Kerala introduced the Techno Park as a response to the 1990s economic reforms in India. The state decided to open doors to international and domestic companies to open companies in these techno parks. The government designs these parks to encourage maximum and efficient utilizations of resources in an assigned area. Techno Parks act as a hub for high-tech industrial work and these parks help the state to accumulate all companies in one location so that Kerala can continue maintaining its tourism and health industry in the state (Technopark 2015). Figure 3.7 gives a glimpse of the gradual expansion of the techno park in the last 5 years.

Figure 3.7 Increase in Techno Parks in Kerala



Source: Economic Review for Kerala 2017

### 3.5 Obstacles to Manufacturing Sector

The Kerala economy has experienced a downfall of the manufacturing sector a very long period. However, the manufacturing sector driven growth is considered useful for long term economic growth. Additionally, based on the literature review in the previous chapter it can be apprehended that Kerala in comparison to other states of India such as Gujarat, Maharashtra, Tamil Nadu, Karnataka is weak in terms of amount of investments done in the industrial sector plus the manufacturing sector is nowhere close to the other states.

Though it is true that India is known to be a service sector driven economy. However, in the recent years under P.M. Modi's government the GOI has initiated the NMP; the country is opening doors to expand and welcome more foreign investments to boost the manufacturing sector of the country. At various locations, National Investment and Manufacturing Zones are being formed in India. The government is trying to opt for uniform law and regulation to be an attraction for foreign investors. Therefore, over time India has understood the importance of the manufacturing sector for economic growth like that of China and other East Asian Economies ('National Manufacturing'). However, Kerala is not a part of this manufacturing upliftment process.

The economy of Kerala apart from the remittance issue has many internal issues as well which are hampering the growth of the Kerala manufacturing. These issues can be broadly understood based on the following categories: firstly, the availability of land is difficult in the state, it is quite a densely populated state compared to the total area of the state; secondly, labor is a major issue because of a high level of migration the labor is mostly unavailable in the state and the remaining labor are very particular about their labor rights, as a result the factory labor of Kerala is infamously known for their strikes and disputes. Thirdly, the political situation in

Kerala is different from that of the central government or state run by the Bharatiya Janta Party(BJP), which is basically the same party from which Prime Minister Modi belongs. The parties in Kerala have generally disliked industrialization and opening doors for FDI. However, quite surprisingly the state bureaucratic corruption has also been among other malpractices. Lastly, the civil society of Kerala is very particular about the environmental harm, they have repeatedly mentioned about the negative externalities of the manufacturing sector in Kerala (Mani 2014, Thomas 2005 and Valsa 2007)

### 3.6 Timeline of Kerala’s Growth Policies:

In order to understand Kerala government’s take on the path of development it is essential to look at the major economic policies of the state. The following timeline has been constructed based on information from various Kerala’s state government planning commission reports. Though Indian states followed Five Year Plan (FYP) structure for plans. But the timeline mentioned below is compiled from annual economic reports. The timeline below covers only the major policies and economic situation during 1980 to 2015.

Table 3.4 Time of Major Policies

Time Period	Major Policies & Economic condition
1980-1985	<ul style="list-style-type: none"> <li>• During this period the Kerala government emphasized on unemployment assistance and agricultural worker’s pension schemes.</li> <li>• The state experienced drought like situations and at the same time the financial condition of the state was not quite stable.</li> <li>• Hence, along with the entire country, even Kerala gave special importance to the New Twenty Point Programme, which aimed to uplift the poor, reduce caste differences and provide the necessary amenities.</li> </ul>
1986-1990	<ul style="list-style-type: none"> <li>• Kerala continued to face weak state finances, however, the government continued to fulfil programs to uplift the poor. In the mid of this period the state economy realized the increase in the tertiary sector and a sudden drastic decline in the secondary sector.</li> <li>• In the year 1990, the state government mentioned in their annual report that focus needs to shift on improving the manufacturing sector as it would affect the long-term health of the economy. This</li> </ul>

	<p>period experienced that migration to other parts of the country and outside India was increasing especially to Gulf countries.</p>
1991-1995	<ul style="list-style-type: none"> <li>• In the year 1991, the state government started envisioning the economy's paradoxical situation, that is, low per capita income and high per capita consumption.</li> <li>• The state performed well in improving indicators of human welfare, however, the state invested on projects which did not yield returns.</li> <li>• As a result, since the year 1992, there was a turn in the economic structure. Kerala introduced the New Industrial Policy which was aimed at the small-scale industry and contributing in employment opportunities.</li> <li>• Furthermore, Kerala Industrial Infrastructure Development Corporation (KINFRA) was introduced to improve the facilities for factory setups and provide technical assistance through Technoparks in the state. These changes encouraged investors to invest in the state.</li> </ul>
1996-2000	<ul style="list-style-type: none"> <li>• During this time, the issue of the power sector, that is shortage of electricity was a huge problem, which was a major setback for the smooth functioning of the industrial sector.</li> <li>• Continuous emphasis was given to work on decentralized planning to better address grassroot issues. Private sector participation in projects were encouraged in all sectors.</li> <li>• Efforts were made by the state government on the New Industry Policy to revive the manufacturing sector. But again, the tertiary sector dominated the economy.</li> <li>• By 2000, Kerala did manage to solve the issue of power shortage.</li> <li>• The state started to explore potentials in the Information Technology sector for the state. However, Kerala continued to have a large revenue deficit due to more non-income generating expenditure.</li> </ul>
2001-2005	<ul style="list-style-type: none"> <li>• During this period there was a drift towards the service sector once again. The government focused projects to eradicate</li> </ul>

