IMPACT OF TARIFF REGULATIONS ON PRIVATE TERMINALS OPERATING IN THE MAJOR PORTS OF INDIA

(With Special reference to CCTL, CITPL & IGTPL)

A dissertation submitted to the School of Maritime Management, Indian Maritime University in partial fulfilment of the requirements for the award of degree in MBA- International Transportation and Logistics Management

Submitted

by

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DECLARATION

I, ARJUN P SURESH **(Reg. No. 1903305007)**, student of School of Maritime Management, Indian Maritime University – Chennai Campus, hereby declare that this project report titled **IMPACT OF TARIFF REGULATIONS ON PRIVATE TERMINALS OPERATORATING IN THE MAJOR PORTS OF INDIA (With special reference to CCTL, CITPL & IGTPL)** submitted in partial fulfilment of the requirement for the degree of **Master of Business Administration in International Transportation and Logistics Management** is my original work carried under the guidance of my project guide. It has not formed the basis for the award of any Degree/Diploma of any University/Institution. The information submitted is true and original to the best of my knowledge.

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EXECUTIVE SUMMARY

Infrastructure development is the key in the economic development of the country. Ports are an important gateway that is of a paramount importance to International trade and commerce. In India, 95% of all import and export activities are happening through the seaports in the east and west coast of India. Of that, 20% are containerized cargo and those are handled in India's container terminals. So, infrastructure development is very important for the country's economic development and overall prosperity.

Port development is a very time consuming and capital-intensive activity and even though till early 1990s the GOI has been at the forefront of port infrastructure development, the changing competitive landscape has necessitated private partnerships so that the burden of the capital for development of ports can be shared with private entities. Thus, gave rise to the introduction of Public private partnerships in ports. In India, this is done through a landlord port model where the port authority or the government acts as a landlord and the private party is given a concession agreement where they can build operate and transfer the terminal after the concession period ends. This BOT model is only one type of such models through which PPP participation can be ensured.

Almost all major ports have such PPP agreements and many of the country's container terminals are being operated by private parties on the basis of such concession agreement. The scale of rated of operation is determined by an independent authority called TAMP which acts as an extra-governmental regulatory authority that is set up in 1997 for this specific purpose of fixing tariffs in Major ports of India.

TAMP only regulates major ports and the scale of rates that is being fixed by TAMP aren't as competitive as that of the terminals operated by other private operators in Non-major ports. This irregularity and the illogical way in which TAMP fixes tariffs for all the major port terminals causes an unfair advantage to the major ports and the private terminal operators in those ports. So, this study evaluated the PPP models of major ports in India and the performance of operators under the landlord port governance of authority. It also evaluated and determines the biggest beneficiaries of these concession agreements in each of the terminals that is selected for this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

BOMST	Build Operate Maintain Share and Transfer
BOO	Build Own Operate
BOOT	Build Own Operate Transfer
BOT	Build Operate Transfer
RTGs	Rubber Tired Gantry cranes
CCTL	Chennai Container Terminal Limited
CITPL	Chennai International Private Terminal Limited
IGTPL	Indian Gateway Terminal Private Limited
PPP	Public Private Partnerships
PSA	Port of Singapore Association
TEU	Twenty Foot Equivalent Unit
MTEU	Million Twenty Foot Equivalent Unit
ICTT	International Container Transhipment Terminal
CAGR	Compound Annual Growth Rate
CFS	Container Freight station
GDP	Gross Domestic Product
IPA	Indian Ports Association
JNPT	Jawaharlal Nehru Port Trust
MMT	Million Metric Tons
SEZ	Special Economic Zone
SPV	Special Purpose Vehicle
TAMP	Tariff Authority for Major Port

CHAPTER – 1

INTRODUCTION

1.1 Infrastructure Challenges in India

India is the fifth largest economy in the world and the only thing that is hindering its growth and development is its lack of world class infrastructure. Estimates suggest that this lack of adequate infrastructure reduces India's GDP growth by 1-2 percent every year. Fast growth of the Indian economy in recent years has placed increasing stress on physical infrastructure, such as electricity, railways, roads, ports, airports, irrigation, water supply, and sanitation systems, all of which already suffer from a considerable deficit.

Physical infrastructure has a direct impact on the growth and overall development of the economy. The goal of achieving the five trillion economy can only be achieved if the country overcomes its infrastructure challenges and infrastructure deficits. Better ports, railroads, hinterland connectivity and other infrastructures can help bring in better investments and encourage investors to invest in India. To develop infrastructure in this country, the GoI is required to review the budgetary allocation, tariff plan, fiscal incentives, private sector participation, and public-private partnerships (PPPs).

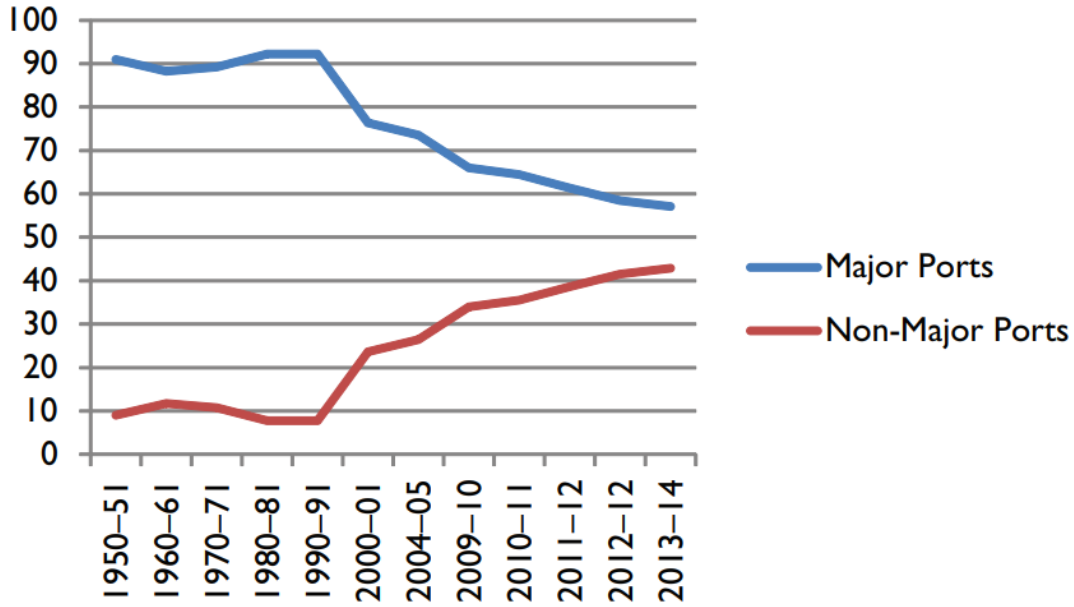
While roads are the primary mode of connectivity and is considered the backbone of Indian transport infrastructure, it is inadequate in terms of the quality, quantity and connectivity that it offers the ports and other modal interchanges. Further, the ports in India are in desperate need of modernisation. It is expected that the public sector will take the lead in the development of transport infrastructure especially in capital intensive sectors like ports. But that alone is not sufficient to cater to the growing needs of the 21st century. Public sector has a lot of administrative and other limitations that are difficult to circumvent and this can only be bypassed by the introduction of private parties into the infrastructure development sector. And the resources needed are much larger than what the public sector can provide. [1]

This Project discusses the feasibility and the successes of such public private partnerships in major ports of India and how beneficial it has been to the various stakeholders.

1.2 Background of the study and Literature Review

Ports play an important role in maritime nations by facilitating foreign trade. They are thus catalysts for social and economic development in any maritime nation. Maritime transportation has been the life blood of world trade since time immemorial. Though new modes of transportation have grown enormously, shipping shall continue to occupy the largest share in world trade in the coming future because of the economics of sea transportation. India is a developing maritime nation with a huge market and an extensive coastline extending to 5660 km. Currently there are 12 major ports, 23 intermediate ports and 144 non-major ports in India, classified in terms of the Indian Ports Act, 1908. Of the 11 major ports, five are located on the eastern seaboard, namely, Calcutta, Haldia, Paradip, Visakhapatnam, Madras and Tuticorin, while the other six, namely Kandla, Nhava-Sheva, Bombay, Mormugoa, New Mangalore and Cochin, lie on the west coast. [2]

Till liberalization in 1990s, Indian policymakers were motivated by the philosophy of self-reliance and public sector dominance. The port sector also came in this category. All major ports were owned and operated by the government. India's share of world trade fell from 2.2 percent at independence in 1947 to 0.4 per cent in the 1980s. India's ports in the 1980s suffered from obsolete technology, low loading rates, chronic congestion and delays, and poor connectivity with the hinterland. After pursuing a strategy of self-reliance for more than 40 years, initiative was taken for wide-ranging economic reforms in 1991. Following the reforms of 1990s, the Indian economy has enjoyed thus far a strong growth with the average annual growth exceeding 8 per cent since 2003. The liberalization of transport and telecommunications sectors was expected to reduce both fixed and variable trade costs that manufacturing firms faced when shipping their goods abroad. The cargo traffic volumes through the Indian ports increased many folds after the introduction of liberalization. The cargo throughput through private as well as public terminals also increased, although at a different rate. However, it could not be said with absolute certainty that the liberalization-led private terminals were more efficient than the government managed (public) terminals in India. [3]



Source: Various issues of Major Port of India: A Profile, IPA (1991, 2014).

Figure 1: Share of Major Ports of India

In accordance with the worldwide trend to privatize the operation and often the ownership of airports, highways, water supply, ports and similar utilities, governments in developed and developing countries are turning over port operational responsibility and port assets to private enterprises. Many studies have provided evidence that privatization leads to improved performance over public sector operations. But the empirical studies that investigated the association between port ownership structure and port operation efficiency seemed to provide more evidence that there was no clear-cut relationship, or in some cases a negative correlation, between the type of ownership and port efficiency. Based on the observations of output and inputs for 28 ports in UK, Liu (1995) failed to show that port ownership had a significant effect on port performance. But contrary to these studies, some studies argued that port ownership had an effect on port efficiency. Cullinane, Song and Gray (2002) employed both the cross-sectional and panel data versions of the stochastic frontier model to assess the relative efficiency of some selected Asian container ports. Based on their purely subjective appraisal of the obtained efficiency levels of selected ports from the above two models, Cullinane et al. (2002) concluded that there is some support for the argument that privatization should have some relation with the improvements in efficiency. [4]

Moreover, Baird (2000) argued that a sale of port land, combined with a transfer of operation and regulation functions to the private sector, would not definitely increase the operational efficiency, or may as well be counterproductive. Due to the specific nature of port investment (long-term payback and high capital cost), an almost total dependence on the private sector to provide both port infrastructure and superstructure would result in significantly delayed investments. Thus, full port privatization would impede the improvement on port performance while some extent of private sector participation could increase the efficiency level. [5]

Limiting the Government's financial burden by involving private parties is often the motivation for favouring public–private partnerships. This most often does not live up to the expectations, however, since the nature of the products and services which are realized by means of this form of partnership are not suitable. The projects often have to be implemented in a densely built-up and populated environment which means a number of parties are affected and there is a considerable likelihood of social opposition. As a result, a whole range of requirements is imposed on the project. The realizing of such a high-quality project only becomes possible by means of a total design based on an integral view of spatial planning, economic development, mobility, environment, safety and habitability. The reason for public–private partnership lies not so much in limiting public expenditure but rather in achieving a project that is qualitatively better than projects which private or public parties develop alone. For public parties, the involvement of private parties is desirable because on the one hand they operate more efficiently than public organizations but also because they possess the market experience and innovative creativity which public parties often lack. The reasons for private parties to take part in such enterprises are that they open up new markets and offer opportunities for investments. Co-operation with public authorities is indispensable for this, given the long-term uncertainties and political risks involved in the exploitation of such facilities. Private investors on their own wouldn't be able to get this type of project off the ground. [6]

If public authorities single headedly define projects, then it might limit the scope for the creation of partnerships. It is then more a case of contracting out: The Government acts as commissioning party, lays down the characteristics of the project and contracts out the construction and exploitation to a private contractor on the basis of a clear-cut and straightforward programme of requirements. This creates a principal-agent relationship where the principal wants the agent to realize fixed objectives as efficiently as possible. [8]

Public private partnerships involve considerable risks for both public and private entities. As long as these risks aren't manifested, parties concerned will be reluctant to enter into partnerships however enticing the perspective they are offered. In addition to this, partner's perceptions of risks might vary. Parties often have little conception of the way in which the others assess partnerships. They might not even be aware that others have a different approach and that the risks for them are of a different nature. Moreover, there is a real danger that parties will try to transfer the risks onto each other. Thus, the first step on the way to a partnership is to get a clear picture of each other's approach and the different risks which are involved for public and private parties. [8]

In India, on aggregate level the domestic players have dominated the PPP projects both in terms of numbers and investment. Out of sample of 300 projects 278 projects with investment of Rs. 134145.57 crore. The road sector has dominated investment by domestic players with aggregate investment of Rs. 51,398 crores. The port sector with total domestic player investment of Rs. 23931 crore comes second and airports at Rs. 19,111 crores. The energy space that includes hydro based power plants is dominated by domestic private players Rs. 17,802 crores. [11]

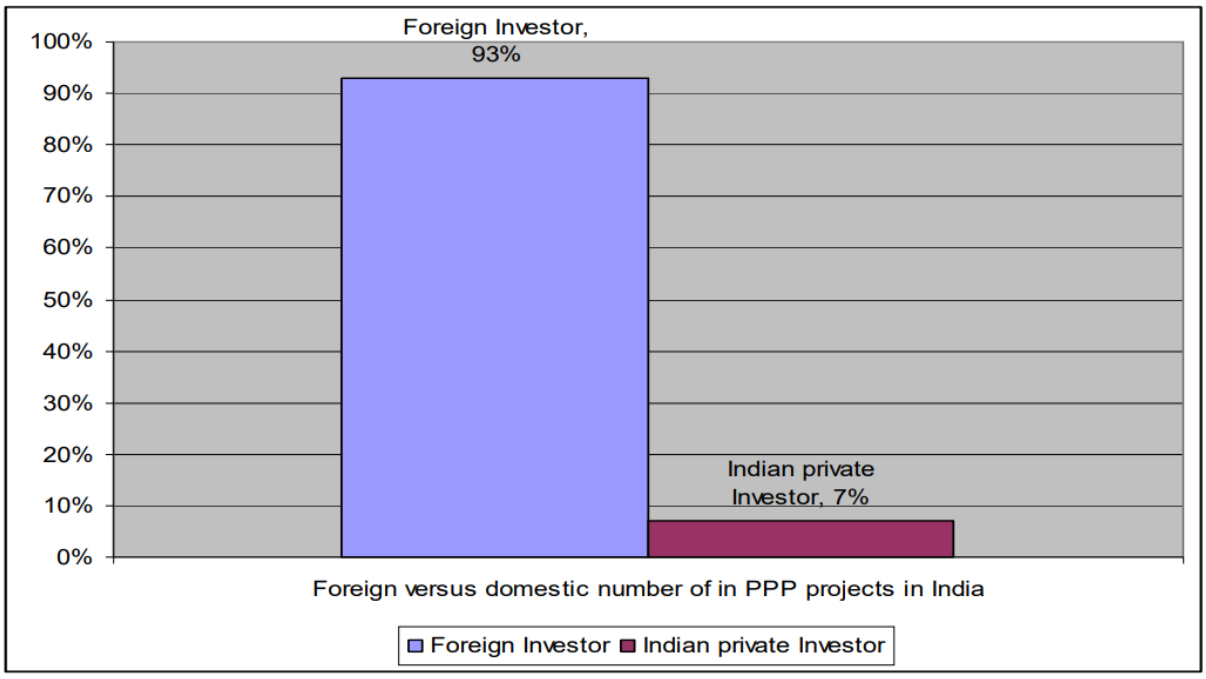


Figure 2: Foreign vs Domestic number of PPP investments in India

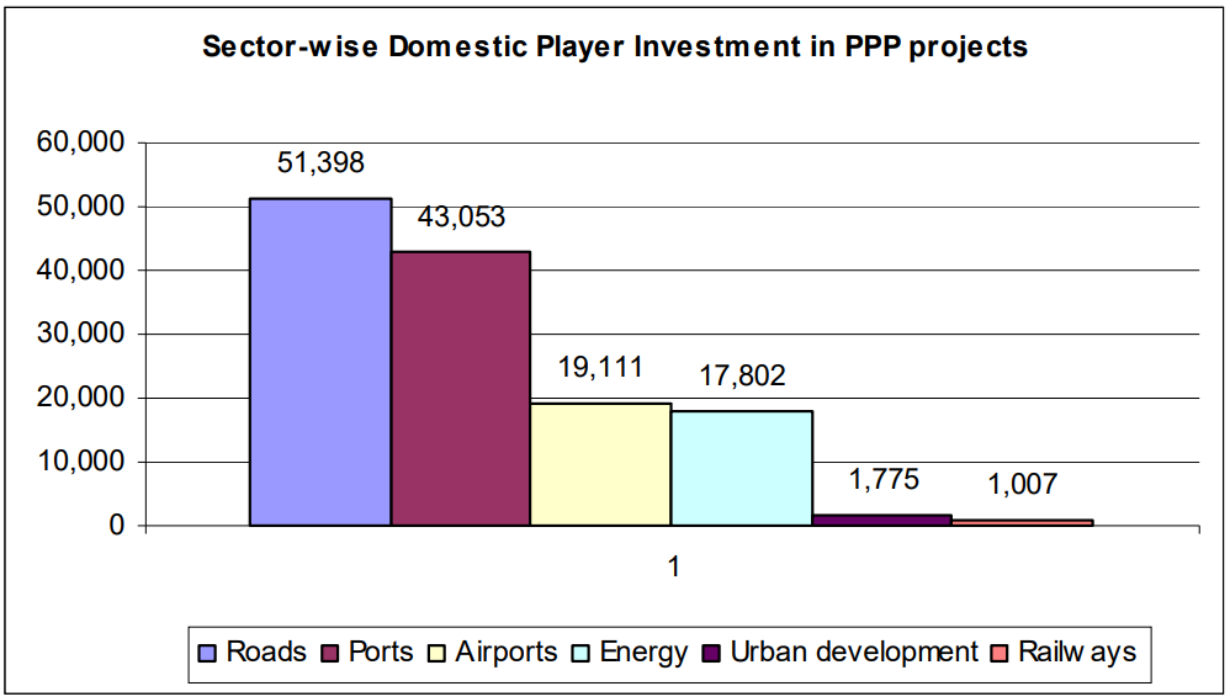


Figure 3: Sector wise Domestic player investment in PPP projects

1.3 Concept of Public Private Partnerships

All countries especially the developing and the developed countries require infrastructure development to develop economically and in every other measure and the role of the private sector and PPPs in enhancing infrastructure facilities in these countries is vital. Since the 1990s, there has been a rapid rise of PPPs globally. Governments in developing as well as developed countries are using PPP arrangements for improved development of infrastructure services. PPPs are becoming the preferred method for public procurement of infrastructure and infrastructure services projects throughout the world. [7]

Under PPPs, the public and private sectors work together on the implementation of projects, each retaining their own identities and responsibilities. They collaborate on the basis of a clearly defined sharing of tasks and risks to achieve benefits of added value and increased efficiency. PPPs are a procurement tool where the contract payments are usually structured in such a way that the public authority and/or users pay only for services rendered satisfactorily. Project-related risks are largely transferred to the private entity. In a PPP, the focus of the government shifts to policy, strategy, and a monitoring role rather than service delivery. In the long term, the benefits of PPPs are in improved management and use of funds. Accordingly, affordability has to be the cornerstone of the planning process. [7]

Some of the advantages of PPP model are:

- Bringing construction forward - Infrastructure projects can be completed much quicker, allowing users to benefit from the investment much sooner than is typical under pay-as-you-go financing.
- On-time and on-budget delivery - PPPs also have a solid track record of completing construction on time or even ahead of schedule.
- Shifting construction and maintenance risk to the private sector – Risks of political intervention and bureaucratic delays can be avoided by transferring certain construction and maintenance risks to a private partner
- Cost and Construction Savings - Cost savings from PPPs typically materialize in several forms: lower construction costs, reduced life-cycle maintenance costs, and lower costs of associated risks.
- Strong customer service orientation - Private sector infrastructure providers, often relying on user fees from customers for revenue, so they have a strong incentive to focus on providing superior customer service.
- Enabling the public sector to focus on outcomes and core business - When they are properly structured, PPPs enable governments to focus on outcomes instead of inputs. When utilizing PPPs, governments are able to focus leadership attention on the outcome-based public value they are trying to create.

Types of PPP models

PPPs across the world are becoming more and more popular. The past fifteen years have seen development in the modality of private involvement. The main salient feature of PPPs is the amount of private control over and involvement in financing. However, the important point to note is that there is no unique model of PPP. Each project, considering its circumstances, will define what is appropriate and what is required. Additionally, each model has a different impact on the poor. Some of the common PPP engagement models are:

- Design-Build (DB) - Under this model, the government contracts with a private partner to design and build a facility in accordance with the requirements set by the government. After completing the facility, the government takes over responsibility for operating and maintaining the facility. This is also known as Build-Transfer (BT).

- Design-Build-Maintain (DBM) - This model is similar to DB except that the private sector also maintains the facility. The public sector retains the responsibility for operations.
- Design-Build-Operate (DBO) - Under this model, the private sector designs and builds a facility. Once the facility is completed, the title for the new facility is transferred to the public sector, while the private sector operates the facility for a specified period. This model is also referred to as Build-Transfer-Operate (BTO).
- Design-Build-Operate-Maintain (DBOM) - This model combines the responsibilities of design-build procurements with the operations and maintenance of a facility for a specified period by a private sector partner. At the end of the concession period, the operation of the facility is transferred back to the public sector. This method is also referred to as Build-Operate-Transfer. (BOT)
- Build-Own-Operate-Transfer (BOOT) - The government grants a franchise to a private partner to finance, design, build, and operate a facility for a specific period of time. Ownership of the facility is transferred back to the public sector at the end of that period.
- Build-Own-Operate (BOO) - The government grants the right to finance, design, build, operate, and maintain a project to a private entity, which retains ownership of the project. The private entity is not required to transfer the facility back to the government.
- Design-Build-Finance-Operate/Maintain (DBFO, DBFM, or DBFO/M) - Under this model, the private sector designs, builds, finances, operates, and/or maintains a new facility under a long-term lease. At the end of the term, the facility is pass on to the public sector. In some countries, DBFO/M covers both BOO and BOOT.

PPPs can also be used for existing services and facilities in addition to new ones. Some of these models are:

- Service contract - The government contracts with a private entity to provide services the government previously performed.
- Management contract - A management contract differs from a service contract in that the private entity is responsible for all aspects of operations and maintenance of the facility under contract.
- Lease - The government grants a private entity a leasehold interest in an asset. The private partner operates and maintains the asset in line with the terms of the lease.

- Concession - The government grants a private entity exclusive rights to provide, operate, and maintain an asset over a long period of time in accordance with performance requirements set forth by the government. The public sector retains ownership of the original asset, while the private operator retains ownership over any developments made during the concession period.
- Divestiture (either complete or partial) - The government transfers an asset, either in part or in full, to the private sector. Generally, the government will introduce certain conditions with the sale of the asset to make sure that improvements are made and citizens continue to be served.

1.4 Problem Identification

In recent times, infrastructure investment environment in ports has become increasingly volatile. On one side there are numerous opportunities for trade and development because of the liberalisation and globalisation and the economic growth of the emerging countries and demand more infrastructure and port services for their trade requirements. This study focusses on the PPP in major ports of India and in particular the landlord port model and its effectiveness to the various stakeholders involved.

In a PPP financial model of port development, the various stakeholders will have varying share of investments and depending on their investment, their expectation also change. And because of the complexity of the PPP concession agreements, it is a very big task to satisfy all the stakeholders and to ensure that the expectation and requirements of all the stakeholders are being satisfied. In the case of PPP projects, the uncertainties with long-term agreement and the complexity of project financing arrangement generate additional risks to all stakeholders. Considering the higher level of risks, their expectations mostly converge on the ability of the project to generate enough cash flow over the concession period in order to attract or to comfort the investors regarding their capital investment. [8]

These infrastructure development projects and concession agreements are usually the result of some political agenda or part of some government policy. So before entering into a concession agreement and starting and infrastructure development program, the feasibility and the profitability of the all the stakeholders need to be assessed. We can get an idea on the feasibility and profitability of the stakeholders by analysing the various private operators that are already operating in major ports of India for over a decade.

For example, if we take the case of the International Container Transhipment Terminal (ICTT) Cochin, handled 17,000 TEU aggregated from various ports in India out of the 3,65,000 TEUs handled in the year ended in March 2015. ICTT is India's first international container transhipment terminal and these are not the kind of volumes that was expected and envisioned at the start of the development of the project. Around 4000 Cr give or take must be spent on this project and it was envisioned to rival the neighbouring Colombo port for transhipment cargoes. The ICTT has the capacity to handle 1 million TEUs every year and they are hardly managed 37% in 2015.

It's difficult to single out anyone in particular for the state of affairs at ICTT. DP World, the operator of the ICTT, the Indian government which had invested money in deepening the port channel and constructing a rail link to the ICTT, the Cochin Port Trust, the customs department and the special economic zone (SEZ) authority etc. all had a role to play in this. The Cochin Port Trust continues to spend money on maintaining the channel depth every year but this spending is lower than what it gets as revenue share from the DP World facility. [9]

Colombo is always way ahead of Vallarpadam in terms of capacity, pricing and productivity. ICTT does not have flexibility in rates unlike Colombo. To give competitive rates in vessel-related charges to attract big container ships, the Cochin Port Trust and the government took their own time by when Colombo further established its credentials as a transhipment hub. For India and all the major ports in the country, the tariff regulation is not under the purview of the operator or the port authority. There is an independent authority to regulate all tariffs, both vessel related and cargo related, and rates for lease of properties with respect to the major port trusts and the private operators located within those ports. This independent authority is called Tariff Authority for major ports (TAMP) and they are constituted by the amendment, Port Laws Act 1997 of the Major Ports Trust Act, 1963.

TAMP has this unfair characterisation of an antagonist by many and it is unnecessary and not right. TAMP works according to a law passed by Parliament, follows the guidelines issued by the central government, listens to all interested parties. The problem is that while the process is perfect, the outcome is atrocious. There are huge differences between the tariffs fixed for the same cargo in different terminals in the same port. There are three container terminals in JNPT, two in Chennai, and one each in Cochin, Visakhapatnam, Kandla and Tuticorin and all these have different tariffs. The trade or the economy does not benefit from such diversity for the simple reason that it is irrational. [10]

So, this study focusses on the impact of the tariff regulations on the private operator's efficiency and performance. The study compares the performance of the private operator and the satisfaction and profitability of the various stakeholders in the PPP agreement.

1.5 Research Objectives

The specific objectives of this research are given below:

- To evaluate the impact of PPP model of port development in Major ports of India
- To evaluate the contemporary landlord role by authority
- To evaluate the effectiveness of the governance of performance of the private operators by the landlord port authority
- To conduct inter-firm comparison of performance of the chosen private operators
- To conduct inter-period comparison of performance of the chosen private operators.

1.6 Scope of the study

The study focuses on the PPP model of port development in Major Ports of India. For this particular research project, three operators are selected in two of the major ports of India. It has also been attempted to collate all the available information on the various private operator and their performance and this can help the regulatory authority to form policies and move forward to a better port management and governance structure. In years that come, i.e. after 2021 it is most likely to have a market-based tariff structure and so in order to better understand the workings of the past model, this study may be used.

1.7 Dissertation Structure

The first chapter is the Introduction, it deals with the infrastructure challenges and the complexities of trade and infrastructure development in a country like India. It discusses the background of study, model of port development-PPP, problem identification, research objectives, scope of the study.

The second chapter constitutes the detailed overview of the PPP mode of port development of Indian Major ports. This chapter discusses the effectiveness and the existing port development projects that are underway. It discusses the evolution of PPP in India and the upcoming projects

and key constraints. It also discusses the landlord port model of governance in detail, Tariff Authority for Major Ports (TAMP), TAMP guidelines and its impact of port governance.

The third chapter consists of the research methodology, which includes the data collection and interpretation methodology, research design, limitations of this methodology, challenges that were faced while researching and collection of data etc.

The fourth chapter is Analysis and discussion. It discusses the interpretation and analysis of the collected data, forms inference on the basis of the information formed. And discusses each of the research objective in detail.

The fifth chapter briefly discusses the summary of the findings that were developed from the discussions and analysis of the previous chapter. The findings of fouth chapter is concisely mentioned and recommendations and conclusions on the basis of the findings are made in this chapter.

CHAPTER – 2

PPP in Major Ports of India

2.1 Current PPP scenario in India

Currently there are 12 major ports in India, in which six are in the east coast and six are in the west coast, and these are under the jurisdiction of the central government and it is governed by the Major Ports act of 1963 and in addition to this around 180 non-major ports are also there which are governed by the state governments under the Indian Ports Act 1908. And in that around sixty are considered to be operational.

Table 1: Comparative Assessment of PPP projects in Major and Non-Major Ports

Sl. No	Parameter	Major Port	Minor port
1	Typical Nature of PPP	Terminal Development and Operation	Development of green field ports
2	Bidding Methodology	2 stage Bidding – RFG and RFP	Bidding/ Nomination
3	PPP Model	Revenue share	Revenue share/ per MT Royalty
4	Tariff Regime	Regulated by Tariff Authority for Major Ports (TAMP)	No regulator
5	Cargo Guarantee	Minimum Guarantee Throughput (MGT) required	MGT Not required
6	Concession Period	30 years	40 years
7	Financial Close	180 days	270 days

PPPs in Indian Major ports have been witnessed in the operation and management of ports and terminals such as the construction of berths, deep water ports, container terminals, shipping yards and bulk ports etc. Certain policy measures have generated private sector partnerships in the port sector and these are:

- The Government of India issued guidelines for private sector participation in major ports in 1996. The guidelines given for private sector investment in leasing out existing

port infrastructure, construction of additional assets, leasing of equipment for port handling from the private sector, pilotage and other captive facilities for port-based industries.

- In 1997, further guidelines were issued enabling major ports to setup joint ventures with foreign ports, non-major ports and private companies. State government initiatives for non-major ports were also based on these guidelines.
- The Government of India introduced corporatisation of ports. They decided that all new ports would be setup as companies under the Indian Companies Act and the existing port trusts would be gradually corporatized and setup as companies.
- Under Section 80 IA, investors are offered a 100% rebate on income tax for 10 consecutive years, out of the first 20 years of a project.

Engagement models

In the introduction, the various types and models of PPP models have been discussed. In a practical sense there are various structures and models are used for facilitating PPP projects in major ports of India. These include Build-operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Build-Own-Lease-Transfer (BOLT), Build-Own-Operate-Share-Transfer (BOOST), Design-Build-Finance-Operate-Transfer (DBFOT) and Operate-Maintain-Share-Transfer (OMST). The type of model used primarily determined by nature of the contract.

The Public Private Partnerships through which the government decides to finance the port development projects has three alternatives within a certain time limit:

- The Port Authority adopts a landlord model and builds all infrastructure financed by public funds and leases it to private concessionaires who invest in the superstructure of the terminal and operate it.
- The Government or Port Authority takes a minority stake in a joint venture with the private party taking on a majority stake in the equity and the management control.
- The private service model, in which the Government or Port Authority grants an all-inclusive concession to the private party to build all the infrastructure and superstructure, to buy all the equipment and operate the port

The major areas that have been opened for private investment, mainly on a Build, Operate and Transfer (BOT) basis with revenue sharing formulas, include the construction of berths for cargo handling, container terminals, cargo handling equipment, warehousing and the construction of dry docks and ship repair facilities.

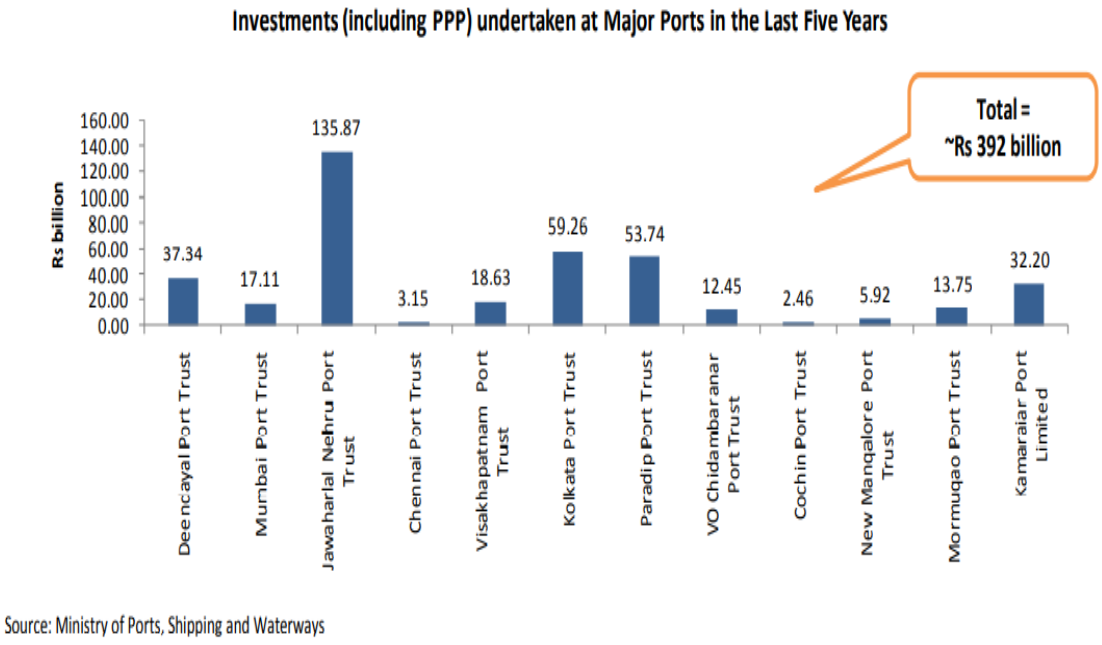
In India, up to 100% FDI investments are allowed so global terminal operating companies like DP World, APMT and PSA have invested in various major ports of India such as JNPT, Mumbai, Cochin, Visakhapatnam and Tuticorin. The government of India has also ensured a level of uniformity and transparency in the PPP process by issuing Request for Qualification (RFQ) and Request for Proposal (RFP) documents. The government of India has modified the tariff setting mechanism to fix the tariff before the bids although this is against the interests and the freedom of setting tariffs by the major ports themselves. The state of Gujarat has pioneered in port development using PPP model and has encouraged other stated also to follow its path. PPPs have helped the port development to be robust and this can ensure the fast development of the port infrastructure as the private operators don't like to have delays, because delays mean that they are losing money and no private operator can afford to lose money. The governments can have a laid-back attitude with the timelines of the projects as they aren't that much concerned on the returns and the reduction of losses as they don't have a personal stake on the project. And like always, the introduction of the private party can bring about new technologies and better management structures and principles.

One of the concerns of the PPP projects in India is that the accusation that the private operators are taking in more profits than the central governments bond rate. This can be a misconstrued argument because PPPs, apart from the advantages of the private party operations, the benefits that the central government gets in the way of funding the infrastructure needs of the country at the cost of financing which is equal its risk-free borrowing rates.

In 2010-11, some 20 projects with private sector participation were under consideration in Major Ports. The estimated total cost of these was Rs. 10,348 crore and they would add some 171.45 million tons of capacity. For the year 2011-12, a total of 35 PPP projects have been awarded to the Major Ports. The GoI has allowed 100% FDi under the automatic route for port development projects. From April 2000 to September 2020, the cumulative FDi equity inflow in the port sector stands at USD 1637.30 billion. In March 2018, HIPL acquired 90% stake in Continental Warehousing Corporation (Nava Seva) Limited and it will be investing USD 136.7 million in developing its Nava Sheva Business part free trade zone. In another development

project, DP World signed an agreement with Unifeeder group which is a subsidiary of Transworld group to acquire three business units of Transworld Group.

According to the Ministry of Ports, shipping and Waterways about USD 392 billion worth of investments have been made in the last 5 years in major ports of the country to execute various projects. The works undertaken include the construction of new berths and terminals, mechanisation of existing berth and terminals, capital dredging for deepening of draughts for enabling operations of large vessels, development of roads and rail connectivity etc. While facilities like JNPT, Kolkata and Paradip ports have together attracted around 64% of the total investments recorded in this period and other facilities such as Chennai and Cochin ports have seen little investments.



Source: Ministry of Ports, Shipping and Waterways

Figure 4: Investments at Major Ports

2.2 Challenges relating to governance structure

In order to meet the growing challenges in the Indian port sectors, reforms and policy changes need to be there in port governance and a different regulatory framework must be there. Governments, Port Authorities, private sector operators and investors have to address significant changes that the international port sector faces today. The main trends and factors are:

- Technological advancements have made the cost of transport low and this has made the manufacturers to go global and trends of globalized manufacturing can be seen.
- The main stakeholders such as the shipping lines and shippers are looking for vertical integration in order to utilise the full supply chain.
- The hub and spoke system with the interline transhipment has made the shipping lines to acquire larger mega ships that can cater to the increased carrying demands that are a result of the hub and spokes model.
- The hinterland transport cost which is the major constituent of the transit cost is dependent on the route choices.
- Ports are focal points in the international logistics chains and this makes inter-port and intra-port competition a vital element in building up the role and scope of ports.
- Clusters of regional ports and connected industrial and logistics activities are emerging, whereby port competition becomes 'cluster competition'.
- Ports tend to adopt a community approach whereby governments, port authorities and private operators involve all port-related businesses and other stakeholders in their business processes or corporate relations.

An effective port governance policy must be able to address these trends and to make the most use of these trends to its advantage and they imply:

- The Port policies that are there in the national transport policy must be in consultation with the regional and local realities, for example, road, rail and barge connections and well selected dry ports and Inland Container Depots.
- There must be clear responsibility for port governance particularly regarding who is responsible for which activity and functions regarding the port.
- The role of both the public and the private sectors in ports, transport and logistics. The institutional design should be in line with the legal framework and the objectives of a Port Authority
- The regulatory framework that needs to be established must ensure a level playing field between ports especially between the major and non-major ports.
- Rules for environmental, safety and security conditions in ports.
- Stakeholder coordination at national, regional and local levels.

But in reality, India has two port governance policy, one for Major ports and the other for non-major ports.

2.3 Port Governance Models

Port governance is structured around the ownership, the administrative management models and the regulatory frameworks of ports. There are four major port governance models:

The public service port model

In this model, the Port Authority owns the land and the fixed and mobile assets, and performs all regulatory and port functions. The advantage is that development and operations are the responsibility of a single entity, which in principle makes for a cohesive approach, on condition that the Ministry does not exceed its controlling role. The lack of internal competition can lead to inefficient port administration, port operations and port maintenance. Moreover, there is often a lack of innovation and long delays in responding to the demands of the market. Finally, there is a heavy dependence on government funding which, if it cannot be accommodated, leads to under investment or a wasteful use of limited financial resources.

The tool port model

In this model the Port Authority owns, develops and maintains the port infrastructure and superstructure, including the cargo handling equipment. The operation of the port's equipment is mainly done by the Port Authority labour, although small private cargo-handling firms can work on board the ships and on the quayside. While this model results in an avoidance of the duplication of investments, the fragmentation in responsibility can lead to serious conflicts between the Port Authority and the operators if they both work as stevedores and/or quay operators. Also, the risk of underinvestment remains, as everything has to be funded by the Government or the Port Authority itself

The landlord port model

The Port Authority retains the ownership of the port's infrastructure, but this is leased out (licensed) or given in concession to private operating companies. The private operating companies provide and maintain their own superstructures, their equipment and their information systems. The main benefit of this model is the fact that the private operator owns the cargo handling equipment and executes at the same time the operational activities, whereby planning is greatly improved and there is also a greater responsiveness to the needs and the changing conditions of the market. There may be both a risk of overcapacity (more than one operator for a similar type of facility) and under-capacity (one operator who does not want to invest in additional facilities for a specific type of cargo), although this can be solved through specific clauses in the concession agreement.

Private sector port model (private sector service model)

In this model, the public sector has no longer an interest in port activities, or it leaves port management and operations entirely to the private sector. Port land is owned or bought by the private sector and all operational activities are performed by the private sector. If there is regulation of the port it will be done by the private sector as well. The main advantage of this model is that port development and the tariff policies tend to be market-oriented. The main disadvantage of the private sector model is the risk of creating an abusive monopolistic system and the suppression of public involvement in the development of ports within a longer-term economic policy.

2.4 Tariff Regulators Role in the Port governance

A major issue that affects the India's Major Ports is the role of the Tariff Authority of Major Ports (TAMP) since its inception in 1997. Especially the positive and negative impacts of TAMP's regulations on the Major Ports trade levels and the impact of its rules on private investment. The regulations imposed on the major ports by TAMP is adversely affected on Major ports and the impact is positive in the case of non-major ports.

The Tariff Authority for Major Ports (TAMP) was constituted in April 1997 to provide for an independent Authority to regulate all tariffs, both vessel related and cargo related, and to fix rates for lease of properties with respect to Major Ports Trusts and the private operators that are located in those major ports. TAMP was constituted by amending the Major Port Trust Act, 1963 by the Port Laws (amendment) Act 1997.

TAMP only has authority over the major port trusts and the private operators therein and it is responsible for fixing the rates for the services provided and the facilities extended by them and also for fixing rates for lease of port trust properties. The authority is not only responsible for the fixing of the rates but also to the conditions that governs the application of the rates.

The draft guidelines for tariff setting for major port trusts and the private terminals, 2013 reiterates that TAMP will continue to set the tariffs for major ports and private terminals and a detailed review of the guidelines shows a lack of understanding and operational realities involved in the development and running of terminals by the major port trusts and the private sector. It reaffirms the beliefs of the ministry of shipping that the tariff authority can still work in major ports in India while when we consider the rest of the world all the major ports are allowed to set their own tariffs in line with both the demand and supply and the intra-regional

and inter-regional competition level. The general feeling in the port sector is that if the tariff regulation is applicable to Major Ports it should also cover all ports. Otherwise, private players will be hesitant to come and bid for PPP projects at the Major Ports because they know that their operations could be impacted by the TAMP tariff regulations. Therefore, there should be a level playing field between Major Ports and Non-major Port. The non major ports that are under the control of the coastal states are not under the regulatory jurisdiction of the tariff authority and they have an unfair advantage on this regard, so the major ports and the private operators are in support of the policy of taking away this unfair advantage to non-major ports. And because of the lack of tariff regulations, the non-major ports are considered as a better investment proposition that major ports. Private operators in the major ports that handle cargo handing terminals are more and more opposed to the idea of tariff regulations by TAMP. The guidelines issued by the authority in 1998 was vague and the method in which the tariff is fixed and the formula were not specified in detail but when it comes to the 2004-05 guidelines, it was more detailed with the tariff being fixed on a cost plus basis and by 2008 the new guidelines was far from the earlier 2004-05 guidelines as the tariff has now to be fixed upfront for the entire period of the concession and the retained bidders are expected to make their proposals taking this upfront tariff into account.

Although a number of revisions have been made, and officially the objectives of tariff regulation is met, it is felt by all the stakeholders that the guidelines were not as effective in achieving the actual objectives. This is primarily because of the flawed approach, the illogical guidelines and patchwork solutions that will never meet al the different aspects of the tariff fixing especially considering the wide variety of ports handling different cargoes and having different competitive landscape. TAMP has fixed the tariffs at maximum capacity, thereby capping profits and leaving no reward for efficiency. TAMP has adopted the highest levels of efficiency as standard norms. That leads to a gross understatement of the capital costs on a per unit throughput basis. The terminal operators feel that the system for setting a tariff for 30 years is flawed because it omits the fact that the future conditions cannot be forecast with accuracy and there are no mechanisms in the policy guidelines to correct for inaccuracy. The current regulatory regime effectively benefits shipping lines because there is no mechanism to ensure that the benefits of lower rates imposed by TAMP on the terminals are passed on by the shipping lines (the only customers of the terminals) to the trade (exporters and importers). Meanwhile, The Energy and Resources Institute (TERI), which was mandated by the Shipping Ministry to frame new guidelines to be followed by TAMP to set rates for port services,

submitted its report in March 2012. This report does not solve the problems of terminal operators, but it makes one key suggestion by asking the Shipping Ministry to consider "whether the private terminals and cargo-specific terminals at Major ports should be freed from tariff setting and allowed to compete between themselves and Non-major Ports". The relatively slow global business climate coupled with TAMP's restrictive policies on setting tariffs in Major Ports are both pressing factors affecting the outlook for ports projects in India. Therefore, the TAMP's future has been the subject of much debate in the last year and the solutions range from abolishing TAMP as a tariff authority, to giving it regulatory powers, to strengthening its power under a new law.

2.5 Concluding Remarks on Governance and Regulatory Framework

The landlord port model has been adopted as the most prevailing model of port governance today although there are still quite a number of countries particularly developing countries that are an exception to this rule. Japan also is an exception. Nowadays, the port authorities are usually corporatized entity with sufficient autonomy and financial independence to follow the port business and fix tariffs and regulations at both local and regional level. The tariff fixation must take into account the inter-port competition and intra-port competition. In both cases a competition regulator may be needed: for inter-port competition there is no need for a price regulator, but for intra-port competition a regulator of fair trade is necessary to prevent abuse of monopolistic power while ensuring common access to the port. The port authorities, worldwide must have this regulatory and landlord roles as they are in a better position to understand and execute the enhanced functions such as shaping the supply chains with the hinterland, involving hinterland intermodal corridors and inland terminals. They are also the right party because they also take responsibility for the planning of port development, port-related industrial development and port related urban development.

The paradigm shift in the functions of public sector from public port services to landlord ports with the private operators running terminals implies that the role of governments is changing from having a direct control over state-owned and operated ports to exercising indirect guidance through appropriate regulations and PPP participations. The key regulation that the ports require in or between ports is not of tariff regulation but of competition regulation. The competition landscape of ports are changing, hinterlands are expanding and overlapping and because of this a few situations warrants a tariff regulation especially setting maximum tariffs

and establishing price caps etc. Under ideal situation and in fair competition, the market itself is the regulator and in this a level playing field will be established where instead of tariff regulation, competition regulation happens. Big corporations and financial powers can get control of the terminals and establish monopolistic powers especially when we talk about intra-port competition where there is a tendency for major international mining, manufacturers and logistics companies gain control over the supply chain through ownership of dedicated terminals. So under such conditions an economic regulation and more importantly competition regulations must be implemented by the government. It is primarily the central government's role to regulate and bring about draft regulatory legislations. When we consider India, a number of queries have been made regarding the economic port regulation, particularly the controversial issue of tariff regulations has been addressed in the 'Draft Regulatory Authority Bill, 2011' and the concerns regarding the intra-port competition in India has been addressed in the heading 'Policy for preventing private sector monopoly in Major Ports' by the MOS, 2010.

CHAPTER - 3

Research Methodology

The choice of the method of research is primarily depended on the research problem and the nature of the topic that the research is going to discuss. Not every methodology can be used for all the subjects. Research is not just a process of collecting data or information, it is about answering unanswered questions or creating questions that didn't exist earlier and trying to answer them. Any research to be extensive and successful the process of collection of data and the interpretation and analysis must be done scientifically and with utmost sincerity and diligence. "Methodology is the philosophical framework within which the research is conducted or the foundation upon which the research is based" (Brown, 2006). This chapter thus discusses the research methods used for collection of data and the criteria on the basis of which the data collection plan is implemented.

3.1 Introduction and Methodology

To determine the performance of ports, especially private operators in the PPP models of port development, sufficient data needs to be collected on their port operation and their financial performance. For this study, two major ports are selected i.e. Chennai port and Cochin port. The Chennai Container Terminal Limited (CCTL) and the Chennai International Terminal Private Limited (CITPL) and the one terminal in Cochin i.e. Indian Gateway Terminal Private Limited (IGTPL) are considered for this study.

TAMP is an independent authority that regulates and decides the tariffs that the private operator levies for port services that it provides to its customers. And by regulation, each private operator must submit the cost and operational details to the TAMP authorities as per the 2005 guidelines. This study is based on the 2005 guidelines of TAMP to judge the economic and operational performance of the operators by analysing the information and data that are furnished to TAMP by each of these operators.

In the public domain, i.e. the official website of TAMP, they publish all the notifications and tariff orders published by TAMP and they also publish the proposals of the various operators over different time periods. And the various approval documents of TAMP are also published in the website. So based on this available information, the data of various operators over its entire operational time period is collected and analysed.