	<p>unemployment and poverty from the state. The state government decided to improve the agriculture diversification, but did not give much importance to the industrial development.</p> <ul style="list-style-type: none"> <li>• Kerala government extended its work on the decentralized planning by proposing Kerala Development Plan, which aimed to further divide policies on taxes and benefits for each area.</li> <li>• The state government felt that the remittances received from the Gulf countries need to be utilized in production rather than consumption and welfare proposals only.</li> </ul>
2006-2010	<ul style="list-style-type: none"> <li>• This period covers the recession of 2008, though initially Indian economy did not face any drastic effect resulting in inflated prices. However, it was a situation of big concern for Kerala, as the state imported many food grains.</li> <li>• At the same time products that Kerala exported such as cashew, rubber, coir, pepper and other species dropped in price.</li> <li>• To control the ongoing situation the state government initiated measures; primary product production was encouraged and various subsidies were provided for the same.</li> <li>• At the same time, Kerala emphasized the role of the public sector via health and education sector.</li> <li>• To technically uplift and modernize the state, the government initiated plans for IT, biotechnology, infrastructural improvement and the tourism sector of Kerala.</li> </ul>
2011-2015	<ul style="list-style-type: none"> <li>• The effect of the recession was realized for a long period of time in the world. Kerala in particular is a state in India which faced drastic effects of the global crisis as the state depends largely on external factors for the well-being of the state economy because the state receives large amount of remittance and the state imports many food grains. During this time a large number of Keralites from the Gulf countries started to permanently return back to Kerala.</li> <li>• During this time, the government of Kerala continued to emphasize on the agricultural sector.</li> </ul>



	<ul style="list-style-type: none"><li>• At the same time as unemployment rate in the state persisted; to resolve the situation Kerala State Entrepreneurs Development Mission was initiated to promote business ideas and self-employment. Though in the industrial front no specific policy was declare, however, the Micro Small Medium Enterprises(MSMEs) played an important role in providing for decent number of employment opportunities.</li></ul>
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Source: Author's compilation of the various Annual Economic Reports from the Kerala State Planning Commission (KSPC)

## Chapter-4

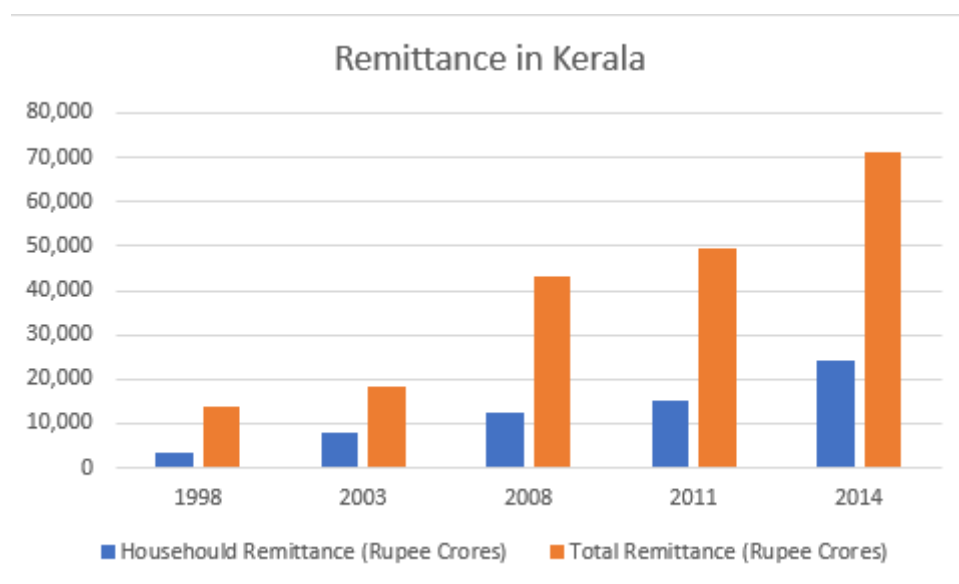
### Analysis- Graphical

In this chapter, the analysis is done with the help of graphical and analytical tools. The chapter tries to show the economic situation and its future potentials. The chapter gives a detailed analysis of the migration and the level to which it has affected the economic and educational level. To test the government initiatives mentioned in the previous chapter, to improve the industrial environment there is a comparative investment intension analysis done in this chapter with respect to Gujarat and Tamil Nadu.

#### 4.1 Kerala's low manufacturing and dependence of remittance

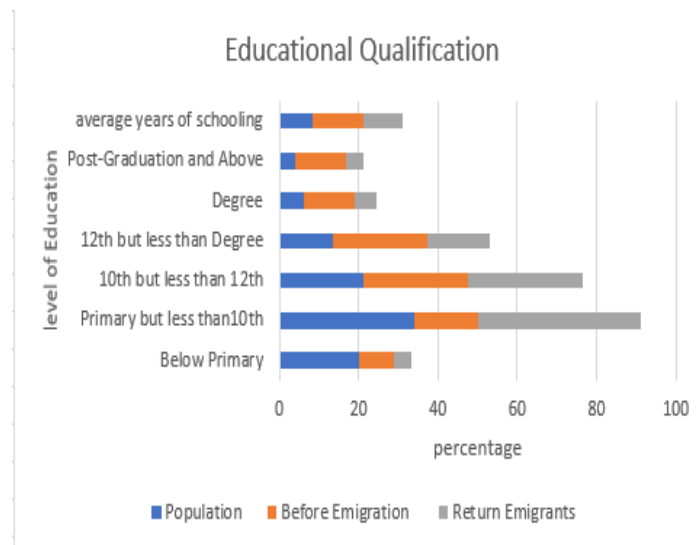
The situation in Kerala has been repeatedly compared as a victim of Dutch Disease. It has been assumed that remittances are mostly sent for household benefits of the recipients back home. But interesting figure 4.1 depicts a slightly different understanding, the data is collected from the Kerala Migration Survey published in 2014. In blue is the household remittances, that is, sent back to the country for of independent consumption and in orange is the total remittance received. The distinction is done to shed light on the fact that the money sent to Kerala as remittance is not just limited to consumption. Some people use this money to further investment. Therefore, it is vital to note that remittance is not the only driver of the economic crisis in the state in terms of greater demand for non-tradable goods.

Figure 4.1 Remittance in Kerala



Source: Author's illustration based on data from Kerala Migration Survey (2014)

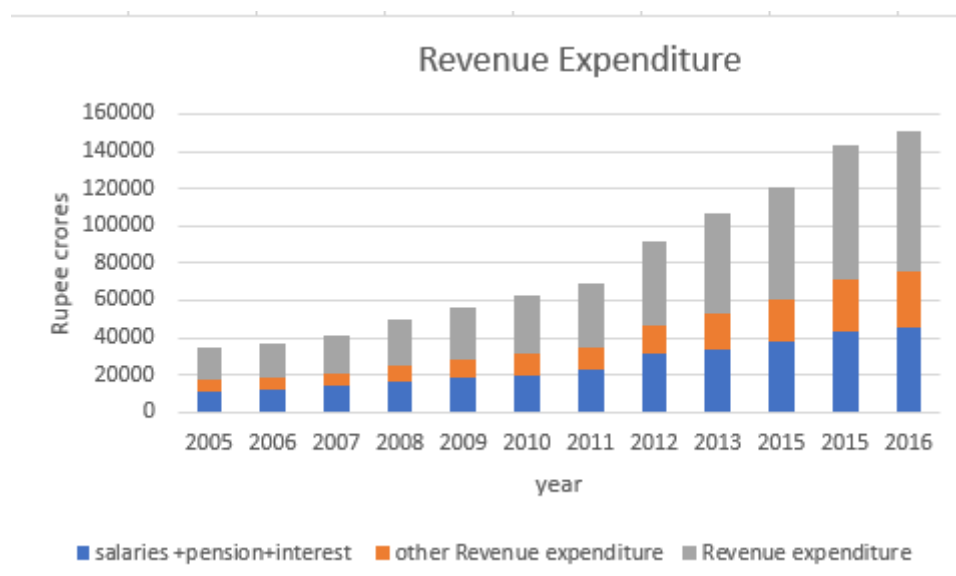
Figure 4.2 Education Qualification of the Emigrants



Source: author's illustration based on Kerala Migration Survey (2014)

Kerala has been repeatedly praised for its high human development and contribution in social sector. The state is supposed to have the highest educated population (Parayail 1996). However, a very surprising data was found which has been depicted in figure 4.2, the figure shows the different levels of education of individuals before they move abroad and after they decide to return back to Kerala. The level of education varies from below primary level of education to post graduation and above degrees. One can notice that after returning to Kerala these individuals do not engage much in education except for the category of primary to grade 10 education increased drastically after the migrants returned. This basically includes the population which moved abroad without basic educational qualification as unskilled or semi-skilled laborers. Therefore, the people of Kerala who intend to migrate involved themselves in education to move of the state no necessary to improve their skills. At the same time the less educated in hope to earn more money level their homes as well.

Figure 4.3 Revenue Expenditure in Kerala



Source: author's illustration based on Government of Kerala financial data (2016)

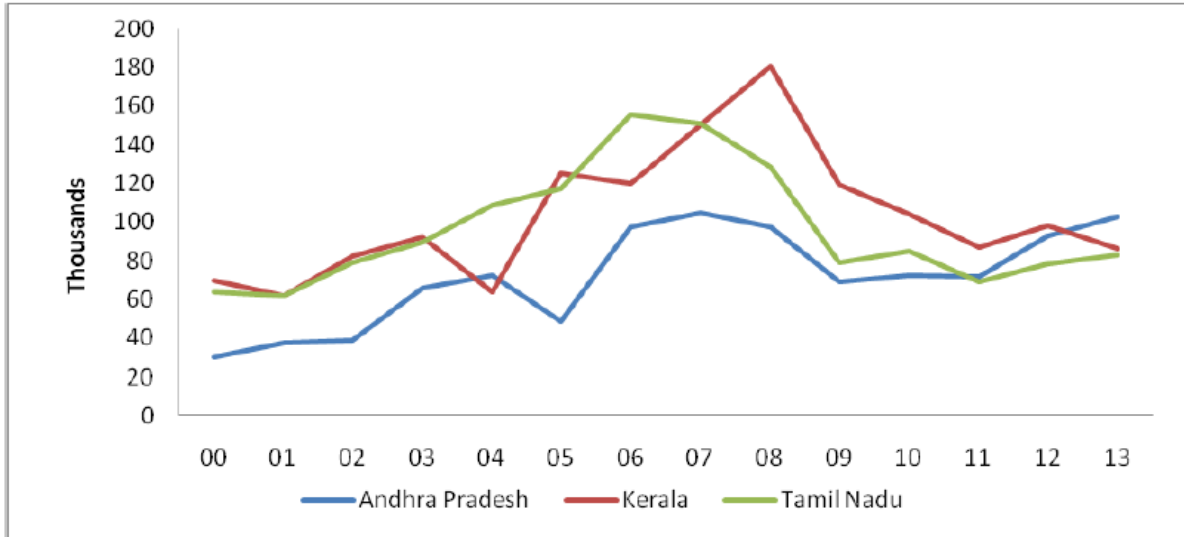
Remittance is not the only problem; the proper allocation and utilization of the revenue also lacks in the economy. In figure 4.3 the revenue expenditure in Kerala is given from the year 2005 to 2016. It can be noticed that out of the total revenue expenditure a larger portion is devoted for salaries, pensions, and payments of interests. This basically means that the revenue earned by the government of Kerala is not translated towards growth and development of the state. The state government is focusing on the individual household welfare, not the economy. Additionally, as mentioned in the previous chapter that Kerala has been experiencing an inflow of the labor in the state, therefore, salary payment mentioned in 4.3 also includes the labor of other states, implying that a large portion of salary is basically remitted outside Kerala.