3.2 Research Design

The first step in any research process is collection of data. There are various sources of information that can be used to gather information and data that are required for the interpretation and analysis of the project. The project work is done primarily on the basis of secondary data that is collected from the various sources that are publicly available such as the Tariff Authority for Major Ports (TAMP) website, websites of both Chennai port trust and Cochin port site, Ports in India 2021 report which is published by the India Infrastructure Research etc.

The study focusses on both the performance indicators of the terminal operator as well as their financial indicators. In a seaport, there are many stakeholders that are related to the day to day operations of the port and the terminal. The main stakeholders include:

- Shareholders
- Port service providers
- Concessionaires
- Carriers
- Employees and trade unions
- Port users
- Financial community
- Local community and societal groups of interest
- Regulators

But in the case of a PPP agreement and because we are considering the success and profitability and the performance of the PPP agreement, we consider four major stakeholders and they are:

- Investor or the private operator
- Lender
- Port Authority
- Port users

These are the four major stakeholders of the port or the terminal. In a concession agreement, each of these stakeholders must be considered and the return that each is getting out of the concession agreement must be estimated and then we can easily determine who benefits the most from this PPP agreement.

3.3 Analysis Approach

Analysis means the use of analytical tools and mathematical tools to convert the data that is collected from various secondary sources and converting them into information that is easy to interpret. Selection of the right analytical method depends on the subject and the nature of the problem. Once the problem is identified then the right tools and the analysis methodology can be formulated and the computations can be done. The accuracy in analysis is very important. Accurate data collection and the analysis will ensure the sanctity of the result.

This study strives to a establish and determine the various performance characteristics of the private operator in order to compare their performance with each other and with their performance over the years. From the TAMP website and by gong through the various documents that are available in the public domain pertaining to the operators, the information that needs to be collected and compiled are:

- Capital Employed each year i.e. How much has the private operator invested as capital in the terminal. For each of the three operators, the capital employed must be compiled for each year. This is the amount of money that the private operator has invested in the port or terminal as a part of the concession agreement. This is important because if there was no private operator, this money would have to be invested by the government.
- Equipments and Facilities: Has the private operator created appropriate facilities to handle the cargo. Whether the terminal has all the requirements that are needed to handle the cargo and all the port users.
- Capital Efficiency: Has the private operator achieved capital efficiency. The sole objective of privatisation is to improve the capital efficiency. There are two definitions of capital efficiency i.e. both physical and financial. Physical capital efficiency is defined as the cargo handled by meter of berth length. So, for the same berth length if we are able to handle more cargo then the capital efficiency is more. Financial efficiency is the cargo handled per Rs of capital employed. This indicated the cargo generated per Rs of capital employed.
- Operator Efficiency: Has the private sector achieved operating efficiency. This is defined as the operating cost each year per TEU handled. This indicates the per TEU cost of the operator. This factor is analysed and compared both as inter-firm and inter-period comparisons.

- Commercial Efficiency: The cargo traffic volume handled each year in TEUs or tons. The more cargo the operator or the terminal handles the more revenue and business the operator generates. One of the main reasons for the terminal to be privatised is because with the improved facilities and service more business, cargo and customer would come to the terminal. This indicator shows us whether the operator was able to attract customers, whether they have the growth rate in traffic etc. For this indicator also, the inter-firm and inter-period comparison can be done.
- Benefits to stakeholder: The main stakeholders are the investor, lender, port authority and the port user. For each of these stakeholders, indicators are estimated and analysed and compared with themselves over different periods of time and with the other operators for each year.

Annual growth rate of the cargo traffic handled and the compounded annual growth rate of the entire period of its operation is calculated and it is compared with the other two operators to determine who had better commercial efficiency. For the port user, i.e. the user productivity needs to be determined. This can be estimated by the turnaround time of the vessels, cargo handling productivity or the mover per crane per hour etc. For the investor, the profit allowed to the investor by the regulator is calculated and analysed. For the port authority, the royalty or the revenue share paid by the operator is computed each year and analysed. For the lenders, the interest paid to the lender and interest percentage is determined and compared and analysed. And then the total value of the terminal shared between the investor, port authority and the lender is computed and ratios of the percentage share of each stakeholder is determined separately and the stakeholder having the better performance value overall is the main beneficiary of this concession agreement. The trend of each percentage values are also computed and analysis is done.

When one talks about performance of the operator or the terminal, all these factors need to be considered in totality. Any one factor is ignored or if not considered, then the analysis would not be complete. The impact of these factors is in their totality.

3.4 Methodology Limitation

Every research methodology will have some limitations. Having limitations in a scientific process is very normal and appropriate allowances can be given to reduce the effect of those limitations. These limitations can be in the collection of data or it can be with the compilation

or even with the analysis. But it is imperative to minimise the scope and impact of these limitations. Some of the limitations of the research methodology selected are given below:

- Some of the data that are needed for the analysis are missing or couldn't be found anywhere in the public platform.
- The inconsistencies that may arise due to the missing data in between is a limitation.
- For the analysis, TAMP website and the documents furnished are used. And the analysis is done by assuming that all the information in those documents are correct.
- Sometimes the operator, because of their internal matters refrain from submitting all the relevant information or they might do some manipulations to influence the TAMPs decision. This might throw the study off the correct path.
- Contradictory data are observed to be seen in multiple places in the TAMP documents, so in order for uniformity and convenience in analysis of this study, the modified or TAMP adjusted data is taken for analysis. If that value is not available, then the next best thing i.e. the actual value is taken for the analysis. If that value is also not available then the estimated value of the operator is taken for analysis. This might result in minor deviations in final result. But the entirety of the study and the trend won't be compromised.

3.5 Operators Considered for the study

For the analysis for this study three operators are taken, Chennai Container Terminal Limited (CCTL), Chennai International Terminal Private Limited (CITPL) and International Gateway Terminal Private Limited (IGTPL). The first two are operators that are in Chennai and the other is terminal is in Cochin.

Chennai Container Terminal Private Limited

Chennai Container Terminal Private Limited (CCTL) was incorporated as a Special Purpose Vehicle on September 12, 2000 by the consortium of M/s P&O Australia Ports Pty Limited, M/s Jakari Express Private Limited, M/s Meherji Cassinath Limited and M/s Chettinad Logistics Private Limited. The consortium of four entities represented the promoters of CCTL. The Board of Trustees of the Chennai Port Trust (ChPT) and CCTL entered into a license agreement dated August 9, 2001 for development, operation and management of the container terminal on a Build, Operate and Transfer (BOT) basis for a period of 30 years expiring in

August 2031. Formally, the terminal commenced its operations on 30th November 2001. In 2006, DP World, one of the world's largest container terminal operators, acquired P&O Steamship Navigation Company, UK thereby acquiring the 75% stake held by it. In 2008, DP World acquired the balance stake held by other consortium members effectively controlling 100% stake in CCTL. DP World operates 77 terminals across six continents. DP World is the world's fourth largest container terminal operator by capacity and throughput. In 2015, DPW handled 61.7 million TEUs across all its operational terminals. DP World is listed on the London Stock Exchange and NASDAQ Dubai. 80% of its shares are owned indirectly by the Government of Dubai through ultimate majority shareholder Dubai World, a holding company for a portfolio of businesses and projects for the Dubai government.

Chennai International Terminal Private Limited

Chennai International Terminals Pvt Ltd (CITPL) in Chennai Port is a subsidiary of PSA International (PSA), one of the leading global port groups. CITPL commenced operations in 2009 and is advancing towards its 7 million TEU benchmark by end of 2019. CITPL operates inside Chennai Port, which is one of the 12 Major Ports in India. Chennai Port is strategically positioned on the south-eastern coast of India and is near to many key manufacturing, industrial and economic development centres. CITPL serves numerous container corridors for South Indian states like Tamil Nadu, Karnataka, Andhra Pradesh and Pondicherry. Chennai also is the home for many automobile manufacturing giants in the country. The Terminal is connected to India's railways by it's on the dock rail siding facilities and is positioned to serve the growing rail traffic, which the GoI has been promoting. CITPL is also has extensive network of roads to the hinterland markets owing to its proximity to national highways NH4, NH5 and NH45. PSA is one of the leading global port group and a trustworthy partner to cargo stakeholders around the world. With significant operations in Singapore and Antwerp, PSA's profile has a network of more than 50 coastal, rail and inland terminals in 18 countries. Drawing on the immense expertise and experience from a diverse global team, PSA actively cooperates with its customers and partners to deliver world-class port services alongside, develop innovative cargo solutions and co-create an Internet of Logistics.

Indian Gateway Terminal Private limited (IGTPL)

In 2004 DP World successfully won the concession agreement to operate the Rajiv Gandhi Container Terminal and to develop the ICTT at Vallarpadam. Cochin Port is located next to the East-West trade route, which is only 11 nautical miles from the direct Middle East – Far

East sea-route. No other Indian port enjoys such a strategic geographic positioning to the major maritime sea routes. DP World Cochin acts as the natural gateway to the vast industrial and agricultural produce markets of the South & West of India. The hinterland of the port includes the Kerala and some parts of Tamil Nadu and Karnataka. Improved road and rail connectivity have significantly reduced the travel time and logistics cost making Cochin Port a preferred gateway for exports & imports to and from the hinterland. Since the official handover in April 2005, DP World's technological and operational expertise has significantly improved terminal efficiencies. Investment in quayside and yard-handling equipment has been primarily focused on improving productivity. The application of Information Technology plays a vital role in the terminal operation. Its ultramodern IT infrastructure, technology and support have been specifically designed to facilitate the smooth flow of traffic and transactions keeping the trade in south India in mind.

CHAPTER – 4

Analysis and Discussion

4.1 Introduction

Almost all of the study in the efficiency and performance of container terminals are mostly done in developed countries and a few in developing countries like India. Indian container terminals are very important in their regional advantages and their ability in handling transhipment traffic. Almost all major ports are getting into a public private partnership with the port authority and government to build and develop container terminals in India. This study concentrates on the performance evaluation of the private operators of container terminal who are in a PPP concession agreement in two of the major ports of India. For this study, Cochin and Chennai ports are taken into consideration. There are three terminals in Cochin and Chennai combined, two in Chennai and one in Cochin.

Indian ports handle approximately 95% of the India's external trade and 20% of those are containerised cargo. In 2018 alone, Indian container ports handled 2% of the world's container ports throughput. Cochin port handled the first ever container in India in 1973 and since then the container traffic increased by 8 times in the next 45 years compared to the non-containerised cargo which only increased by 3 times. Jawaharlal Nehru Port Trust (JNPT), is the most consistent and fast-growing port in India, it even featured in the top 30 container ports in the world in 2003. Since then the global container markets have been changing, vessels started to grow big, mega ships are the new norm and the container terminals are to be well equipped with the sufficient terminal handling equipments and infrastructures for handling such megaships. This can be done through efficient and effective PPP investments and partnerships.

There are 26 container terminals in India which are in operation and 14 of them are in the west coast and 12 of them are located in the east coast. In this 26, in terms of administrative control 17 are designated as major ports and 9 are designated as non-major ports. Port governance in India is moving from a service port model to a landlord port model and complete privatisation is not idea because of the fear of monopoly in trade and logistics. The classification of Indian container terminals on the basis of location, governance and administration is shown in the Figure 5.

For this study, three container terminals are taken for analysis and those are Chennai Container Terminal Limited (CCTL), Chennai International Terminal Private Limited (CITPL) and India Gateway Terminal Private Limited (IGTPL).

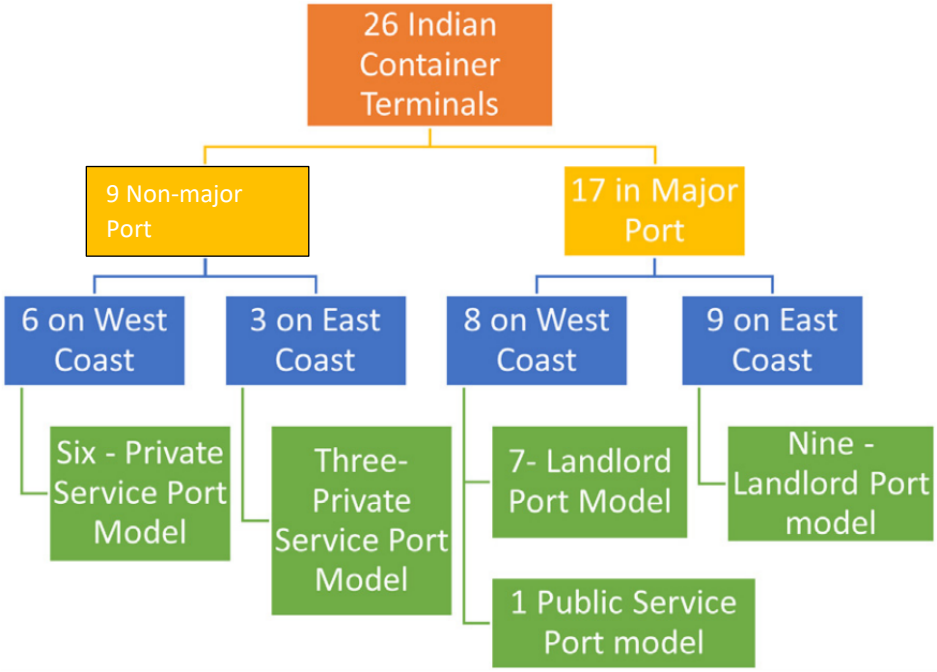


Figure 5: Classification of container Terminals in India

4.2 Stakeholders considered in this study

For the evaluation of the various objectives of this study, it was identified that there are four major stakeholders that are associated with any PPP concession agreement or port terminal operation and they are the Investor or the private operator, the lender, Port Authority and the port users. We will be discussing in detail about these in this section as they are very important in our further discussions.

Port Authority

Port Authority is the organisation that is involved in the promotion and management of the port that they are in charge. Port authority is generally in charge of executing the administrative activities such as setting objectives and policies and making sure that these objectives and policies are being executed. Port authority is also empowered to do development activities in the port premises and they are also concerned with the overall management of the port by formulation action plans and executing them. The operation of the port lands and the

infrastructure etc comes under the purview of the port authority. They also coordinate and control all the activities of the different operations at the concerned port.

Historically, port authority is a governmental or quasi-governmental public institution that are established to manage the property rights in the waterfront area, to plan port development, to ensure the navigation and safety, to ensure the promotion and efficiency of port service providers and ultimately to contribute to the local, regional and national economic growth. The conventional role of a port authority are that of a landlord, a regulator and sometimes an operator of the port. Since 1990s, the role of the port authority has been constantly evolving and the port operation and port services are being transformed from a traditional port service model to a landlord model of governance where the role of the port authority is restricted to just being a landlord where the operations are carried out by a private operator and the regulatory role is being carried out by TAMP.

In a contemporary port setting, port authority can act as a hybrid organisation where the port management entities act as a community. Even though cargo handling is the primary operation in a port, the port zone and the surrounding area form a port cluster where a bunch of economic activities that are related to port start to develop. Port authority has an active role in improving this competitiveness. Port cluster consist of substantial number of firms and economic activities that cater to the port related activities and the port authority has a role in increasing the level of investment in these sectors and to ensure cost-effective investments.

Investor or the Private Operator

Investors or the private operators are those entities that come into a PPP concession agreement with the government and the port authority to build and develop the terminal and to operate the terminal for the said time period as mentioned in the concession agreement. There are a lot of domestic and foreign private terminal operators that are interested in terminal operations in India. For each concession agreement a special purpose vehicle is formed which usually will be a consortium of many private entities or it can also be a single entity as the government has allowed 100% FDI in port sector.

CCTL or Chennai Container Terminal Limited is one such private terminal operator which is owned by DP World, which is being operator under a Build-operate and transfer concession agreement with the Chennai port for 30 years. CITPL or Chennai International Terminal Private Limited is another such private terminal which is owned by PSA Chennai and SICAL Logistics Pvt Ltd. DP world also owns the IGTPL or the India Gateway Terminal Private

Terminal which is the special purpose vehicle that operates the International container transhipment terminal in Cochin.

Apart from these two there are a lot of private terminal operators like Adani Ports and SEZs, JM Baxi, Container corporation Ltd, APM group, PSA, SICAL etc. that have a significant presence in the private terminal operations in India. So, in this project we are going to look at their performance and the impact on their performance because of the regulators and the port governance models.

Lenders

The terminal development is a very costly endeavour. International container transhipment terminal which is operated by IGTPL is developed by spending around 4000 Cr. This amount of money is very difficult for any private operator to have with them for investments. And this is not employed or this amount is not incurred all at the same time, the capital employed each year varies and generally most private terminal operators takes loans roughly 70% of their investment fund from various financial sources such as banks and other financial institutions and the rest 30% they invest themselves. This is the role of the lender. The lender is the financial institution that lends the required sum of money to the private terminal operator for the construction and development of the terminal and the related infrastructure. So, each year because of this interest has to be paid to the lender. So, in this project we are also evaluating the contribution of the lender and also to find out whether funding an infrastructure development program is actually beneficial to the lender or not.

Port Users

Port users are very crucial for any terminal or port. It is through them the business of the port comes in. All the importers and exporters come under the port users. The stevedores who load and unload the containers and cargo to and from the vessels are also coming under this category. The liners i.e. the vessels and the ship owners whose vessels call the port also comes under port users. The customs house agents, freight forwarders, NVOCCs etc. who conducts their business in and around the port activities can also be considered to be a port user. Indian railways, concor, other hinterland connectivity providers like the trucks etc. comes under this. So, for this stakeholder, the idea is to measure the benefits and services that they are receiving compared to the tariffs that they are paying to the port operator. This tariff is set by TAMP which is a regulatory authority that is separate from both the operator and the port authority.

The next three subsections discuss the data and the interpreted information and its analysis for the three operators that was selected for this project work.

4.3 Evaluating the contemporary landlord port of Authority

Capital Employed

In this section the capital employed by the operator is collected for all the years of its operation and inter-period and inter-firm comparison is done for this data. Capital employed is an important measure because it shows how much money the private investor or the operator is investing in this project. Because if the private investor or this PPP agreement were not there then this terminal would have to be build and operated by the port authority and the maintenance and the operations must have been at the expense of the port authority. So thus, when a port trust is inviting a private operator then the first performance measure is how much capital the private operator is investing in the terminal. And in order to compare its performance with itself and with the performance of other container terminal operators, inter-period and inter-firm comparison of this data is done here.

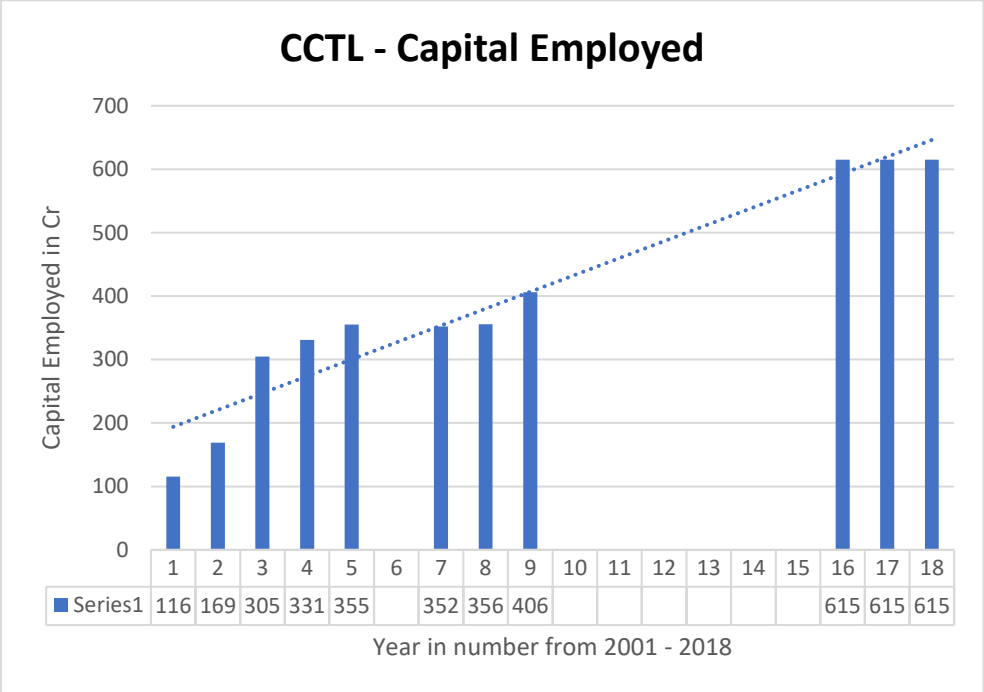


Figure 6: Inter-period comparison of Capital employed for CCTL

So, when we look at the inter-period comparison of CCTL in Fig 6, we could observe that the trend line is going up. It needs to be kept in mind that the data that is being shown here is limited to availability i.e. the data for the years 2006 and from 2010 to 2015 were not available in the official website so the data for that period is excluded from the analysis. CCTL took over an already existing container terminal and they invested sufficient capital for the infrastructure development and renewal of the various terminal handling equipments.

For the inter-period comparison of IGTPL, the initial years were observed to have very little capital employed. This might be because of the terminal operator, DP World took over an existing container terminal, Rajiv Gandhi Container Terminal and over a couple of years the new operator on a BOT model, build the first phase of the container terminal of 600m was commissioned in 2011 which might be the reason for the sudden increase in capital employed after 2010. The total project is to be completed in three stages and the capital employed in years that followed would be for the 2nd and the 3rd phase of the project.

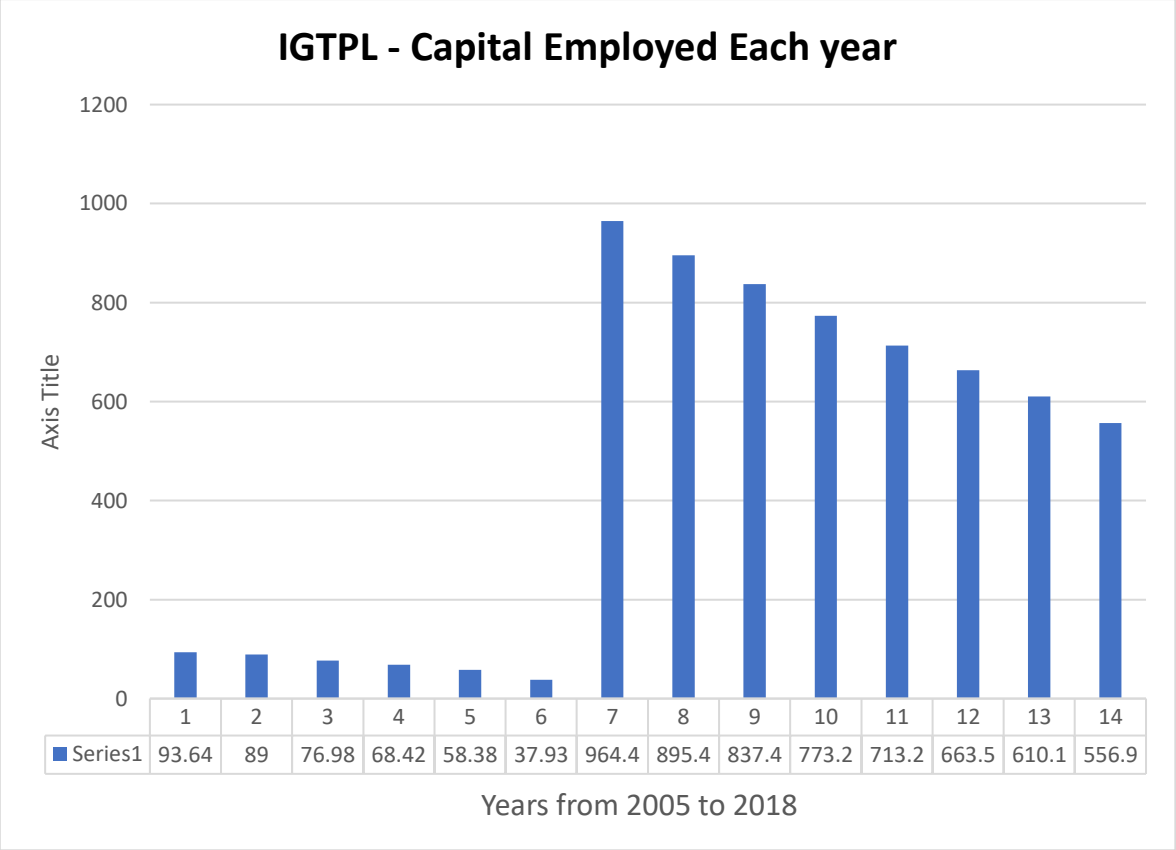


Figure 7: Inter-period comparison of Capital Employed for IGTPL

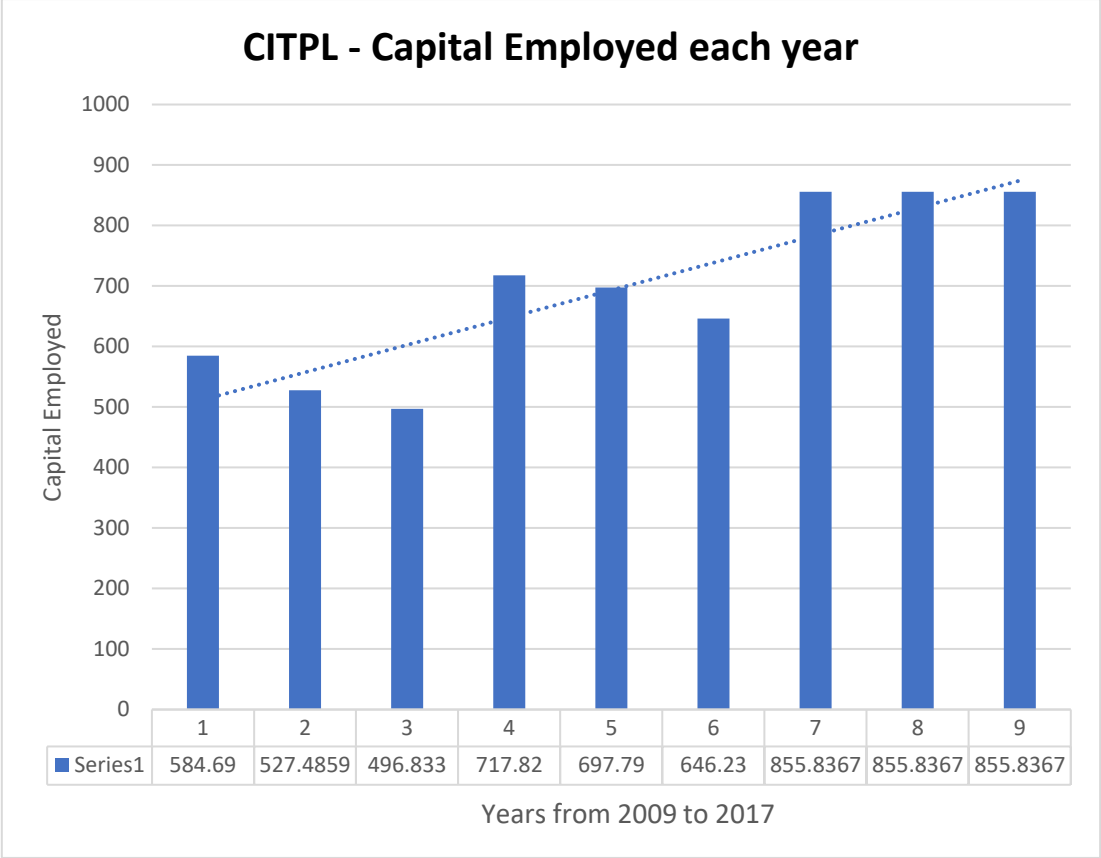
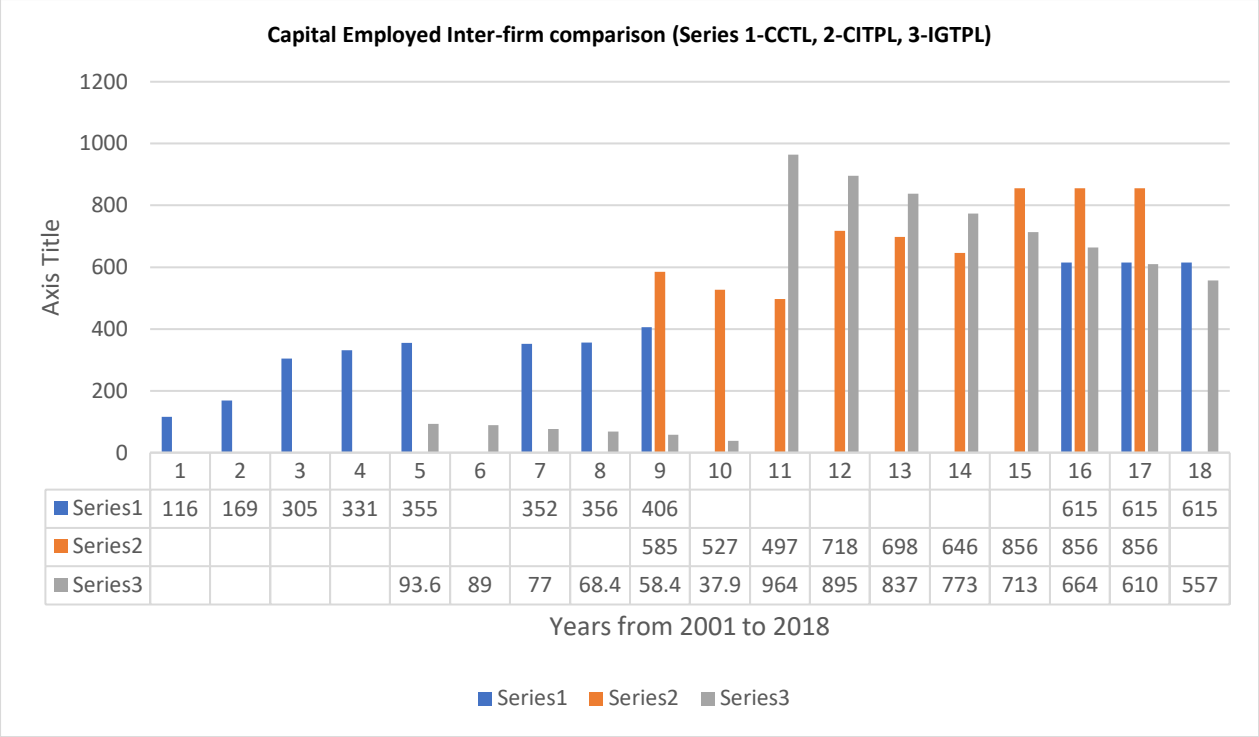


Figure 8: Inter-period Comparison of CITPL for capital employed

In the case of CITPL, for every couple of years the capital employed shows a sudden rise and then comes down for the next two years and then again sudden rise in capital employed can be observed. But the general trend line shows a gradual increase in capital employed. This terminal with the three berths is commissioned in 2009.

If we do the inter-firm comparison, since the data for the firms are spread over many years and the data doesn't start at the same point, the comparison was possible only to a limited extend. But generally, if we could observe for the years that the data was available, CITPL seems to have invested more capital than the other two operators for all the three years that the comparison was possible. This was for years 2009, 2016 and 2017. For 2009, CITPL has invested the most, followed by CCTL and then IGTPL. But when we come to 2016, second place was for IGTPL and then followed by CCTL but for 2017, CCTL and IGTPL almost invested the same amount.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Series1	116	169	305	331	355		352	356	406							615	615	615
Series2									585	527	497	718	698	646	856	856	856	
Series3					93.6	89	77	68.4	58.4	37.9	964	895	837	773	713	664	610	557

Figure 9: Inter-firm comparison of capital employed

Facilities Created by the Private Operator

CCTL

The container terminal has four berths CTB 1, CTB 2, CTB 3, CTB 4 and had a combined quay length of 885m. it can accommodate vessels that have a capacity of up to 6400 TEU. CCTL has a total yard area of 21.4 ha and it has a total of 3960 ground slots with a holding capacity of 19710 TEUs. There are provisions for 355 reefer plugs and the terminal is services by 7 quay cranes and 24 RTGs. The terminal has a capacity of 1.6 MTEU per annum and the yard houses a Container freight station of 6500 sq meter of area.

Figure 10: CCTL container terminal aerial view

CITPL

The container terminal that the CITPL handles id in the Ambedkar Dock where three berths (SCB 1 to 3) are dedicated for the CITPL container terminal. Total quay length of 832 m with a total yard capacity of 35.8 ha where it can accommodate 5424 ground slots with a holding capacity of 27120 TEUs. It has 304 reefer plugs and 10 quay cranes and 20 RTG's to service the port.

Figure 11: CITPL Container terminal aeriel view

IGTPL

Indian Gateway Terminal Private Limited consists of two terminals of 1 MTEU per annum. It has a depth of 14.5 m and has total quay length of 600 m. The project is envisioned in three stages of which the first stage of 600m terminal was commissioned in 2011. After the completion of the second and third stages this container terminal will have a capacity of more than 5 MTEU per annum.

Capital Efficiency

Capital Efficiency is indicated in two forms for the purpose of effective evaluation of this project. The capital efficiency financial is defined as the cargo traffic handled in TEU each year per capital employed in Rs each year. It means that the capital employed per TEU handled each year. This gives us an indication whether the operator has generated any cargo per Rupee of capital employed. Capital employed physical is the cargo traffic handled per unit berth length. This indicator gives us a measure of whether the operator has achieved maximum utilisation of the berth length as berth length is the limiting variable in a port. So, for a given berth length, if the operator is handling more cargo then that means the physical capital efficiency of that operator is very good.

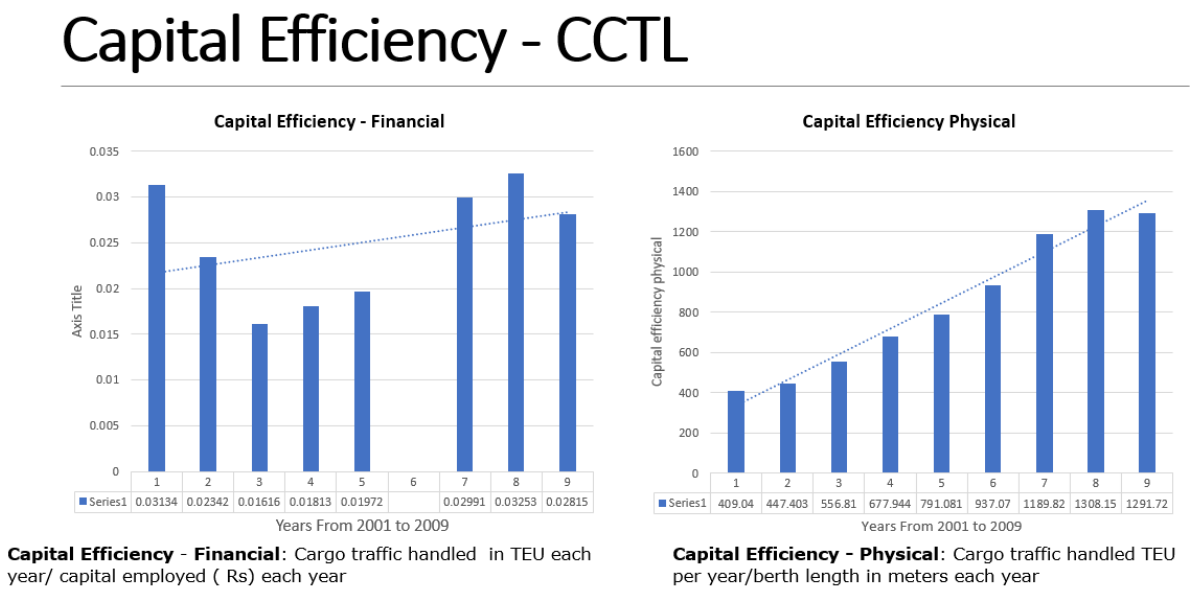


Figure 12: Inter-period comparisons of Capital efficiency of CCTL

If the graph for capital efficiency financial for CCTL is observed, the initial years showed very high efficiency, but later they declined towards 2003 and then for the next couple of years it revived back but it couldn't get back to its former value. But later in 2007 it showed a steep increase and by 2008 it surpassed the previous highest efficiency. But post 2009 it showed a dip but a conclusive estimate cannot be made regarding the trend post 2009 as the data was insufficient for the calculations. But the capital efficiency physical of CCTL is showing a steady increase over the years that means with the existing berth length, the container traffic is steadily increasing.

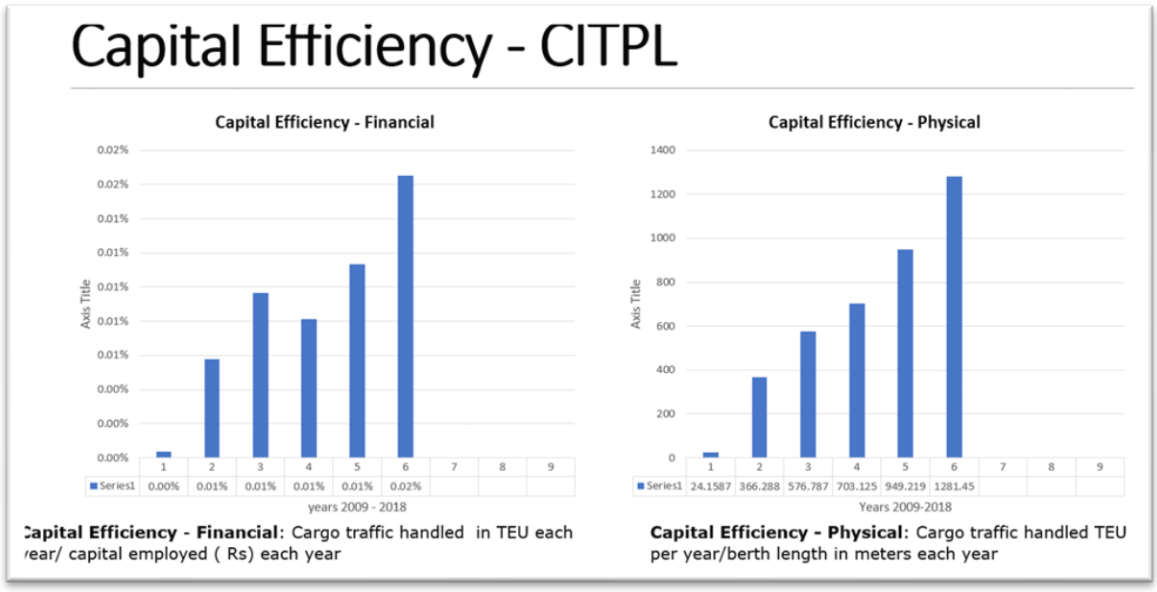


Figure 13: Inter-period comparison of capital efficiency of CITPL

For CITPL, the trend is not like that of CCTL. It is much more uniform and optimistic. Both the Physical and Financial Capital efficiency is showing a growing trend and that too the growth is uniform and increasing. So, we can safely say that CITPL has achieved both financial and physical capital efficiency. In the case of IGTPL, the capital employed financial shows an increasing trend and then suddenly a strong decline and then it never recovered from that. This is primarily attributed to the decline in capital employed in the initial years of the concession period. The major chunk of the capital employed started to come after 2010. But in the case of Capital employed physical, till 2005 there was an increasing trend but in 2006 it sharply dipped and then it took a couple of years to steadily increase and progress to the initial levels. But the general trend is showing a steady increase.

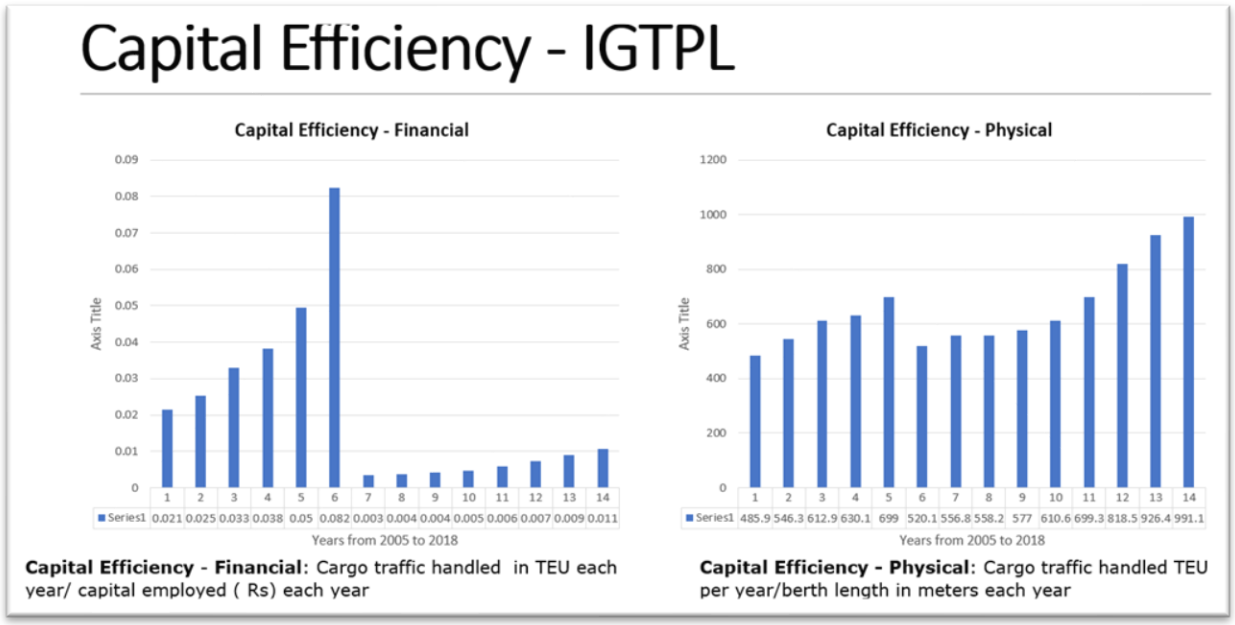


Figure 14: Inter-Period comparison of capital efficiency of IGTPL

Operating Efficiency

Operating Efficiency is defined by operating costs each year per TEU handled that year. This measure shows the cost per TEU incurred by the operator in its commercial operations. This measure gives us an idea about the per TEU cost of operation of the operator. Lower value of this measure is desirable as it shows that the terminal and the operator is cost efficient and provides cost effective service.

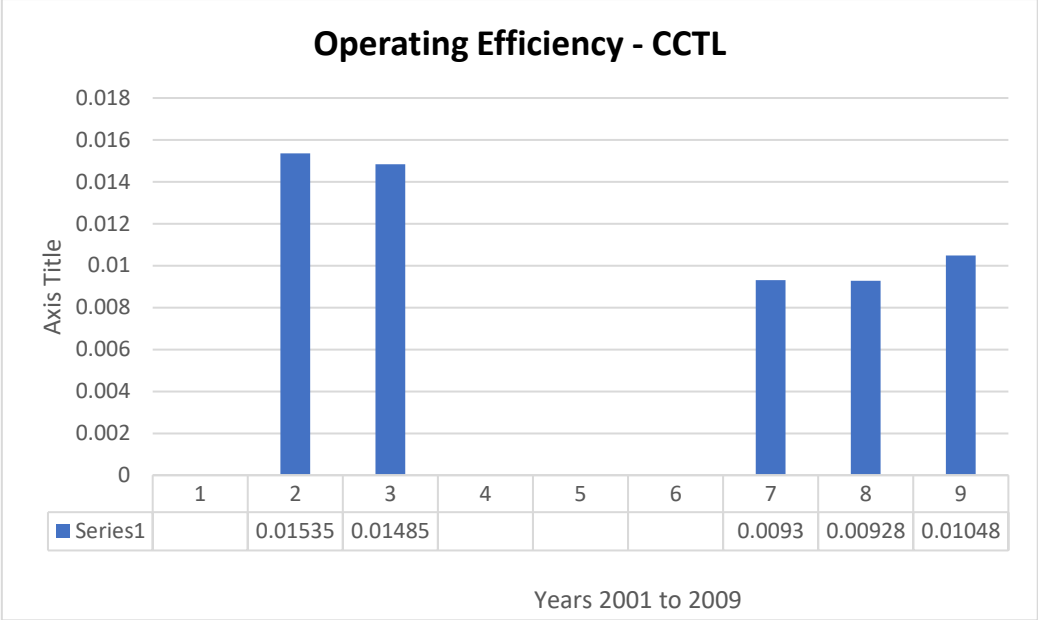


Figure 15: Inter-period comparison of operating efficiency of CCTL

In the case of CCTL, from the available data, it can be observed that this ratio was high during the initial years of the operation, but as the years passed the ratio was observed to come down this can be attributed to the increase in the cargo traffic.

In the case of CITPL, the ratio is decreasing steadily even though there is a spike at the very first year as the operations started only at a later part of the year and the TEUs handles are comparatively less than other years.

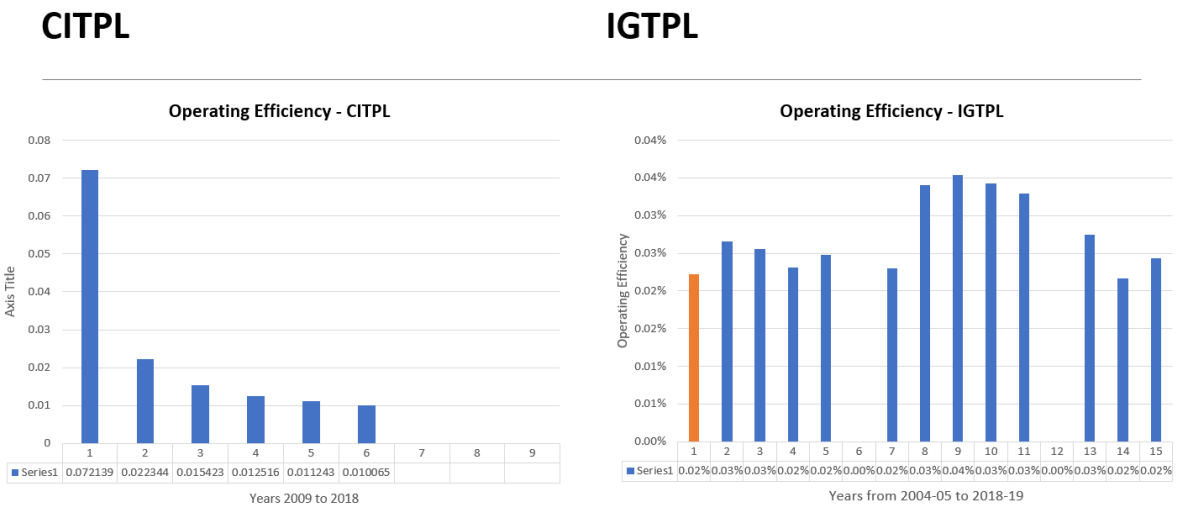


Figure 16: Inter-period comparison of operating efficiency of CITPL and IGTPL

For 2004-05, the terminal which is now IGTPL were under the Cochin Port trust control so that is not considered for analysis. In this we can see that the general trend is not uniform. The operating efficiency ratio goes up and then comes down and then again goes up. If we compare the operating efficiency of the three operators, it can be observed that the ratio is steadily decreasing in the case of CITPL.

Commercial Efficiency

In commercial efficiency, we compare the year wise growth of cargo traffic of the terminal each year and observe the changes.