#### 4.2 Comparative study

In this section a comparative study is done to understand Kerala's position as compared to other Indian state. The concept of migration to the Gulf was popular in the other south indian state of India as well. However, the economies of these state did not stagnate in terms of industrial growth (Zachariah and Rajan 2014).

In figure4.4 the a general understanding of the level of migration in three south Indian states, that is, Kerala, Tamil Nadu and Andhra Pradesh are depicted based on the emigration clearnce level. However it is immportant to note that this is not specifically for the Gulf region. It is just to understand the level of migration. Here, Andhra Pradesh remained quite low in comparison with Tamil Nadu and Kerala. Though at the end of 2013 there has been a slight rise.

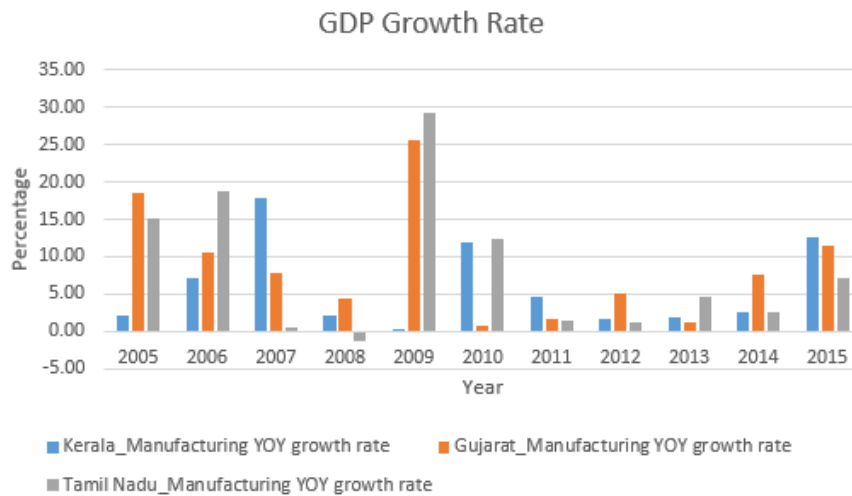
Figure 4.3 Emigration clearance of three South Indian States



Source: Migrant Forum in Asia (2014)

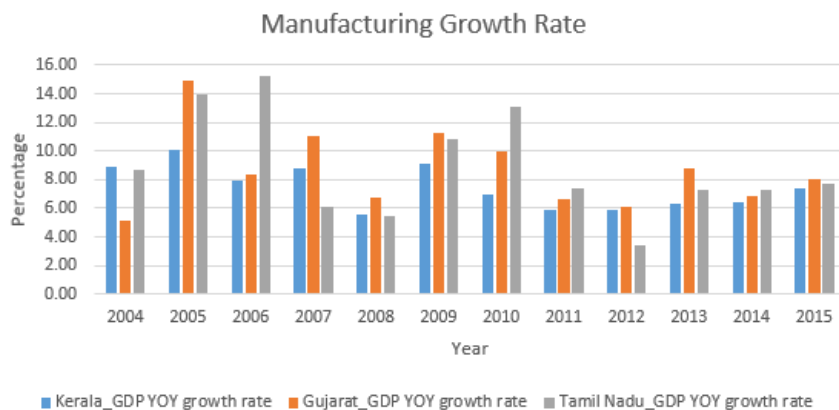
The point of this figure is to understand that migration has been quite a common phenomenon in the India. Tamil Nadu and Kerala both are involved in migration. However, state level planning to maintain the economy has been significantly different. Balasubramanyam (2015) compared the paths of development chosen by Kerala and Tamil Nadu. He pointed out the strategic difference between the two states, on one end Kerala choose to get involved in migration and but not open doors to FDI. However, Tamil Nadu opened its economy to FDI in the manufacturing sector at very large scale. Therefore, Tamil Nadu chose the Kaldorian approach of manufacturing led economic growth of the state and Kerala decided to improve the social development.