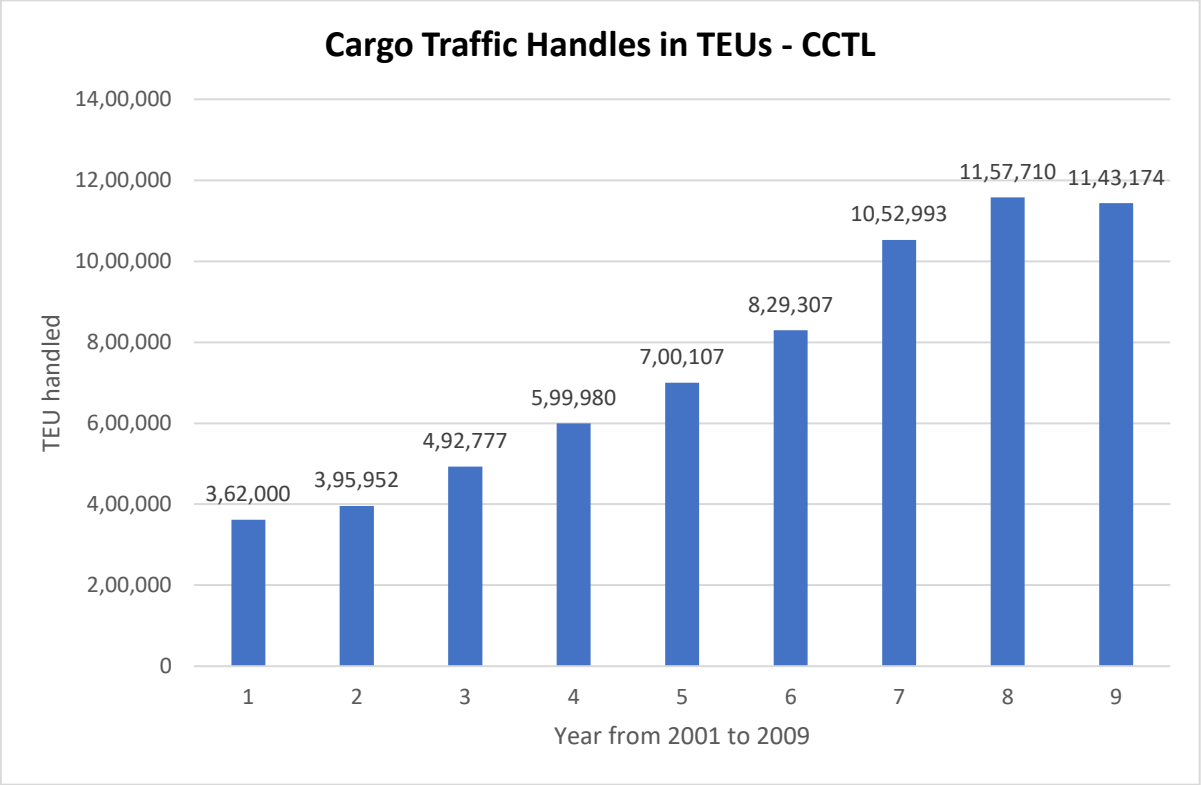


Figure 17: Inter-period comparison of Cargo traffic for CCTL

In the case of CCTL, the cargo traffic was observed to have an increasing trajectory throughout the 9 years that we considered. The years beyond 2009 couldn't be considered because of the lack of availability of adequate data in the official TAMP website.

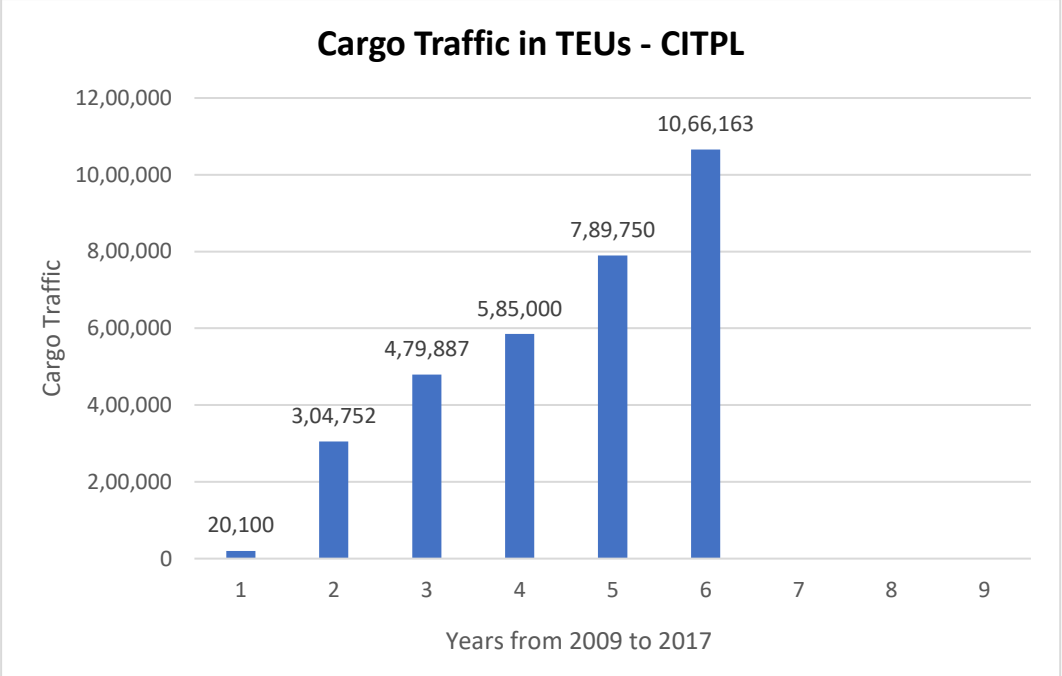


Figure 18: Inter-period comparison of cargo traffic for CITPL

In the case of CITPL, the cargo traffic was observed to be low in 2009 as the terminal began operation in November 2009. But in the coming years, it can be observed to show significant increase in the cargo traffic.

In the case of IGTPL, the cargo traffic handled can be observed to be having an increasing trajectory. The traffic is increasing steadily with time, but this is not the kind of container traffic that is expected in this terminal at the time of its inception. The ICTT was envisioned to be the direct competition of Colombo port in terms of it transhipment capacity and container traffic handling, but IGTPL is only handling a fraction of the cargo that Colombo is handling daily.

If we look at the inter-firm comparison, the data is pretty evident that the cargo handled in Chennai is significantly larger than that being handled in Cochin. Over the years, CCTL has become the terminal in this lot to handle the most cargo, followed by a close second is CITPL and then IGTPL is trailing at half the highest value of the other two. This can be primarily attributed to the hinterland factor of IGTPL. The hinterland of Chennai port is stronger and volume rich when compared with that of Cochin port.

So basically, we can say that the more cargo the terminal attracts and handles per year, the commercial efficiency increases. And the desired result is to handle more cargo so that more business comes in and that would make the shareholders and all the stakeholders happy.

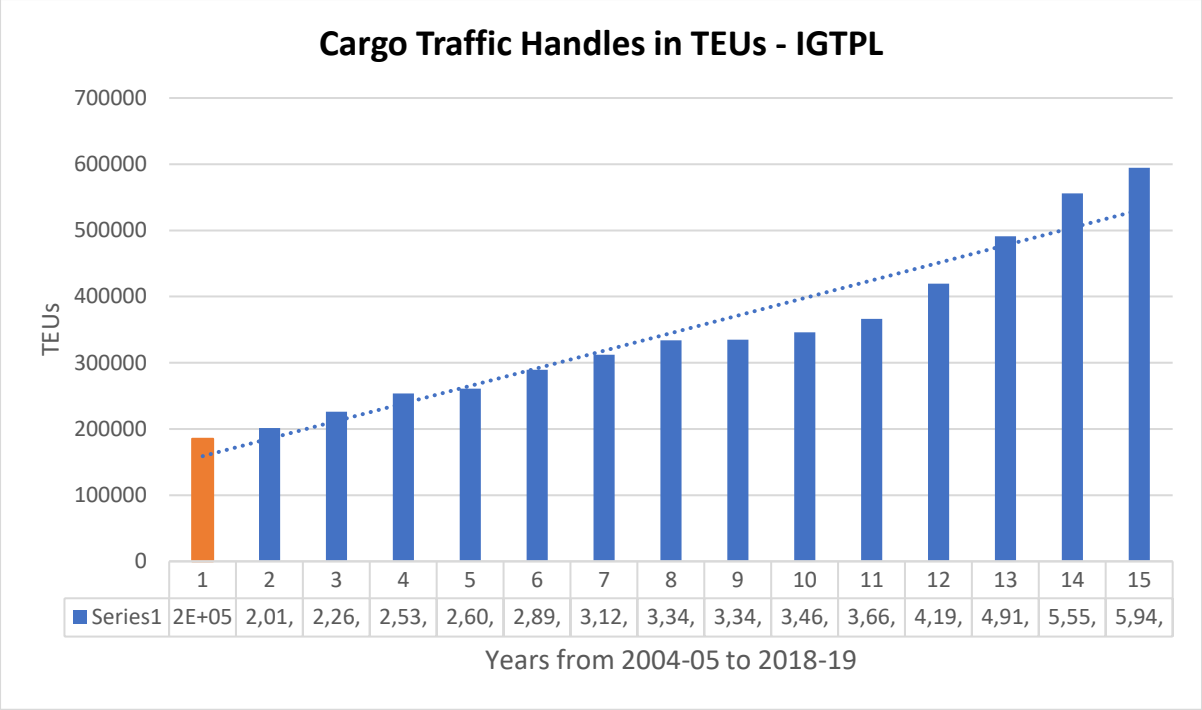


Figure 19: Inter-period comparison of cargo traffic for IGTPL

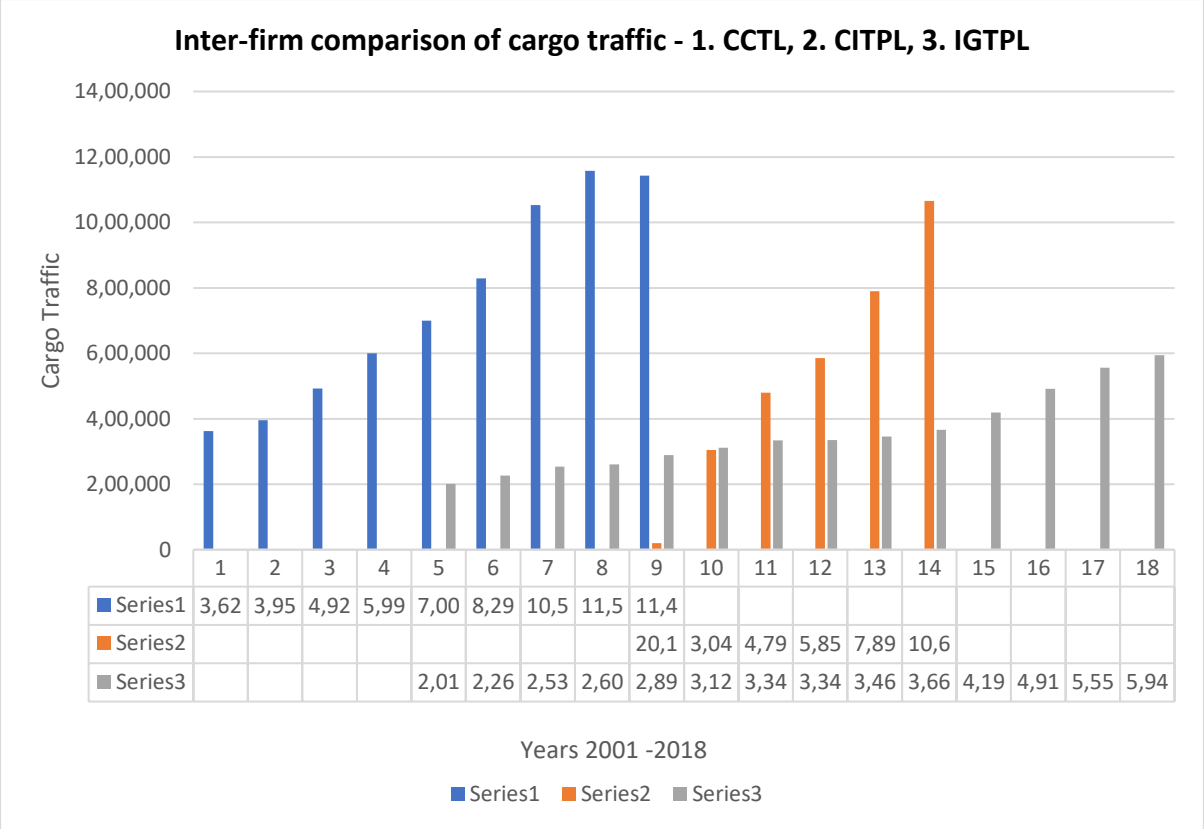


Figure 20: Inter-firm comparison of cargo traffic

User Productivity

User productivity is the measure that indicates the benefits that the port users are getting from this arrangement. Different metrics can be used to measure and evaluate this, ship turnaround time, cargo handling productivity, gross crane rate etc. Here unfortunately, in the official site, the information on any of these metrices aren't available for all the operators.

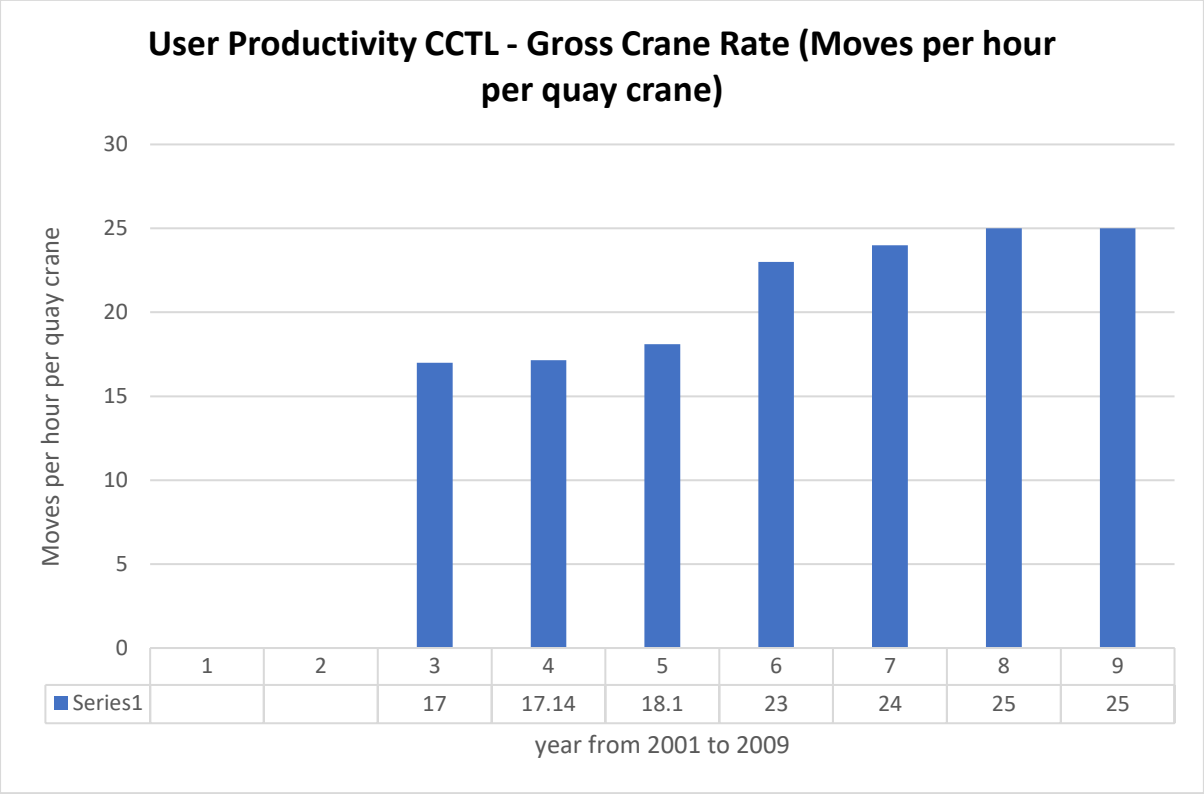


Figure 21: Inter-period comparison of Gross crane rate for CCTL

For CCTL, the gross crane rate i.e. the mover per hour per quay crane is available for the time period between 2003-09. From the graph it can be observed that the cranes mover per hour per quay crane is increasing steadily and it is showing an increasing trend. It started to be only 17 moves per hour in 2003 to 25 moves per hour in 2009. In terms of ship turnaround time, CCTL is observed to have an average turnaround time of 1.32 days in 2003 and in 2006 it improved to 0.9 days which is a significant improvement in 3 years. For the other operators, the sufficient data were not available in TAMP website for evaluation.

Equity Capital Invested each year

Equity capital is the amount of the capital employed that the investor has invested themselves. So, this value gives us the indication of the proportion of the capital employed for which the investor is directly responsible for.

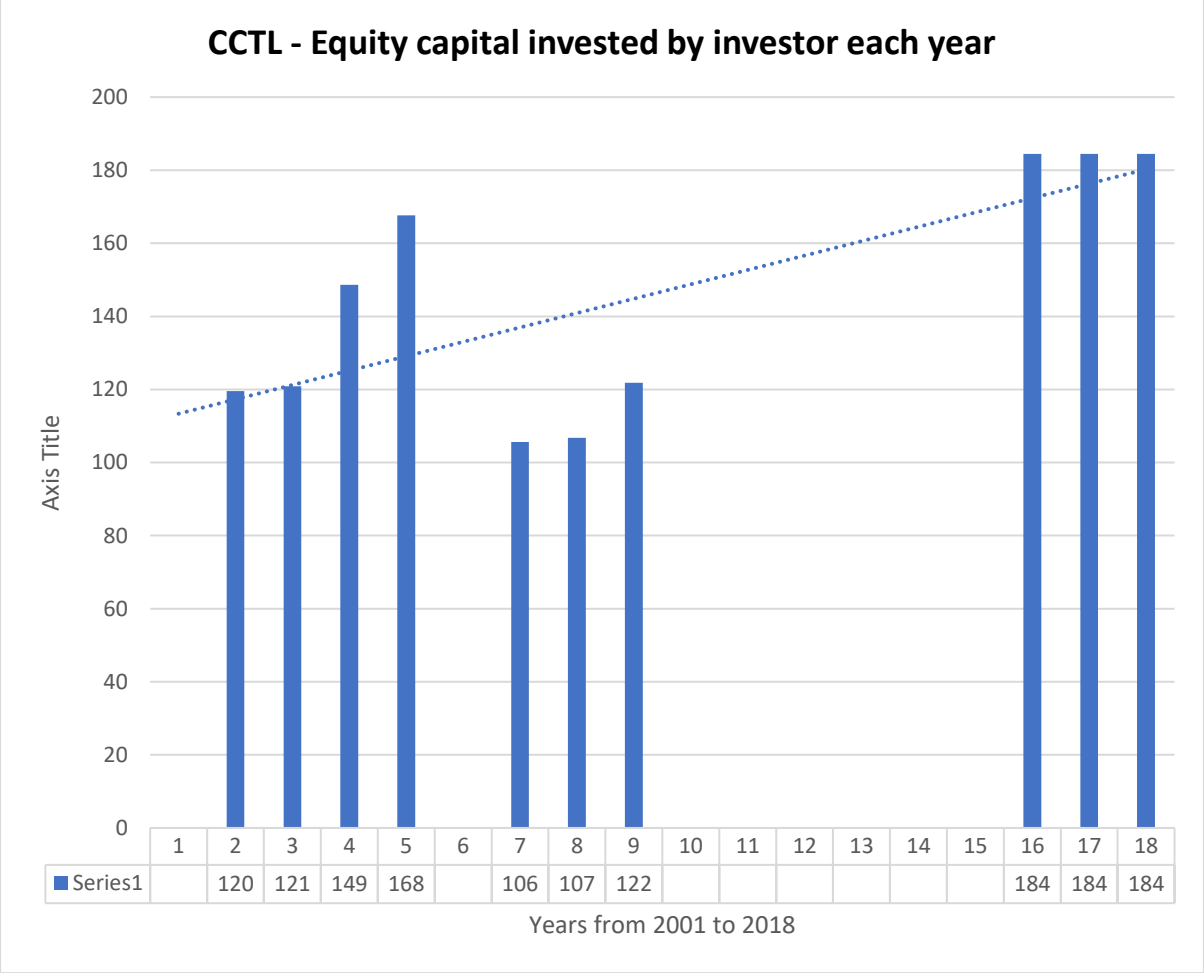


Figure 22: Inter-period comparison of equity capital invested for CCTL

For CCTL, the equity capital invested increased for the initial years and then after 2006 it showed a decline. But the general trend line shows an increasing trend over the entire 17 years.

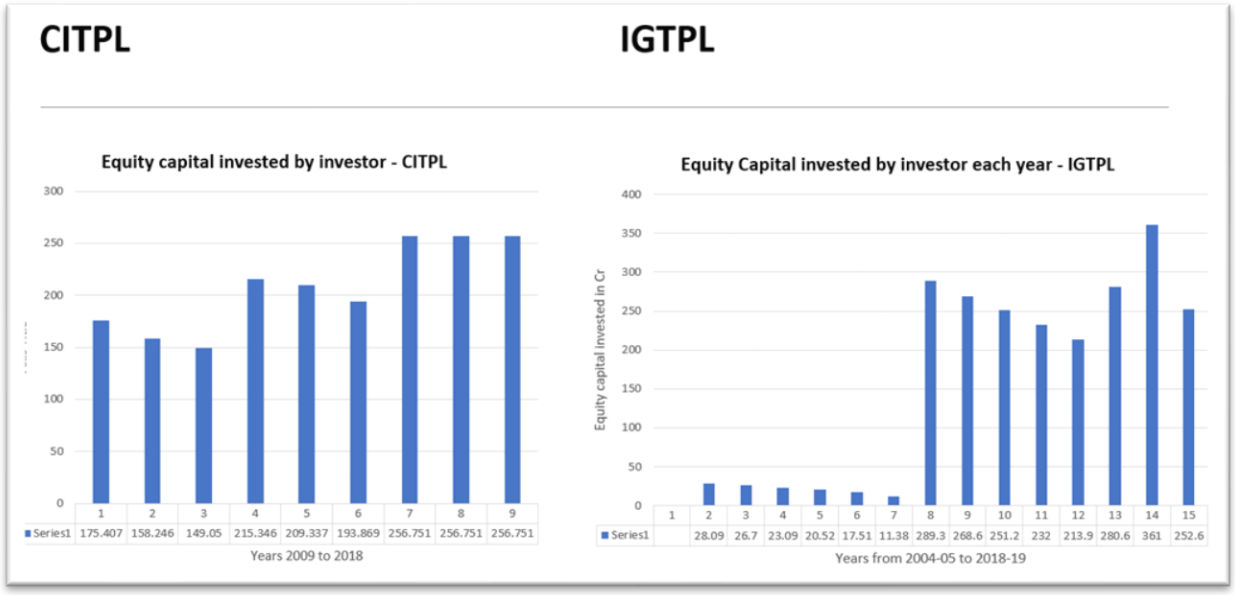
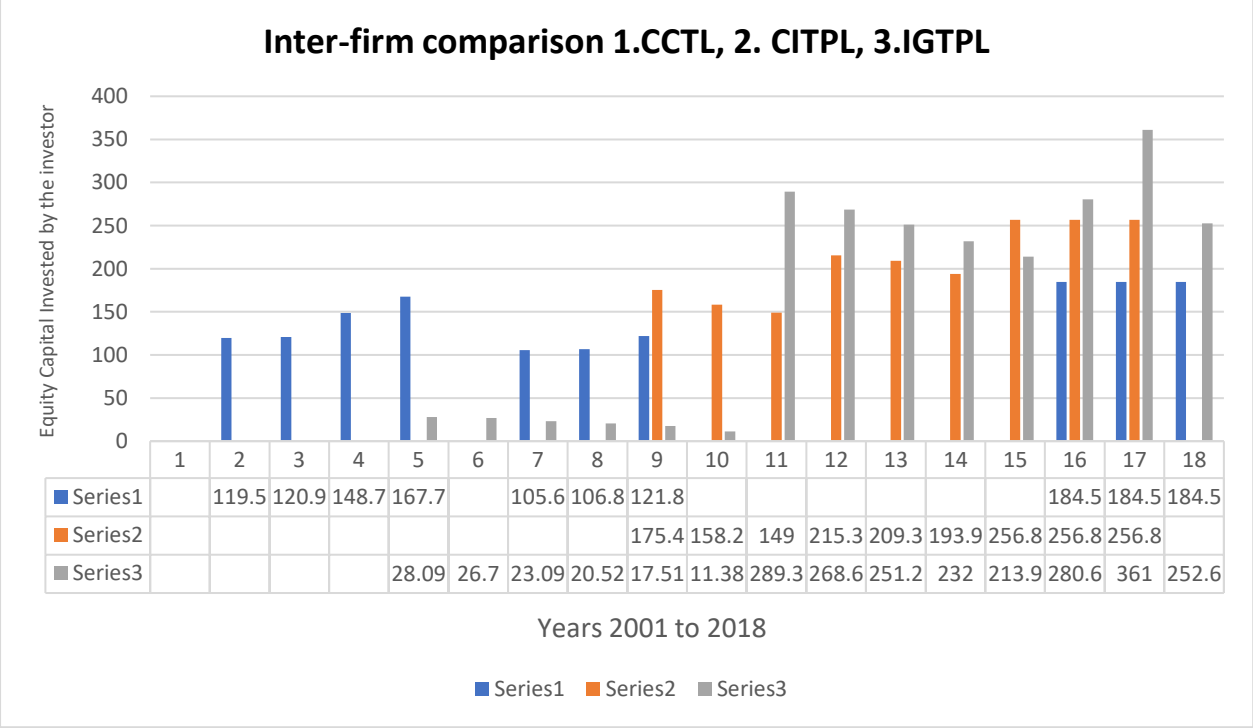


Figure 23: Inter-period comparison of equity capital invested for CITPL and IGTPL

If we could closely look at the trend of the values, it is showing an increasing trend in the equity capital invested by the operator. The values and the graphs are similar in trend with that of the capital employed. After 2011, for IGTPL, the operator has significantly increased their investment and it can be observed that it is going down till 2016 and then it recovers.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Series1		119.5	120.9	148.7	167.7		105.6	106.8	121.8							184.5	184.5	184.5
Series2									175.4	158.2	149	215.3	209.3	193.9	256.8	256.8	256.8	
Series3					28.09	26.7	23.09	20.52	17.51	11.38	289.3	268.6	251.2	232	213.9	280.6	361	252.6

Figure 24: Inter-firm comparison of equity capital invested

From the above inter-firm comparison of the equity capital invested, if we consider the years that we have all the three data, we could observe that IGTPL has invested more equity capital when compared to CCTL and CITPL. For years 2016 and 2017, IGTPL invested the largest equity capital then CITPL follows it closely by investing a little over 250Cr and then comes CCTL.

Profit allowed to the investor by the regulator

This indicator shows the profit that the investor or the private operator gets from the operation of this terminal. From the graph for CCTL, it can be observed that during the initial years the profit allowed to the operator was high but later on it can be observed that the data trend is going down, that means the profit allowed to the operator is reduced over the years.

But this is not the case with IGTPL and CITPL. If the data for IGTPL and CITPL is observed, it can be seen that the profits are increasing over the years. For IGTPL, the increase is gradual and slow but for CITPL, it had a fluctuating design but generally it shows an increasing trend.

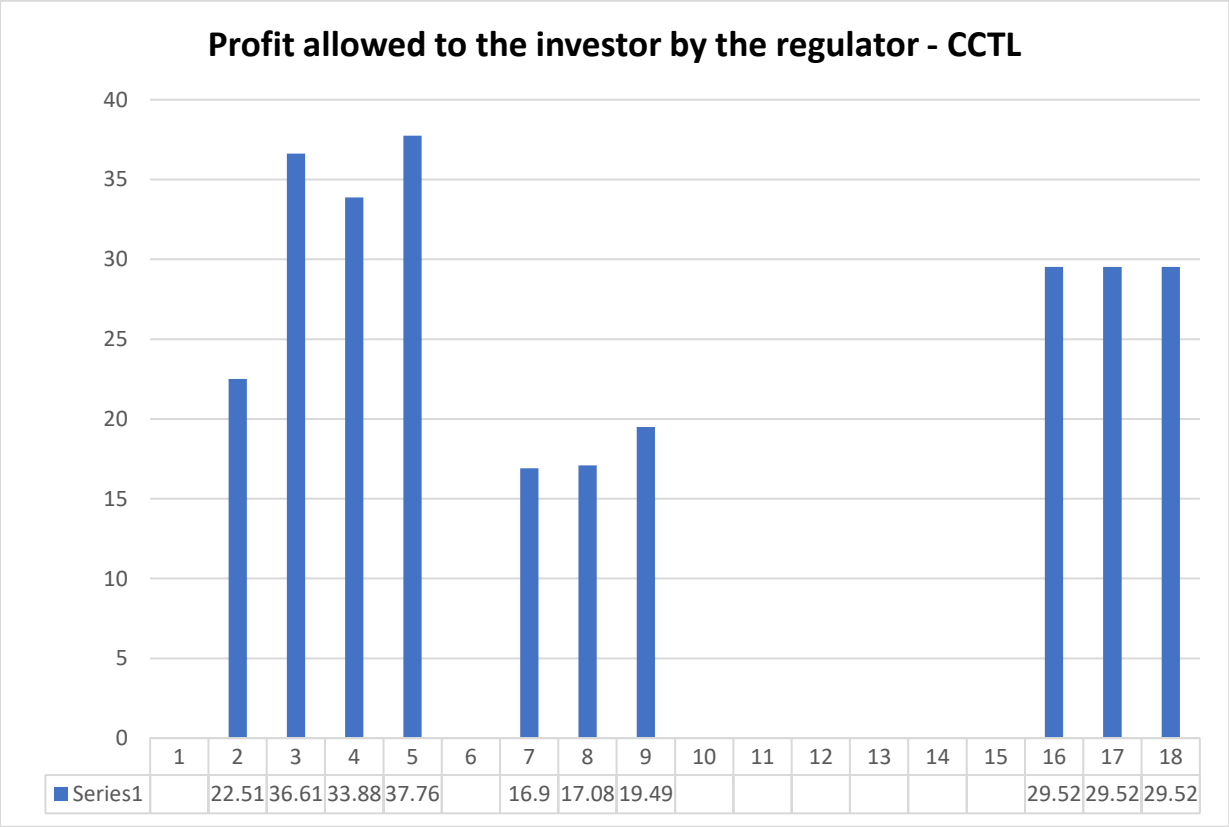


Figure 25: Inter-period comparison of profit allowed to the investor for CCTL

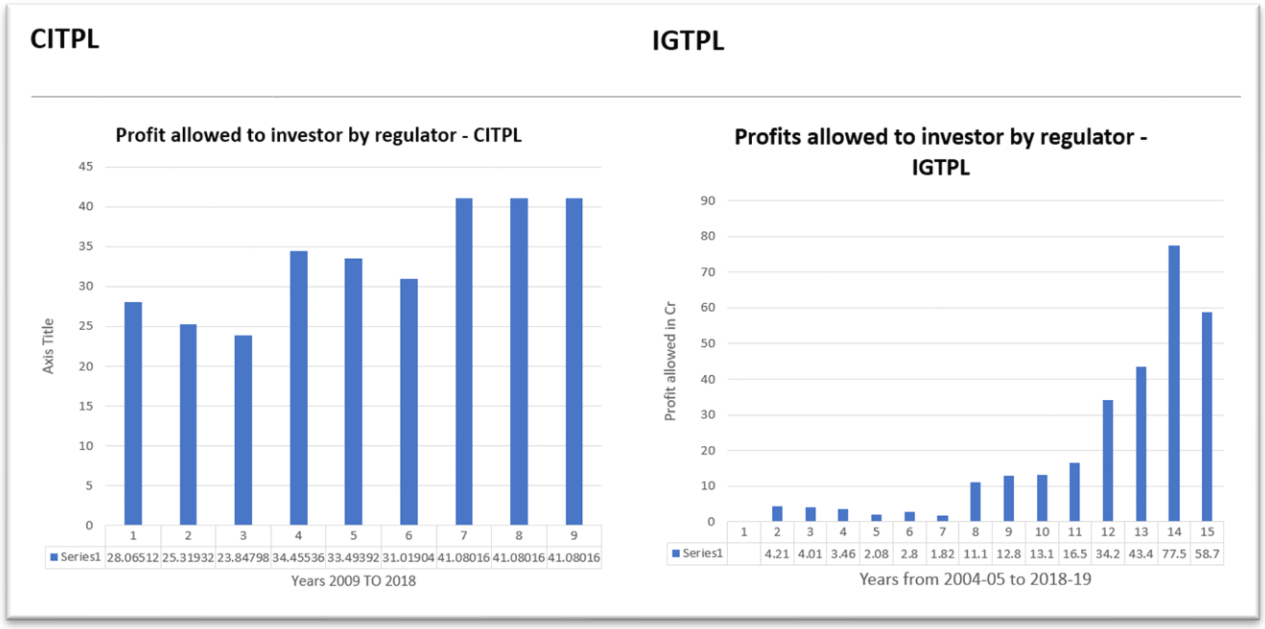


Figure 26: Inter-period comparisons for profit allowed for CITPL and IGTPL

If we look at the interfirm comparison, we could observe that on an average throughout its operation, CITPL was observed to have good profits while for IGTPL, the profit allowed to the investor by the regulator started to increase after only 2015. From this measure we could observe that the profits allowed to CITPL was more stable and uniform and without much variation.

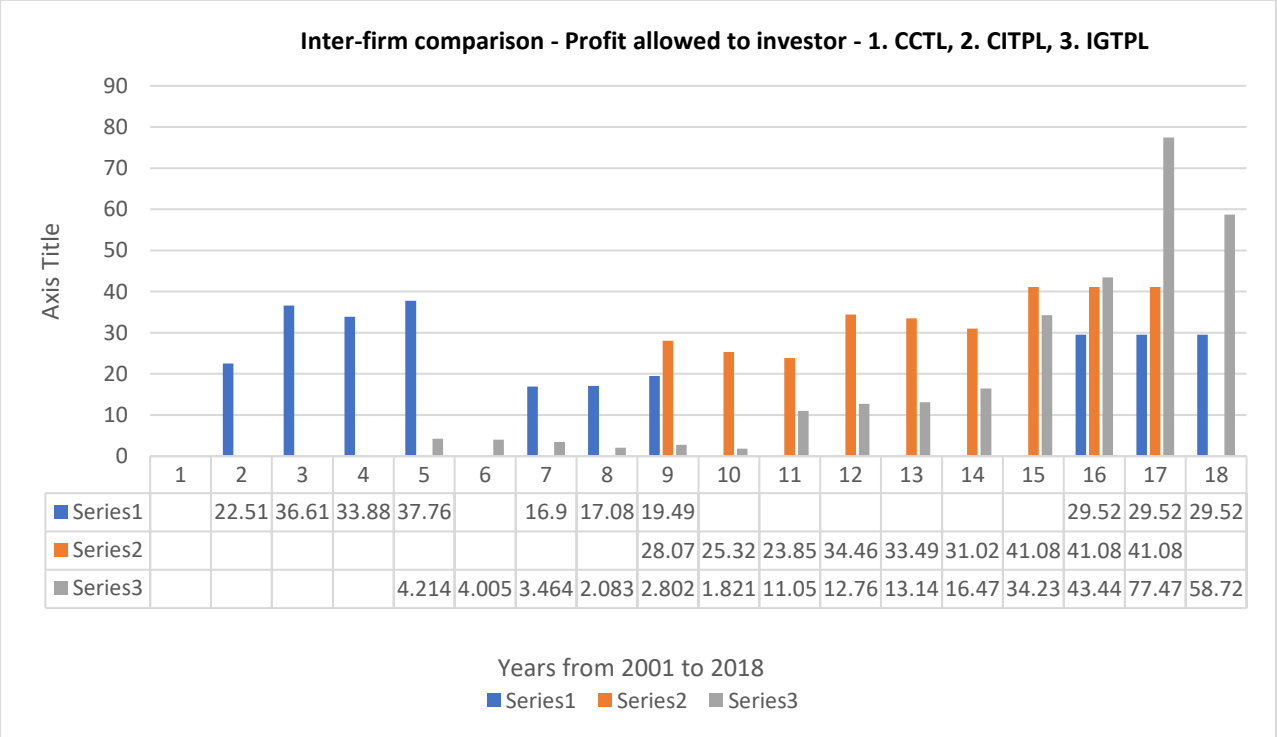


Figure 27: Inter-firm comparison for profit allowed to investor

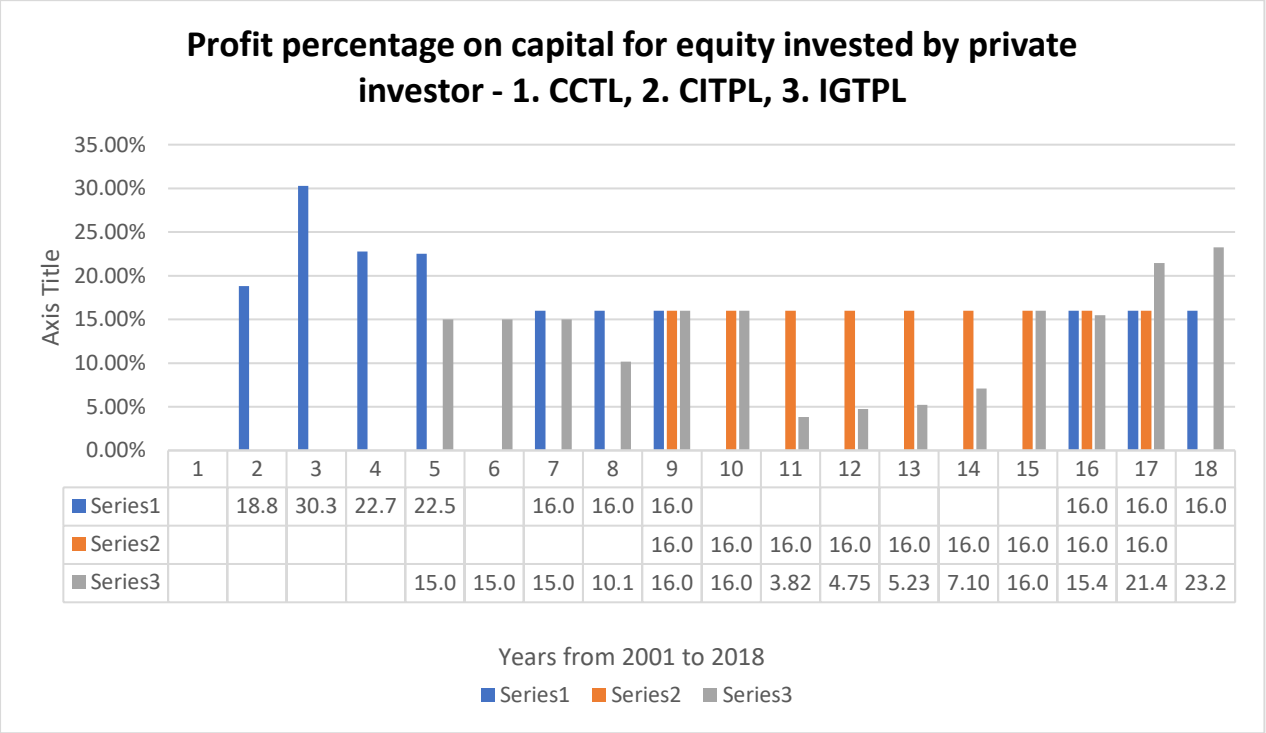


Figure 28: Inter-firm comparison for percentage of profit for equity invested

If we observe the profit percentage on capital for equity invested by the private investor, the percentage is more or less same as this is decided by the regulator. Earlier the percentage was fixed at 20% then they reduced it to 16% after a couple of years and then after couple of years they again changed it to 15%. The regulators keep changing the percentage pf profit permissible for the operator. This is one of the points of contention because the regulatory intervention on the profit allowed to the operator might negate the purpose of this whole process.

Royalty or Revenue share paid to port trust each year

The revenue share to the port authority is the percentage that the operator agrees to pay the port authority every year. Most of these royalty agreements and concession agreements are back ended royalty agreements that has the royalty for the entire concession period fixed even before the commencement of operation. So the operators bid on the revenue share and the operator that quotes the highest revenue share is awarded the concession agreement.

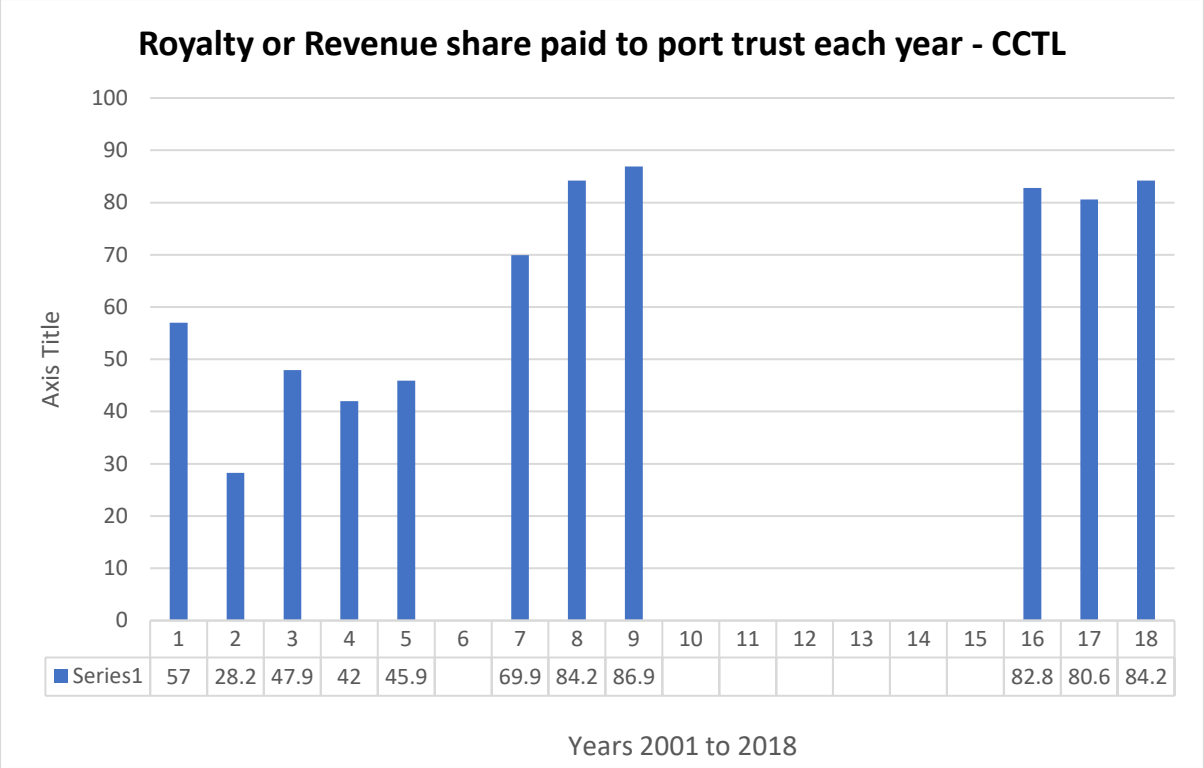


Figure 29: Inter-period comparison of Royalty or revenue share by CCTL

The revenue share for CCTL shows an increasing trend and when we correlate this with the profit graph it can be observed that the profit is going down over the years while the revenue shared is going up. So, it can be preliminarily concluded that this agreement is more beneficial for the port authority than the private operator. This can be conclusively proven when the value shared between the stakeholders are discussed later in this section.

For IGTPL and CITPL, the revenue shared by the operator with the port authority values for the initial years were not available in TAMP website, so that is not considered in this analysis. But the value is available for the last three years and the revenue shared is showing an increase in those three years for both CITPL and IGTPL. This trend is in line with the one that was observed for CCTL. Here also, the beneficiary can be identified by an in-depth analysis of the value shared among the stakeholders later in the report.

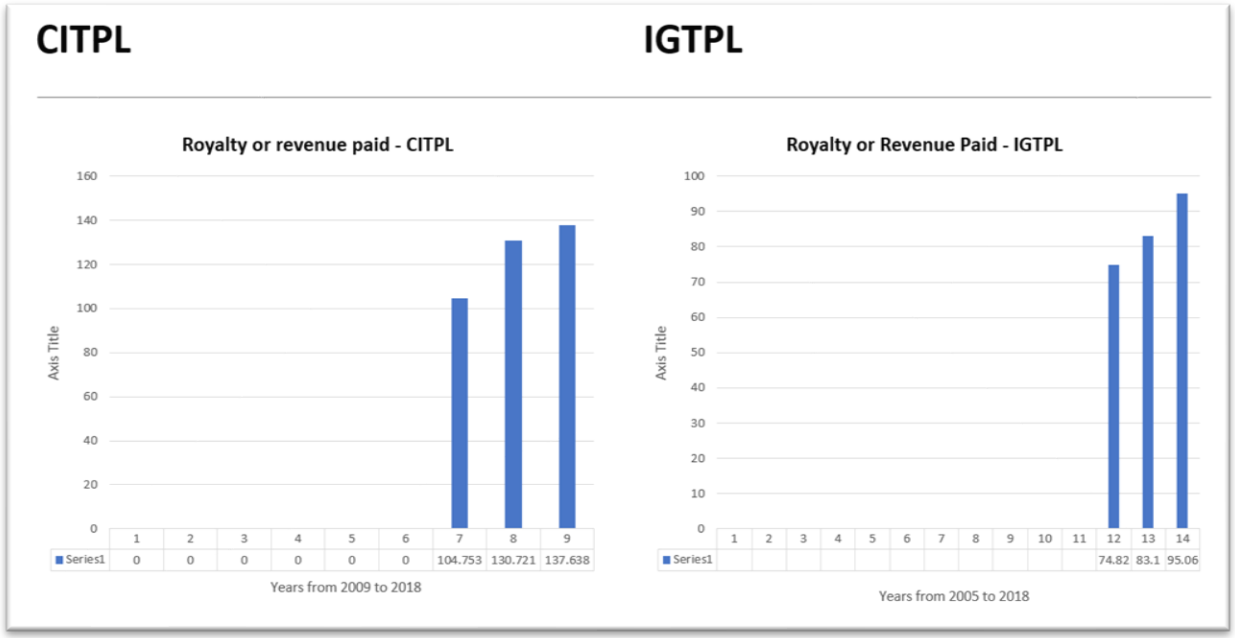


Figure 30: Inter-period comparison of Revenue share by CITPL and IGTPL

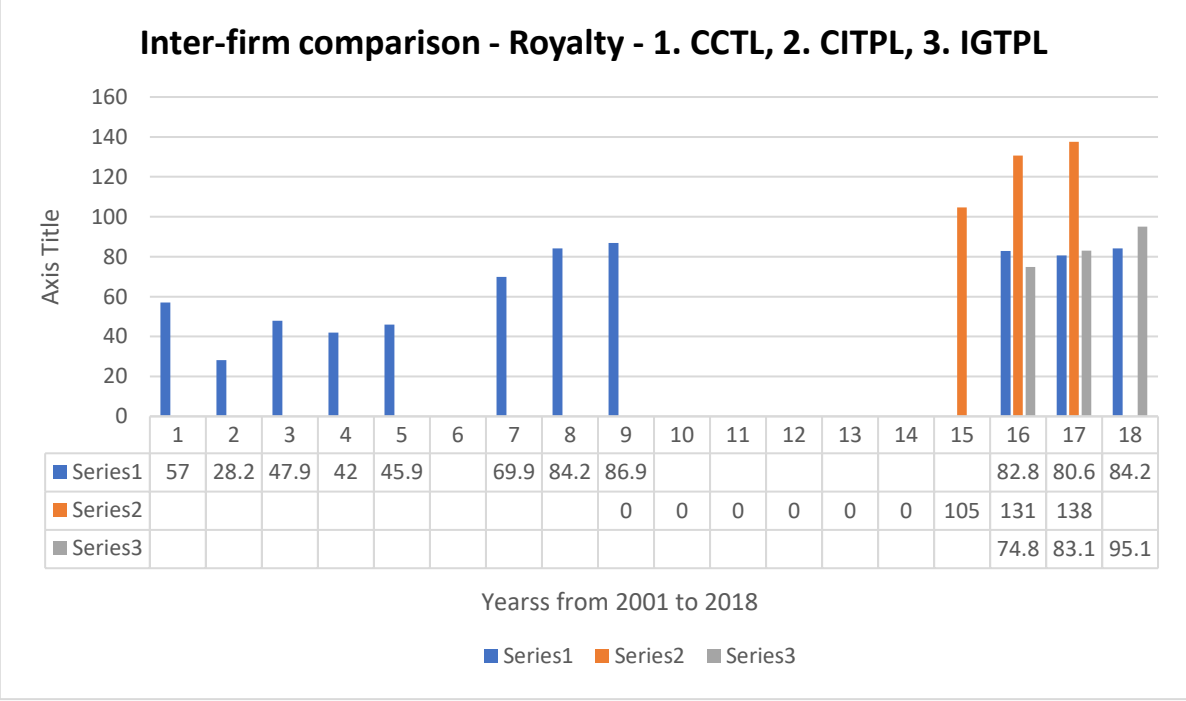


Figure 31: Inter-firm comparison of Royalty paid

If we look at the interfirm comparison for revenue shared, for the years that we have all the three-operator information, it can be observed that the revenue shared by CITPL is the highest among all the three operators. CCTL and IGTPL have similar range of revenue share.