Figure: 4.5 GDP Growth Rate



Source: Author's Illustration based on data from NITI Aayog

Figure 4.6 Manufacturing Growth Rate



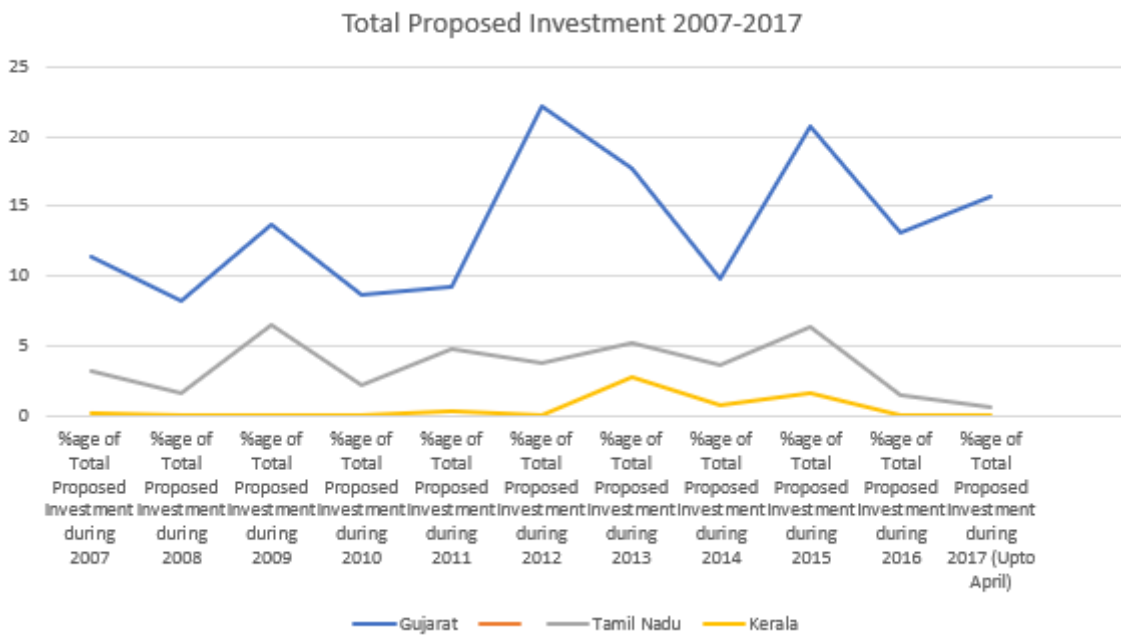
Source: Author's Illustration based on data from NITI Aayog

Figure 4.5 and 4.6 depicted above are a comparative graphical representation of the growth rate of GDP and manufacturing growth rate for the states of Kerala, Gujarat and Tamil Nadu. In terms of GDP growth rate, Gujarat and Tamil Nadu are competitive. In terms of manufacturing, Kerala is left behind in most of the years, but Gujarat and Tamil Nadu moving ahead at the same pace.

Figure 4.7 and 4.8 deals with the proposed investments and the total industrial proposals respectively in the states of Kerala, Tamil Nadu and Gujarat. The choice of states has been based on the states which are largely involved in manufacturing activities and are also compared to Kerala on various occasions. Figure 4.7 depicts the proposed investment from 2007 to 2017. Proposed Investment is the investments proposed by the government in a year. The proposed investment rates have been highest in Gujarat; however, these proposals are not

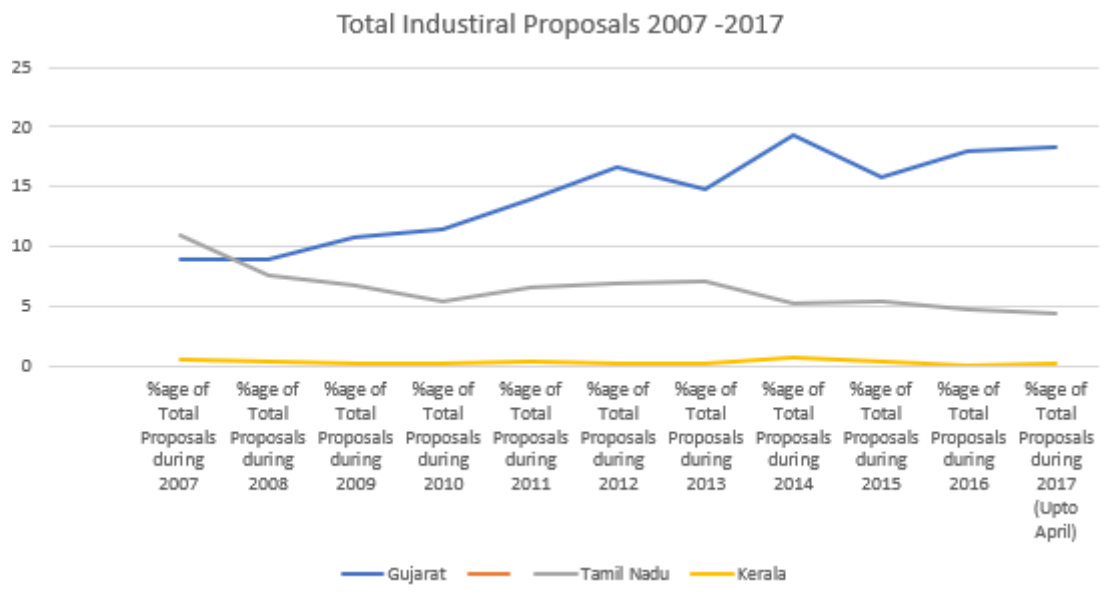
stable for every year. Followed by Tamil Nadu in a similar pattern but at a lower level of proposed investment. However, Kerala's proposed investment has been significantly nil, though there have been two periods of upward movement, that is in 2013 and 2014. But again, it falls back to the same position.

Figure4.7 Total Proposed Investment in three Indian states



Source: Author's illustration based on data from Open Government Data (OGD)

Figure 4.8 Total Industrial Proposals for three Indian states



Source: Author's illustration based on data from Open Government Data (OGD)

Total industrial proposals basically are a percentage of the Industrial Entrepreneurs' Memorandum (IEMs) and License of Industry (LOI) filed, these documents are required while setting up an industry or expanding an existing one. This acts as evidence of the actual situation compared to the last figure 4.7. Here figure 4.8 gives a broader picture from 2007 to 2017. It is evident that the industrial proposal in Kerala are extremely low almost nil in comparison with the other two states. However, Gujarat highest both in terms of proposed investment and total industrial proposals. Tamil Nadu might not be as competitive as Gujarat, yet it has greater proposals than Kerala.



## Chapter-5

### Econometric Analysis

This chapter will analyze the role of manufacturing in the GDP for the states of; Kerala, Gujarat and Tamil Nadu. The analysis is done to validate Kaldor's first law, that there is a positive correlation between Manufacturing output and GDP. However, it is to note that in the first law, as explained in section 2.2 Of chapter 2 that he first explains the positive relationship between the manufacturing output and the GDP growth, and later in the same law he also analyzes the positive relation of the of the manufacturing sector on the non-manufacturing sectors (Thirlwall 1983). But in this research paper the model is strictly limited to understanding the economic growth in terms of the manufacturing sector only.

In this chapter, the Ordinary Least Squares (OLS) method is used by the software named STATA. The data is collected from NITI Aayog, which is the present planning commission of India. The data for the three states are taken for 35 years from the period of 1981-2015 at constant prices, that is, it a time series analyses. A panel Data was not considered for the research paper as the research wanted to primarily focus on Kerala and compare it to the two states with which Kerala has been historically compared and contrasted.

NOTE: In India since 2011-2012 GDP series adopted the Gross Value Added at basic price, which is basically Gross value added at factor cost plus the production tax minus the production subsidies. This new method was used to reach the Gross Domestic Product at market price, which includes production and product tax, excluding production and product subsidies. However, prior to this series Indian GDP was mentioned in terms of GDP at factor cost. Due to unavailability of similar specification in the older series and to keep the data synchronized, all the series are rebased to 2004-2005 series. By doing so the sudden rise in GDP value of the 2011-2012 series are proportionately reduced to provide an estimate for the time period.

#### 5.1 Findings

Before heading towards the findings of the analysis, the equation described by Kaldor for explaining the relationship between manufacturing output and GDP based on his first law is mentioned below:

$$Y_t = \alpha + \beta X_t + \mu$$

Where,  $Y_t$  = The Gross Domestic Product (GDP) growth rate

$\alpha$  = The Y intercept

$X_t$  = The manufacturing output growth rate

$\beta$  = the coefficient for manufacturing growth rate

$\mu$  = The error term

Error Term signifies the stochastic relationship between the variables under consideration.

Kaldor's result:

$$G_{GDP} = 1.153 + 0.614(g_m), R^2 = 0.959$$

(0.040)

In this section, each state is firstly described by the descriptive statistics, which explains the mean, standard deviation, minimum value and maximum value for all the variables under consideration. Before conducting the regression, it is vital to check the stationarity of the variables so that the problem of spurious regression does not arise. However, since the data under consideration is growth rate, that is, in first difference form which means that the data should be stationary. Nevertheless, in this section for all the variables perform the Augmented Dickey Fuller (ADF) test to check for stationarity. Under the ADF test, if the test statistics in absolute term exceeds the critical value then it is declared stationary.

**Kerala:**

Table 5.1 Descriptive Statistics Kerala

Variable	Mean	Standard Deviation	Minimum	Maximum
Kerala GDP growth rate	5.83	3.15	-2.98	10.70
Kerala Manufacturing growth rate	4.65	6.84	-7.60	17.76

Table 5.2 ADF Test Kerala

Variable	Test Statistic	1% Critical value	5% Critical value	10% Critical value
Kerala GDP growth rate	-4.249	-3.689	-2.975	-2.619
Kerala Manufacturing growth rate	-5.311	-3.689	-2.975	-2.619

Table 5.1 is the descriptive statistics for the state of Kerala, it records the lowest and highest rate of GDP and manufacturing growth rate during 1981 to 2015. The standard deviation is high, suggesting that the series spreads from the mean value mentioned in 5.1. Table 5.2

mentions the ADF test results for Kerala, according to which the null hypothesis can be rejected at 99% for both GDP and manufacturing rate, that is, they are stationary.

Table 5.3 Regression Result Kerala

	Kerala GDP b/se/p
Kerala Manufacturing	0.173* (2.33)
cons	5.022*** (8.26)
N	35

t statistics in parentheses  
\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Post the description of the data and testing for ADF finally the regression results are present in table 5.3 for Kerala. The OLS model for Kerala is depicted below:

$$\mathbf{GDP_{KERALA} = 5.022 + 0.173x_m, R^2 = 0.14}$$

**(2.33)**

The parameter estimate for manufacturing is 0.17 and it is significant at 95% level. This means that a 1% increase in the manufacturing growth rate in Kerala increases GDP growth by only 0.17 %. The relationship between manufacturing and GDP growth is very low in Kerala. The corresponding R<sup>2</sup> value is only 0.14 which indicates a low degree of explanatory estimation of the equation. The y intercept value of 5.022 suggests that if the manufacturing growth was zero then also the GDP will be at the level of the y intercept with the help of other sectors.

**Tamil Nadu:**

Table 5.4 Descriptive Statistics Tamil Nadu

Variable	Mean	Standard Deviation	Minimum	Maximum
Tamil Nadu GDP growth rate	6.65	4.22	-4.21	15.21
Tamil Nadu Manufacturing growth rate	5.48	8.11	-8.38	29.18

Table 5.5 ADF Test Tamil Nadu

Variable	Test Statistic	1% Critical value	5% Critical value	10% Critical value
Tamil Nadu GDP growth rate	-4.968	-3.689	-2.975	-2.619
Tamil Nadu Manufacturing growth rate	-5.916	-3.689	-2.975	-2.619

The next state is Tamil Nadu, the descriptive statistics and ADF results are present in table 5.4 and 5.5 respectively. The maximum value attained in table 5.4 are higher than that of Kerala in the previous analysis. The ADF test rejects the null hypothesis for both the GDP and manufacturing growth at 99%, meaning the variables are stationary.