Interest on Loans

Capital employed consists of equity share capital and the loans that the operator has borrowed from financial institutions that needs to be repaid as interests. The total outstanding loans on an average account for 70% of the capital employed. So, the interest on these loans is the return that the lender gets from financing this infrastructure development activity. If the interest is high and the interest paid is more than the profit or revue share, then we can assume that because of this concession agreement, the financial institutions and lenders are the most beneficial.

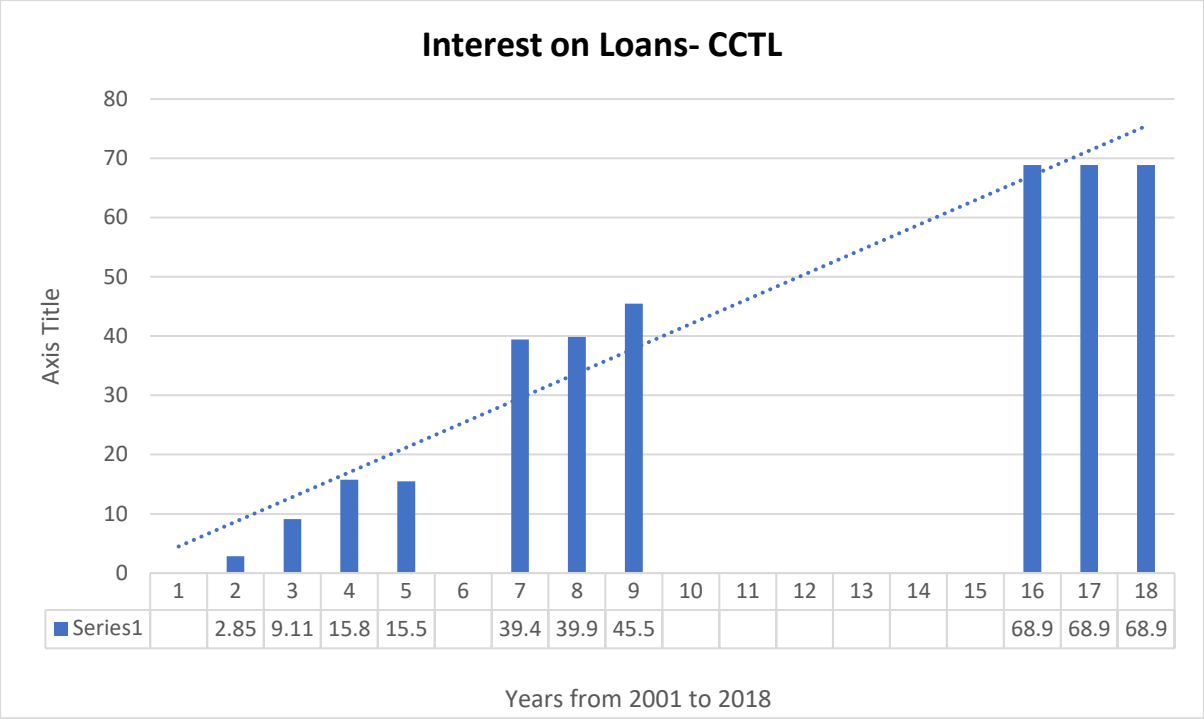


Figure 32: Inter-period comparison of Interest on loans by CCTL

For CCTL, the interest on loans shows a linearly increasing trend. This shows that the lender is also benefiting from the concession agreement. But in order to know it in detail, we would need to check the breakup of the value shared which will be discussed further down the report.

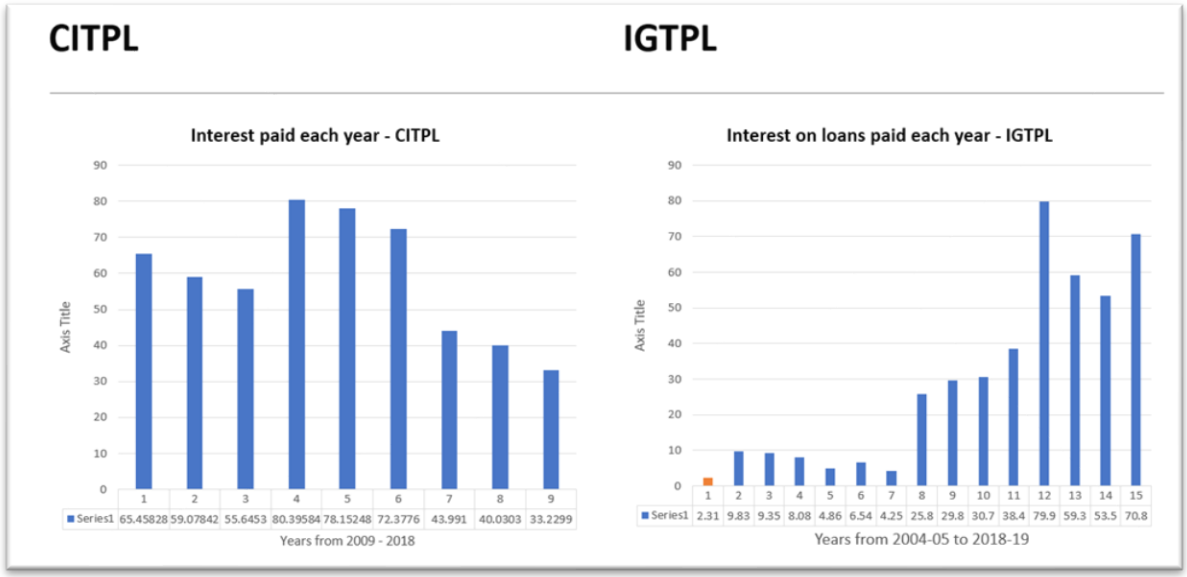


Figure 33: Inter-period comparison of interest paid by CITPL and IGTPL

The interest paid each year for CITPL is very interesting because the value initially decreased and then went up and then it is coming down steadily for the last 6 years. This is very interesting because this shows that the lender is not that beneficial from this arrangement. When it comes to IGTPL, it can be observed that the interest shows an increasing trend. For interfirm comparison, it can be observed that for the years that we have all the three data i.e. for 2016-17, CCTL pays more interest followed by IGTPL and then CITPL.

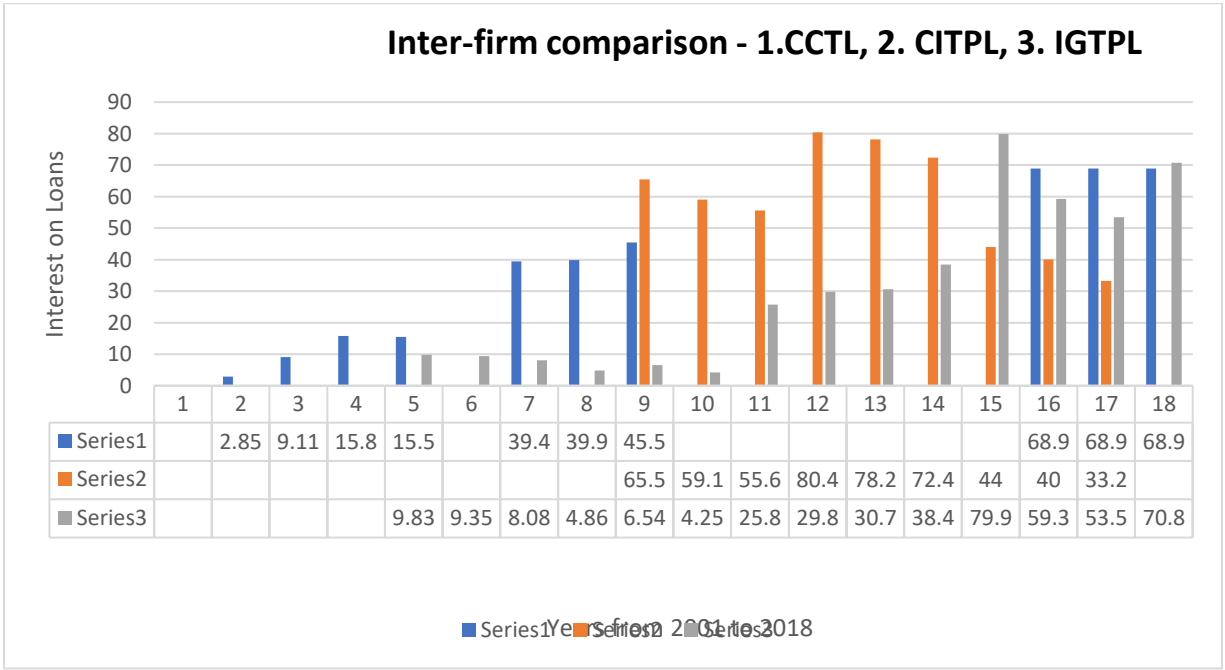
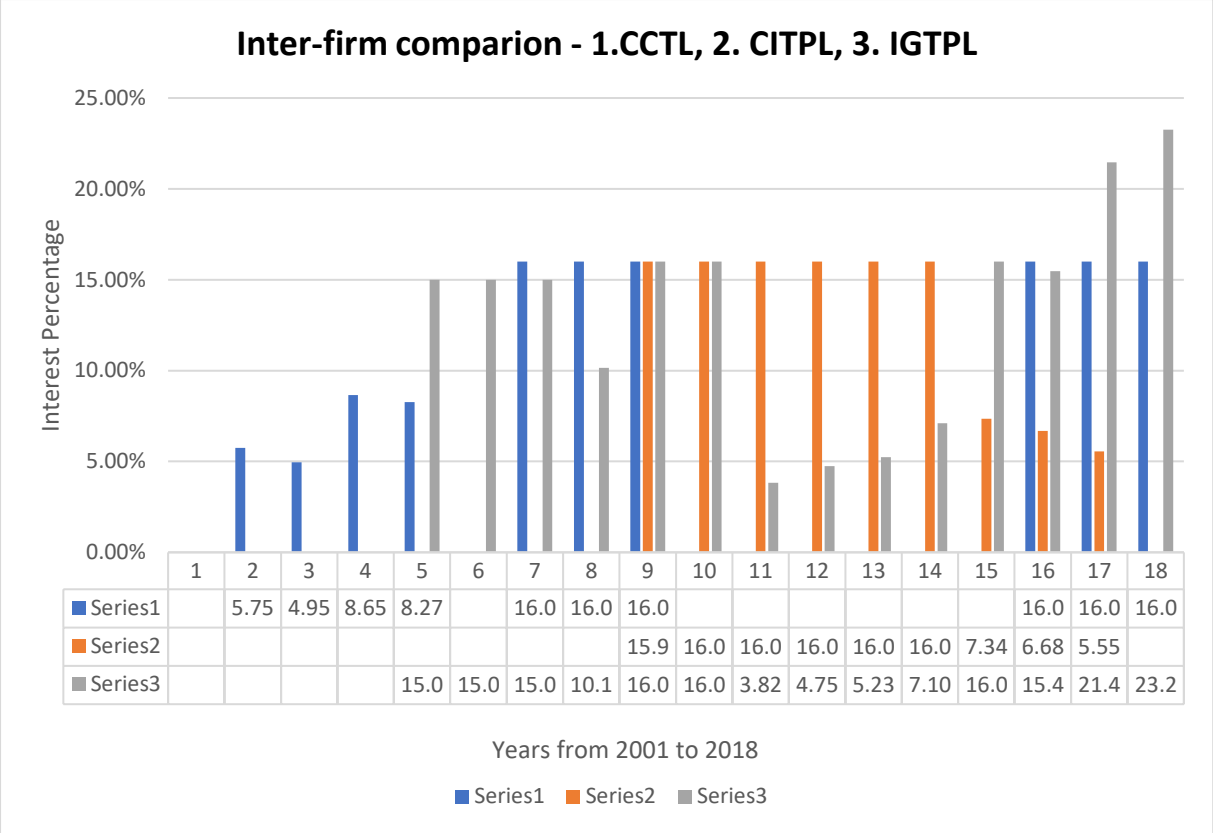


Figure 34: Inter-firm comparison for Interest on loans



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Series1		5.75	4.95	8.65	8.27		16.0	16.0	16.0							16.0	16.0	16.0
Series2									15.9	16.0	16.0	16.0	16.0	16.0	7.34	6.68	5.55	
Series3					15.0	15.0	15.0	10.1	16.0	16.0	3.82	4.75	5.23	7.10	16.0	15.4	21.4	23.2

Figure 35: Inter-firm comparison of interest percentage

From the interest percentage graph, we can observe that more or less the percentage of interest is same for the various firms barring the occasional change in interest. At the end, towards 2017-18 it can be observed that the interest percentage was slightly more for IGTPL.

Value Shared by the stakeholders

The formula for calculating the value shared by the stakeholders (I) is given by the sum of profit allowed to the operator by the regulator (F), Royalty or revenue share to the port authority (G) and the interest paid to the lender (H).

i.e. Value shared, I = F + G + H

This value indicates the total value shared between the three major stakeholders of the terminal and the concession agreement.

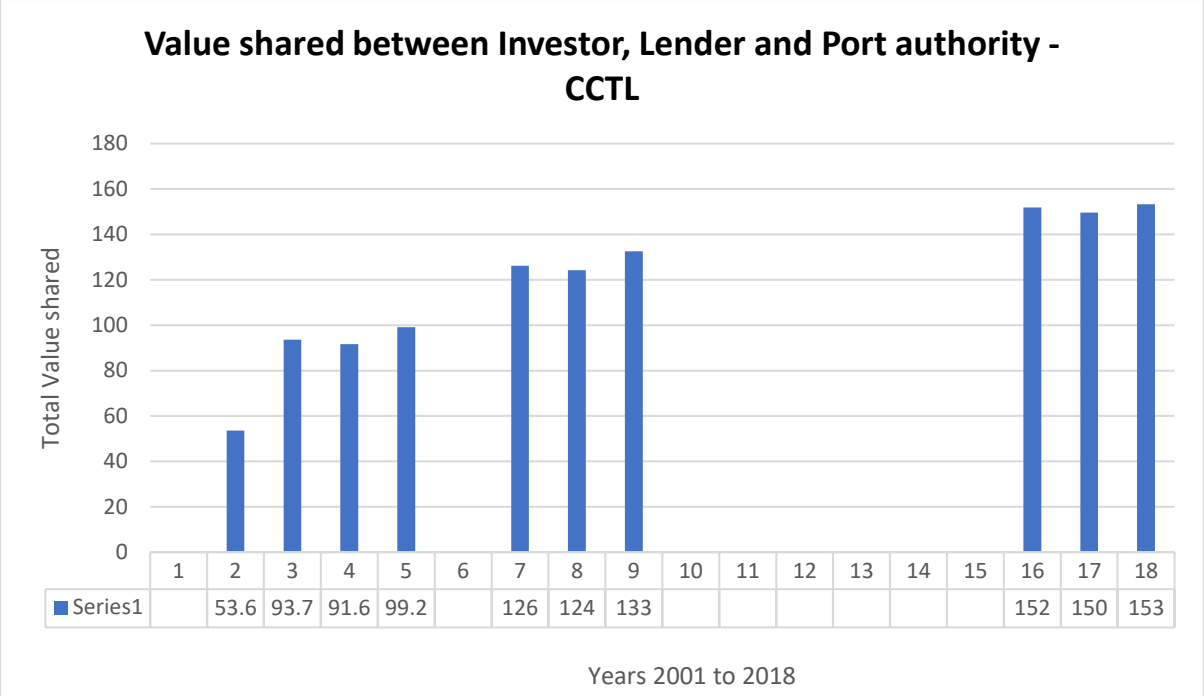


Figure 36: Inter-period comparison of value shared between stakeholders for CCTL

This is the value shared in the case of CCTL, it can be observed that the value shared is increasing over the years which is a good sign.

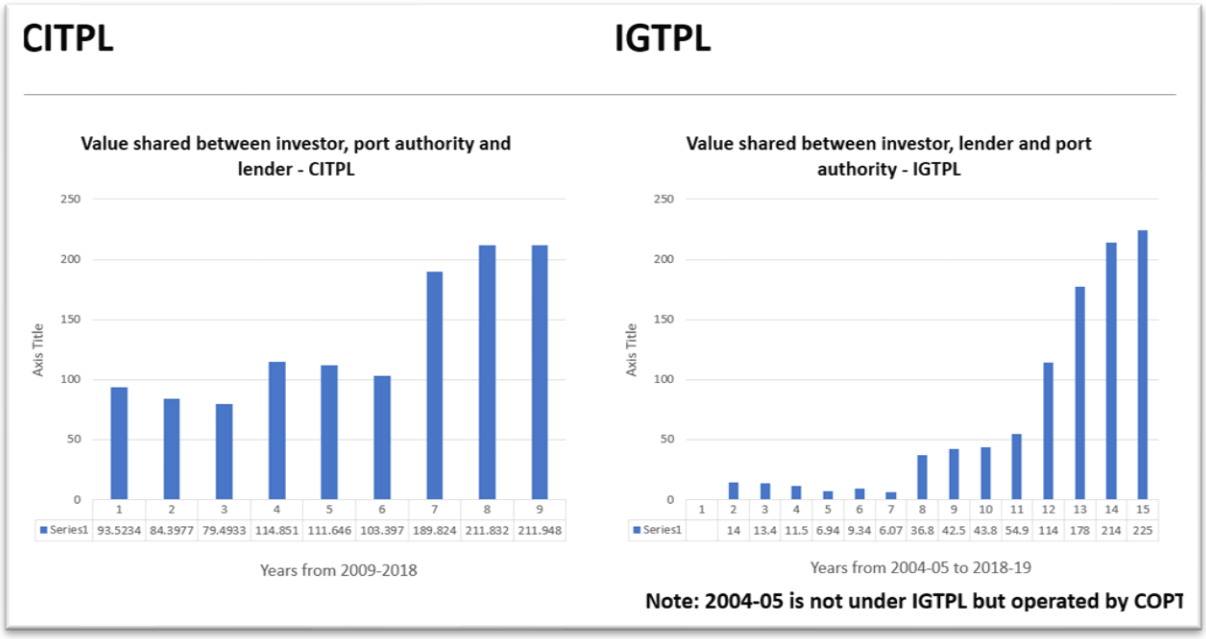
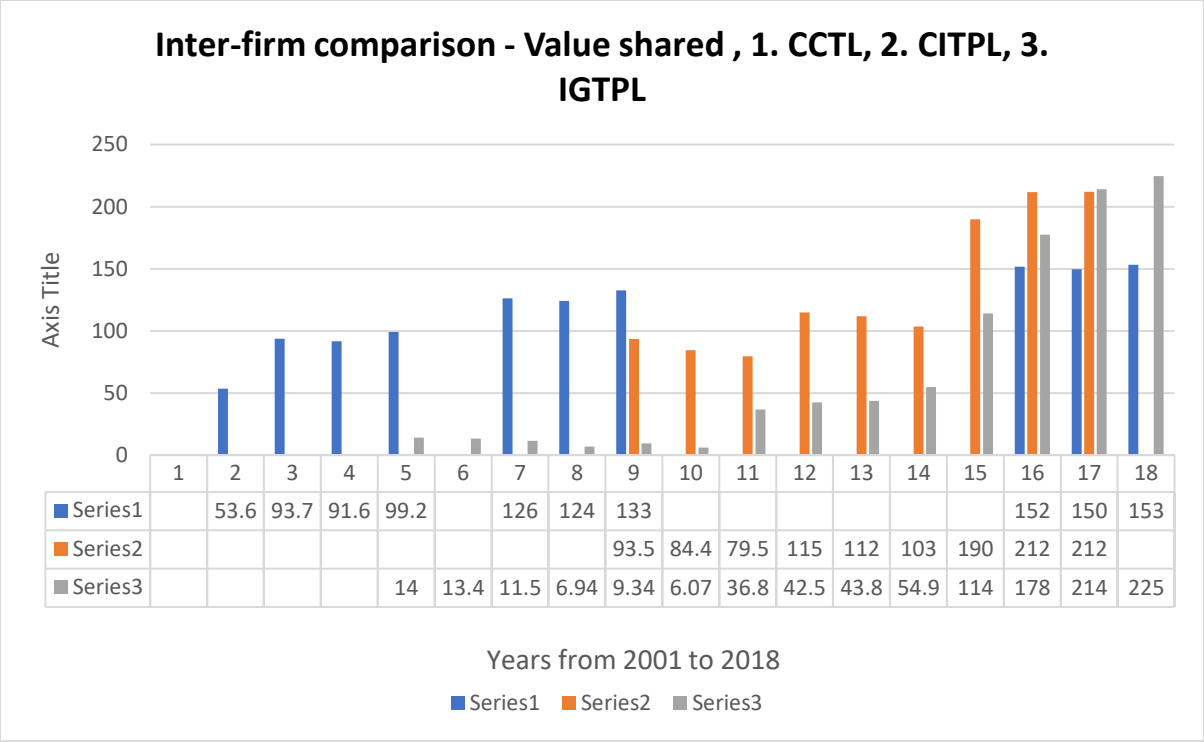


Figure 37: Inter-period comparison of value shared between stakeholders for CITPL and IGTPL

If the values of CITPL and IGTPL is observed, they are also showing the same increasing trend. The value is steadily increasing in the case of CITPL and it is rapidly increasing in the case of IGTPL.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Series1		53.6	93.7	91.6	99.2		126	124	133							152	150	153
Series2									93.5	84.4	79.5	115	112	103	190	212	212	
Series3					14	13.4	11.5	6.94	9.34	6.07	36.8	42.5	43.8	54.9	114	178	214	225

Figure 38: Inter-firm comparison of total value shared each year

In the case of inter-firm comparison, for the years 2016-17, it can be observed that CITPL has more value being shared between the stakeholders, then comes IGTPL and CCTL. For 2009, CCTL has more value being shared then comes CITPL and IGTPL subsequently. The interfirm comparison can be clearly understood from the Fig.38.

F/I – Share of investor on total value

This measure indicates the profit that is allowed to the investor on total value shared between all the stakeholders in the terminal. This shows the proportion of the value share that the investor gets. Comparing this with all the other proportions of the shares by the port authority and the lender will give us the information on who benefits the most from the concession agreement. If the ratio, F/I is considered, the percentage of F on I can be calculated. In the graph for CCTL, it can be observed that the ratio is decreasing, this indicates that the majority of the value share is constituted by the royalty and interest paid.