Table 5.6 Regression Result Tamil Nadu

	Tamil Nadu GDP b/se/p
Tamil Nadu Manufacturing	0.330*** (4.72)
cons	4.839*** (7.14)
N	35

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Table 5.6 presents the result of the regression analysis. The OLS model obtained can be written as follows:

$$\text{GDP}_{\text{Tamil Nadu}} = 4.84 + 0.33x_m, R^2 = 0.40$$

(4.72)

This model suggests that a 1% increase in manufacturing will increase GDP by 0.33%. The value is significant at 99.9%. This value is less than Kaldor's equation yet it is more than Kerala's estimates. The  $R^2$  is 0.40, which is lower than a good  $R^2$  estimate, yet it is higher than that for Kerala. The y intercept is 4.84, suggesting the situation even when manufacturing growth is zero in the state, though it is high but in comparison to Kerala it is lower.

### Gujarat:

Table 5.7 Descriptive Statistics Gujarat

Variable	Mean	Standard Deviation	Minimum	Maximum
Gujarat GDP growth rate	7.45	8.81	-8.77	35.25
Gujarat Manufacturing growth rate	8.89	12.04	-17.53	52.93

Table 5.8 ADF Test Gujarat

Variable	Test Statistic	1% Critical value	5% Critical value	10% Critical value
Gujarat GDP growth rate	-9.512	-3.689	-2.975	-2.619
Gujarat Manufacturing growth rate	-9.707	-3.689	-2.975	-2.619

Table 5.7 and 5.8 are the descriptive statistics and ADF results for the state of Gujarat. From the table 5.7 one can notice that the state's highest achieved growth rate is 35.25 and 52.93 for GDP and manufacturing respectively in the state of Gujarat. These values are higher than the other two states. However, it is vital to notice that the standard deviation for the state is 8.81 and 12.04; these high standard deviations suggests that during the period of analysis the growth deviated highly from the mean value. Table 5.8 suggests that the null hypothesis was rejected at 99% for both the GDP and manufacturing growth in Gujarat.

Table 5.9 Regression Result Kerala

	Gujarat GDP b/se/p
Gujarat Manufacturing	0.498*** (5.34)
cons	3.021* (2.18)
N	35

t statistics in parentheses  
\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Table 5.9 is the result of the regression analysis between manufacturing and GDP in Gujarat. The OLS Model for Gujarat is as follows:

$$\text{GDP}_{\text{Gujarat}} = 3.021 + 0.50x_m, R^2 = 0.46 \quad (5.34)$$

The model suggests that a 1% increase in the manufacturing sector in Gujarat would result in a 0.50% increase in GDP. This value is by far the highest among the three states under consideration for the analysis. The coefficient for manufacturing is significant at 99.9% level. At the same time the  $R^2$  value is 0.46; which is greater than the value of  $R^2$  for Kerala and Tamil Nadu. Finally, the y intercept is 3.02, which is the lowest value of GDP among the three states when manufacturing is nil.

This indicates that the largest effect of manufacturing on the GDP is in Gujarat, followed by Tamil Nadu and the lowest is in Kerala.

## 5.2 Econometric Analysis Remarks

The result obtained may not display a high correlation between manufacturing output and GDP as Kaldor found through his analysis. However, it is to be kept in mind that this particular research paper is focusing on a state level analysis for only three selective states of India. At the same, it is essential to recollect as mentioned in the theoretical evidence that Indian economy has a big contribution through the services sector. Yet for all the three states there is positive relation with the GDP. Though the results obtained in the above analysis displayed a high variability in terms of a low  $R^2$  value, yet all the variables were statistically significant. Furthermore, the paper is studying the low level of manufacturing driven growth

in the state of Kerala and now based on the findings it can be confirmed, that indeed the state has a very low contribution from the manufacturing sector. Also, based on the sub question of the research paper, it intended to compare the manufacturing and GDP relation for the state of Tamil Nadu and Gujarat as these states are considered to have higher contribution from the manufacturing sector in India. Indeed, post the analysis it can be concluded that Gujarat has the highest manufacturing sector contribution to GDP followed by Tamil Nadu among these three states.

### **5.3 Limitation and Scope of Improvement of Analysis**

To further understand the effect of the various shift in economic policies mentioned in chapter1 and 2 such as the 1990 economic reforms and 2001 to 2014 in the case of Gujarat, as during this time Narendra Modi was the Chief Minister of the state, his tenure is considered to have experienced the economic growth in Gujarat. Considering these two major shifts I tried running the regression including dummy variables for the above-mentioned scenarios, however, both the coefficient of manufacturing and the  $R^2$  was no different from the analysis already present in section 5.1. Hence, the analysis has not been presented in the paper.

Scope of improvement of the Analysis include; firstly, analyses by a sector-wise comparison for the three states to further understand which sector is dominant. At the same time, complete first law of Kaldor could have provided evidence for the relationship between manufacturing and non-manufacturing sector. Additionally, if the analysis was done in comparison to India then it could have been helpful for a nationwide comparison with Kerala.

## **Chapter-6**

### **Conclusion and Policy Implication**

#### **6.1 Conclusion**

In conclusion, based on the research paper and the evidences collected it can be concluded that Kerala's path of development is different from other states in India as it has the advantage of higher social indicators. However, this advantage has backfired in providing jobs to the educated population of the state due to both unavailability of jobs and the mindset of the people. This resulted in the state experiencing the highest unemployment and factory dispute rates in the country. Kerala's low contribution of manufacturing output in the GDP can be confirmed both by the theoretical and econometric analysis. However, in the case of Gujarat and Tamil Nadu, though the theoretical framework describes their extensive association with the manufacturing sector, but the econometric results are not as strong as Kaldor's equation coefficients. This indeed verifies the criticism mentioned in the literature review regarding Indian state's bend towards the service sector. Nevertheless, it is vital to point out that based on the timeline of policies adopted by the state of Kerala, the issue of unemployment remains. The policies were mostly driven by the service and agricultural sector. At the same time, Kerala's external dependency and revenue expenditure largely on welfare is an alarming situation. Moreover, the increase in fluctuations in the remittance received and the returning migrants in the state is further building pressure on the issue of unemployment rate. Therefore, in the section 6.2 are mentioned some policy implication as suggestive measure for Kerala's long-term health of the economy.

#### **6.2 Policy Implication:**

- In order to improve the role of the manufacturing sector or to understand the root cause of low contribution of the manufacturing sector to the GDP it is essential that a study is conducted to analyze the severity of causes which hinder the improvement of manufacturing sector.
- The state government of Kerala spends revenue expenditure extensive on salaries, pensions and interest. The government of the state needs to utilize the revenue in income returning prospects and not welfare alone. Kerala state government may utilize



the revenue expenditure and provide subsidies towards the development of the manufacturing sector.

- Kerala's external factor dependency in terms of import of food grains, remittance and labor from other states of India weakens the economy of Kerala. Kerala has technically advanced infrastructure and Technoparks/ industrial parks which the state needs to use as an advantage to appeal investors and start-up ideas.
- The state government of Kerala should recognize the potential of the manufacturing sector in terms of employment opportunities because the state could not get rid of the unemployment issue with its successful service sector alone and with the migrants increasingly returning back to Kerala, provision of jobs should be the state's top priority.

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## Appendix- Appendix 1

### Kerala's regression analysis

```
. reg Kerala_GDPYOYgrowthrate Kerala_ManufacturingYOYgrowth
```

Source	SS	df	MS	Number of obs	=	35
				F(1, 33)	=	5.43
Model	47.5512155	1	47.5512155	Prob > F	=	0.0261
Residual	289.090148	33	8.76030753	R-squared	=	0.1413
				Adj R-squared	=	0.1152
Total	336.641364	34	9.90121658	Root MSE	=	2.9598

Kerala_GDPYOYgrowthrate	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Kerala_ManufacturingYOYgrowth	.1729977	.0742539	2.33	0.026	.021927	.3240683
_cons	5.021872	.6079807	8.26	0.000	3.784926	6.258818

```
. reg Gujarat_GDPYOYgrowthrate Gujarat_ManufacturingYOYgrowth
```

Source	SS	df	MS	Number of obs	=	35
				F(1, 33)	=	28.49
Model	1223.12192	1	1223.12192	Prob > F	=	0.0000
Residual	1416.58273	33	42.9267493	R-squared	=	0.4634
				Adj R-squared	=	0.4471
Total	2639.70464	34	77.6383719	Root MSE	=	6.5519

Gujarat_GDPYOYgrowthrate	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Gujarat_ManufacturingYOYgrowth	.4977912	.0932559	5.34	0.000	.3080607	.6875218
_cons	3.021467	1.38331	2.18	0.036	.2071021	5.835832

```
. reg TamilNadu_GDPYOYgrowthrate TamilNadu_ManufacturingYOYgro
```

Source	SS	df	MS	Number of obs	=	35
				F(1, 33)	=	22.24
Model	243.423857	1	243.423857	Prob > F	=	0.0000
Residual	361.225151	33	10.9462167	R-squared	=	0.4026
				Adj R-squared	=	0.3845
Total	604.649009	34	17.7837944	Root MSE	=	3.3085

TamilNadu_GDPYOYgrowthrate	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
TamilNadu_ManufacturingYOYgro	.3299394	.0699656	4.72	0.000	.1875933	.4722855
_cons	4.839144	.6780773	7.14	0.000	3.459585	6.218703



## Appendix 2

Augmented dickey Fuller Tests:

The results for the Dickey Fuller test for GDP and manufacturing for Kerala, Gujarat and Tamil Nadu are present below:

```
. dfuller Kerala_GDPYOYgrowthrate, lags(0)
```

```
Dickey-Fuller test for unit root           Number of obs   =       34
```

Test Statistic	Interpolated Dickey-Fuller			
	1% Critical Value	5% Critical Value	10% Critical Value	
Z(t)	-4.249	-3.689	-2.975	-2.619

```
MacKinnon approximate p-value for Z(t) = 0.0005
```

```
. dfuller Kerala_ManufacturingYOYgrowth, lags(0)
```

```
Dickey-Fuller test for unit root           Number of obs   =       34
```

Test Statistic	Interpolated Dickey-Fuller			
	1% Critical Value	5% Critical Value	10% Critical Value	
Z(t)	-5.311	-3.689	-2.975	-2.619

```
MacKinnon approximate p-value for Z(t) = 0.0000
```

```
. dfuller Gujarat_GDPYOYgrowthrate, lags(0)
```

```
Dickey-Fuller test for unit root           Number of obs   =       34
```

Test Statistic	Interpolated Dickey-Fuller			
	1% Critical Value	5% Critical Value	10% Critical Value	
Z(t)	-9.512	-3.689	-2.975	-2.619

```
MacKinnon approximate p-value for Z(t) = 0.0000
```

. dfuller Gujarat\_ManufacturingYOYgrowth, lags(0)

Dickey-Fuller test for unit root Number of obs = 34

Test Statistic	Interpolated Dickey-Fuller		
	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-9.707	-3.689	-2.619

MacKinnon approximate p-value for Z(t) = 0.0000

. dfuller TamilNadu\_GDPYOYgrowthrate, lags(0)

Dickey-Fuller test for unit root Number of obs = 34

Test Statistic	Interpolated Dickey-Fuller		
	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-4.968	-3.689	-2.619

MacKinnon approximate p-value for Z(t) = 0.0000

. dfuller TamilNadu\_ManufacturingYOYgro, lags(0)

Dickey-Fuller test for unit root Number of obs = 34

Test Statistic	Interpolated Dickey-Fuller		
	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-5.916	-3.689	-2.619

MacKinnon approximate p-value for Z(t) = 0.0000