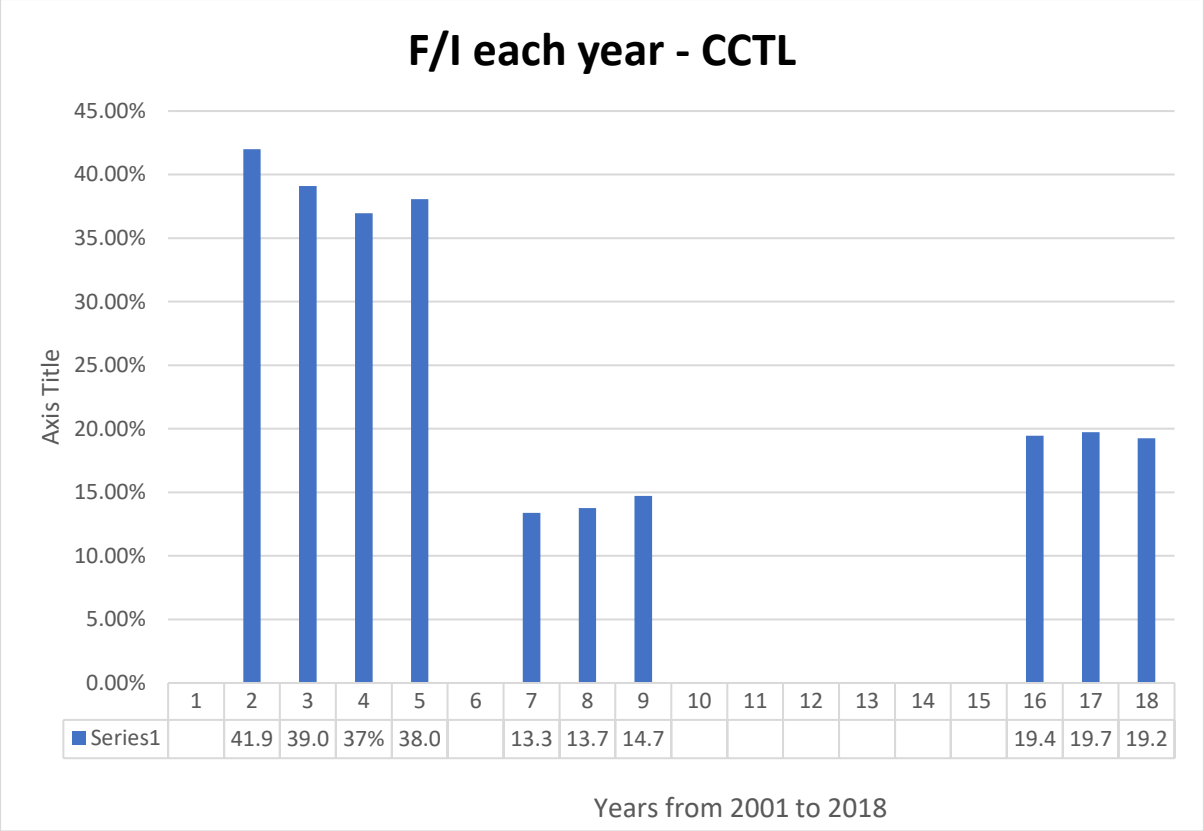


Figure 39: Inter-period comparison of F/I ratio for CCTL

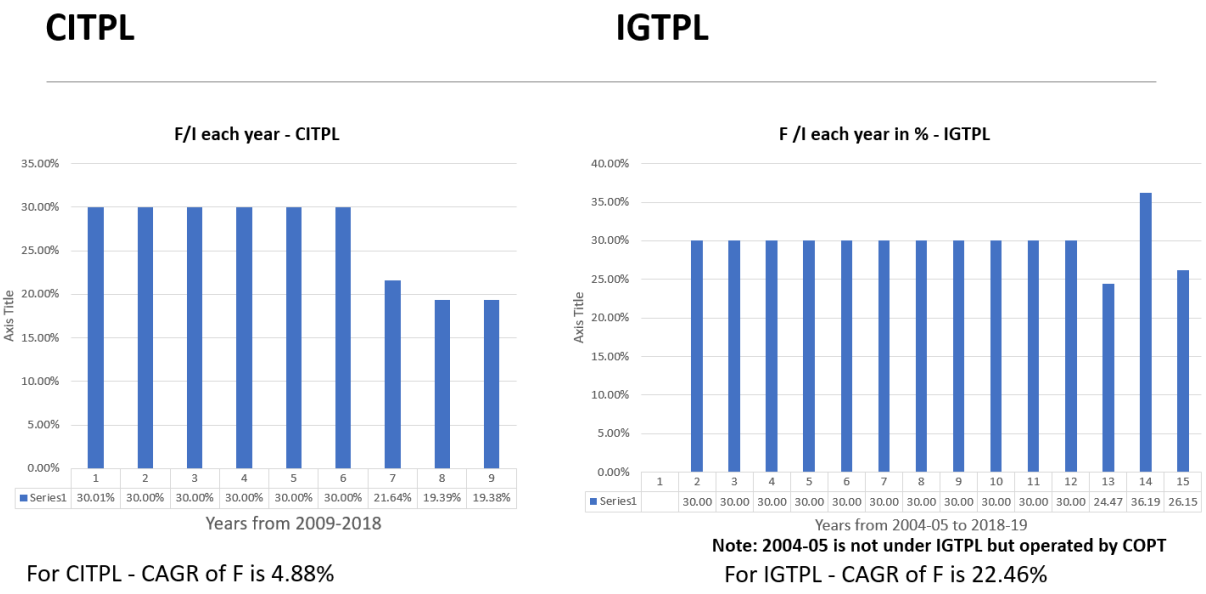
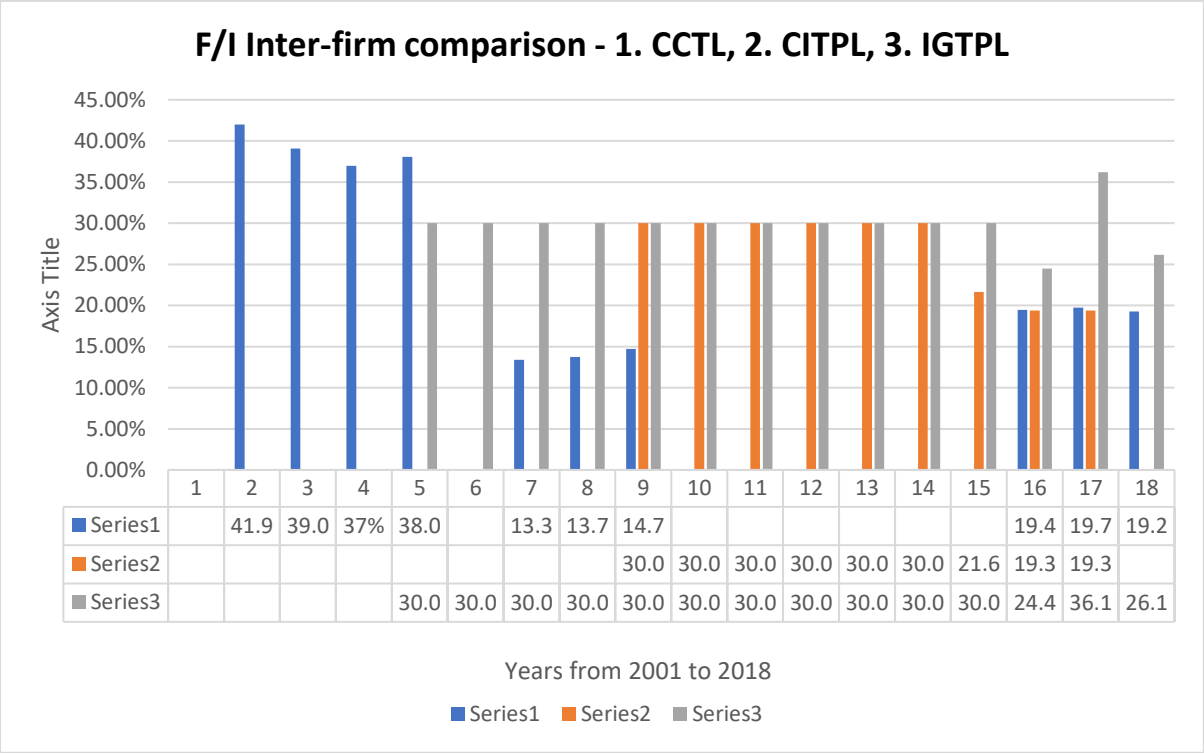


Figure 40: Inter-period comparison of F/I ratio for CITPL and IGTPL

The F/I ratio of CITPL is more or less uniform, the proportion of value shared is constant throughout the years until 2014-15 and after that it is showing a significant reduction. The CAGR of the F over these years is found to be 4.88%. In the case of IGTPL, the graph is more or les uniform although there is some fluctuation towards the end of the period considered.

CAGR for F in the case of IGTPL is found to be 22.46%. This shows a significant increase in profit over the years although this might be because they started from an initial low value.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Series1		41.9	39.0	37%	38.0		13.3	13.7	14.7							19.4	19.7	19.2
Series2									30.0	30.0	30.0	30.0	30.0	30.0	21.6	19.3	19.3	
Series3					30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	24.4	36.1	26.1

Figure 41: Inter-firm comparison of F/I ratio

The F/I Inter-firm comparison shows that for many years especially2009-10, the ratio is almost the same for CITPL and IGTPL. This might be because of the regulatory control by TAMP. For 2016-17, it can be observed from the graph that IGTPL is having higher ratio or profit share in value compared to other operators, followed by CCTL and CITPL with almost similar ratio. For 2009, CCTL is clearly having a lower value than the other two operators.

G/I – Share of Port Authority on total value

The revenue share or the royalty (G) that the operator shares with the port authority is the return or profit that the port authority is getting every year apart from the upfront amount that may have been given at the time of concession agreement. Usually at the time of bidding, these operators call high revenue share amounts in order to get the concession agreement, but these agreements are usually back ended royalty agreements that fix the revenue share for the entire concession period which sometimes actually defeats the purpose of privatisation.

The graph of CCTL shows how the royalty to port authority is changing over the years. It shows a CAGR of 6.26%. On an average the trend is increasing. This is particularly good for the port

authority and not so advantageous to the other stakeholders of the terminal operations. Profit making for the port authority was not the purpose of privatisation

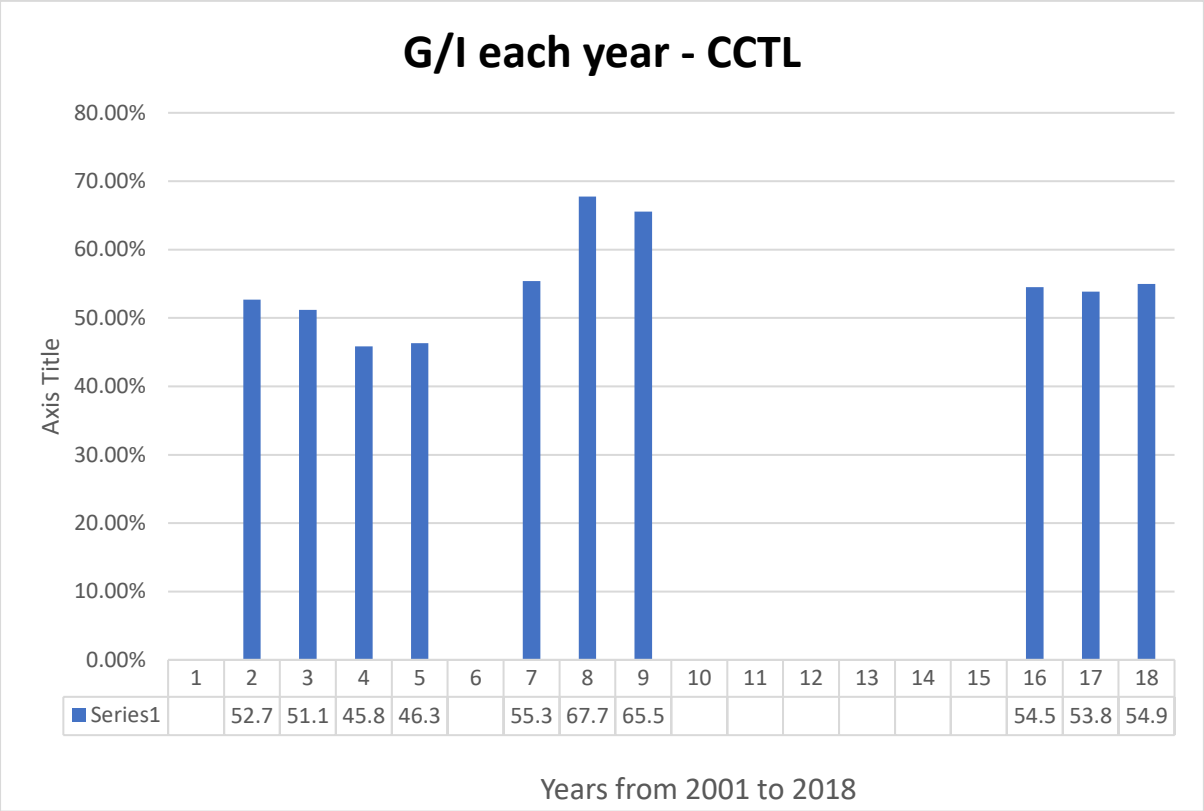


Figure 42: Inter-period comparison of G/I ratio for CCTL

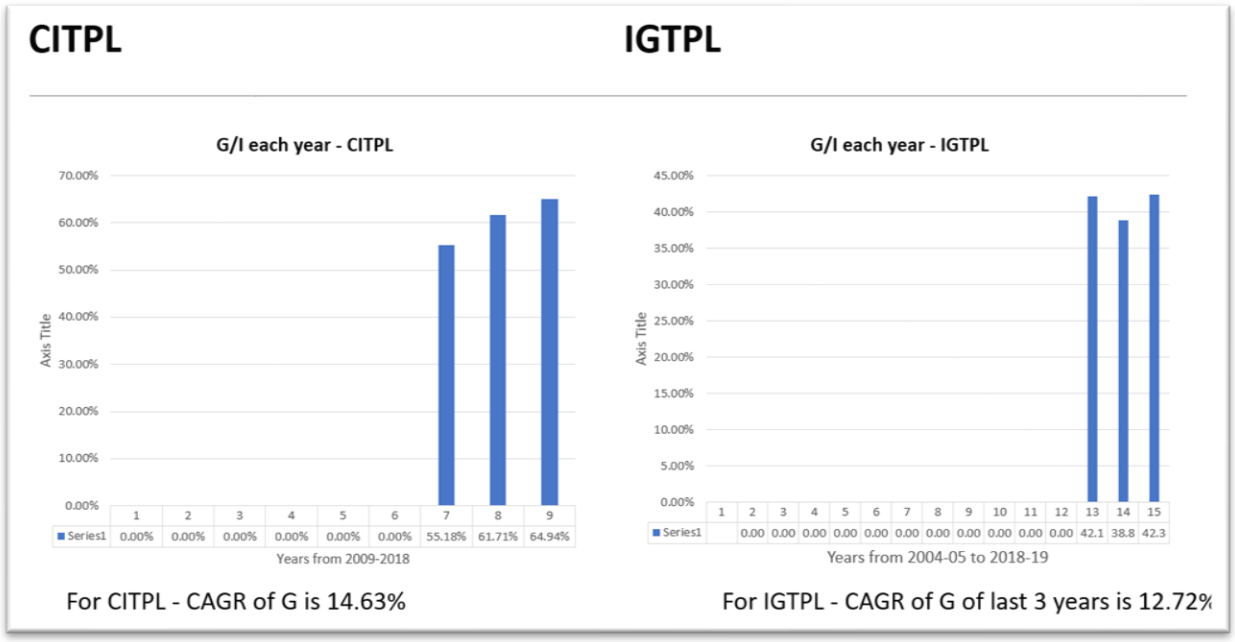
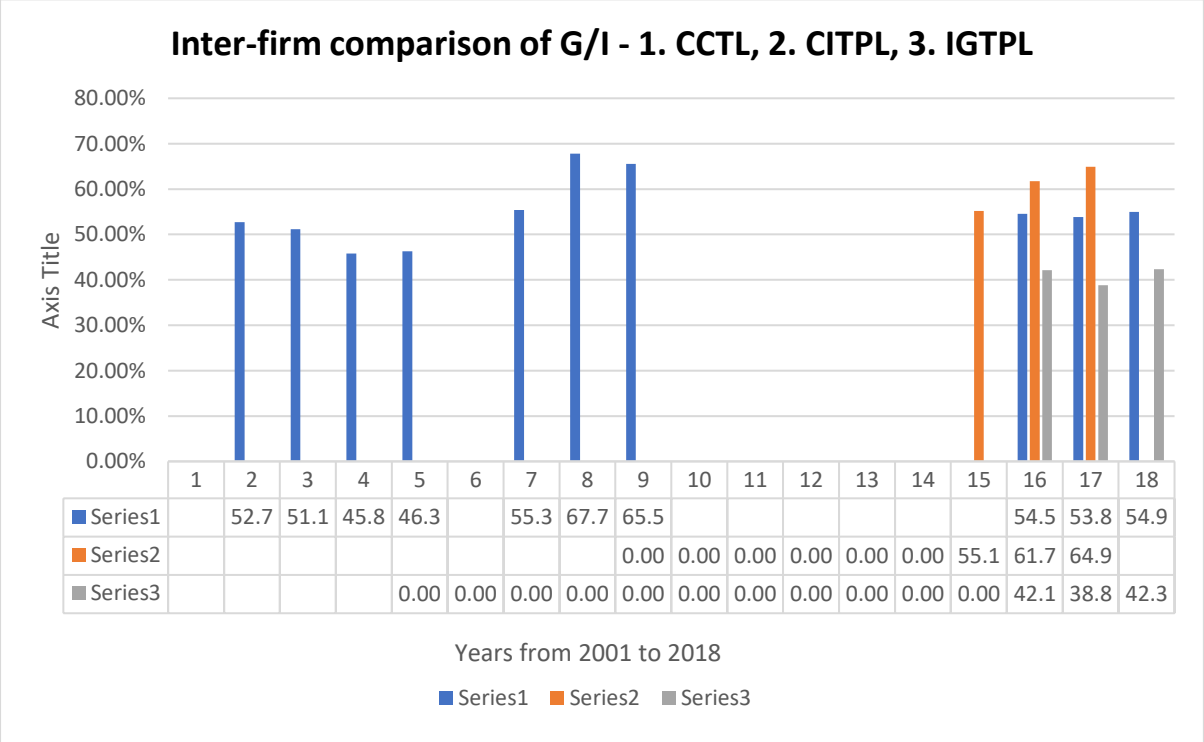


Figure 43: Inter-period comparison of G/I ratio for CITPL and IGTPL

If the data for CITPL is observed, at least for the last three years for which the data is available with TAMP, it can be observed that the ratio is increasing. The CAGR of G of CITPL is 14.63%. So, for this operator also the port authority is getting increased benefit over the years. For IGTPL, it is a fluctuating graph, although the interpretation is limited to the restricted data availability of the last three years. The CAGR of G of IGTPL is 12.72%. If the inter-firm comparison of G/I is considered, then 2016-17 i.e. the years that we have all the three data for comparison, it can be observed that CITPL is sharing the maximum with the port authority followed by CCTL and IGTPL. This can be attributed to the difference in revenue generation between the three operators.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Series1		52.7	51.1	45.8	46.3		55.3	67.7	65.5							54.5	53.8	54.9
Series2									0.00	0.00	0.00	0.00	0.00	0.00	55.1	61.7	64.9	
Series3					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.1	38.8	42.3

Figure 44: Inter-firm comparison of G/I

H/I – Share of Lender on total value shared among the stakeholders

The capital employed by the investor has two parts to it, the equity capital and the capital though loans from financial institutions. Roughly if we could assume, the share is 3:7 of the total, i.e. 30% equity share capital and 70% of debt. For loans, interest is paid and that is the return that the lenders are getting for this investment and this is paid by the operator irrespective of the financial performance of the terminal. H/I ratio can give us the idea of how the lender is getting their return.

For the case of CCTL, the ratio seems to have an increasing trend. The CAGR of H is 19.37%. But because of lack of availability of data on TAMP notifications, years 2006, 2010-2015 are not considered for this analysis.

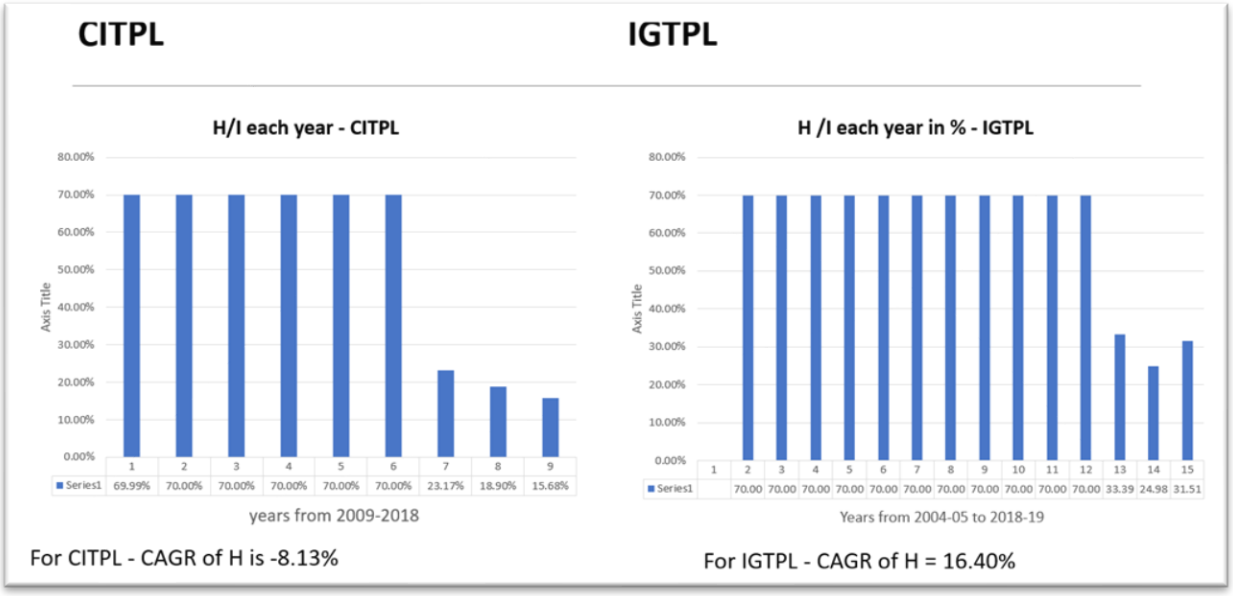


Figure 45: Inter-period comparison of H/I ratio for CITPL and IGTPL

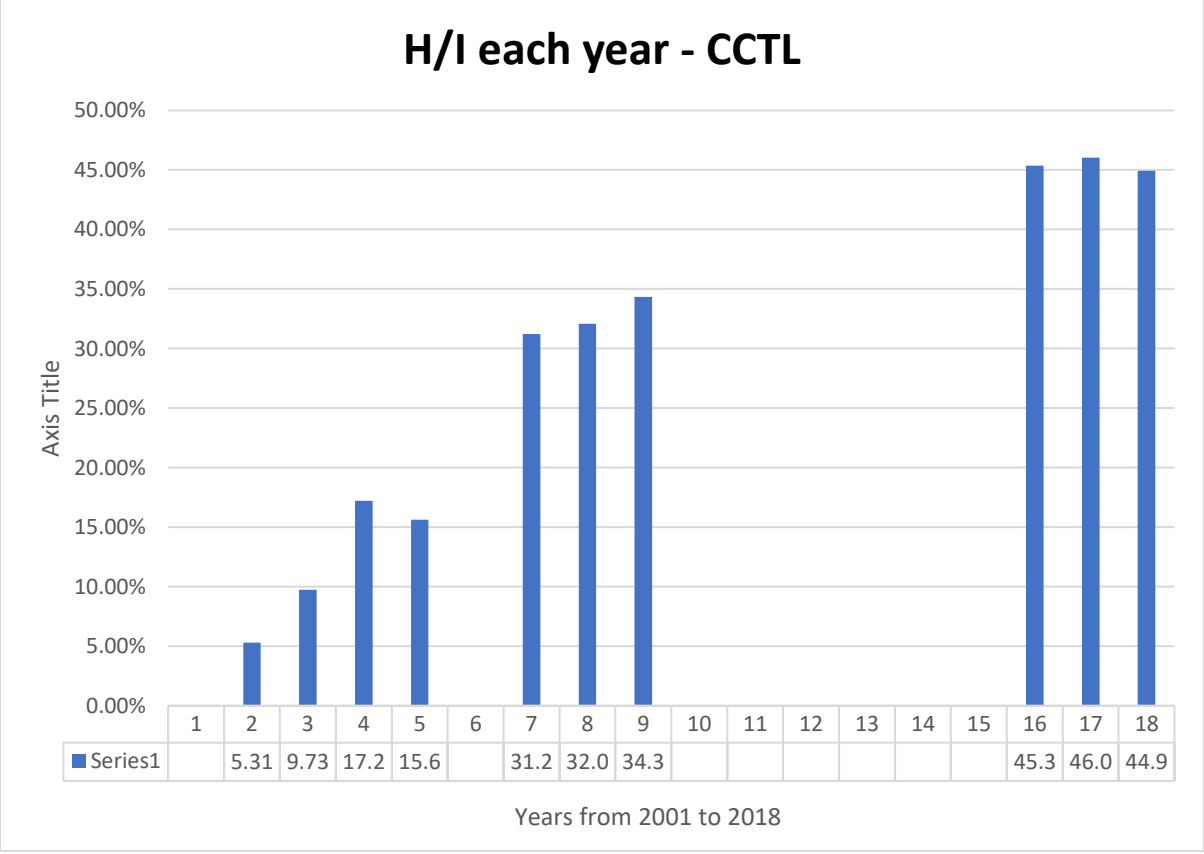


Figure 46: Inter-period comparison of H/I ratio for CCTL

In the case of CITPL and IGTPL, the ratio is constant till 2016. But if the ratio after 2016 is observed it can be clearly understood that the ratio is showing a decreasing trend. For CITPL, CAGR of H is -8.13% which signifies this decreasing trend. For IGTPL, CAGR of H is 16.40%.

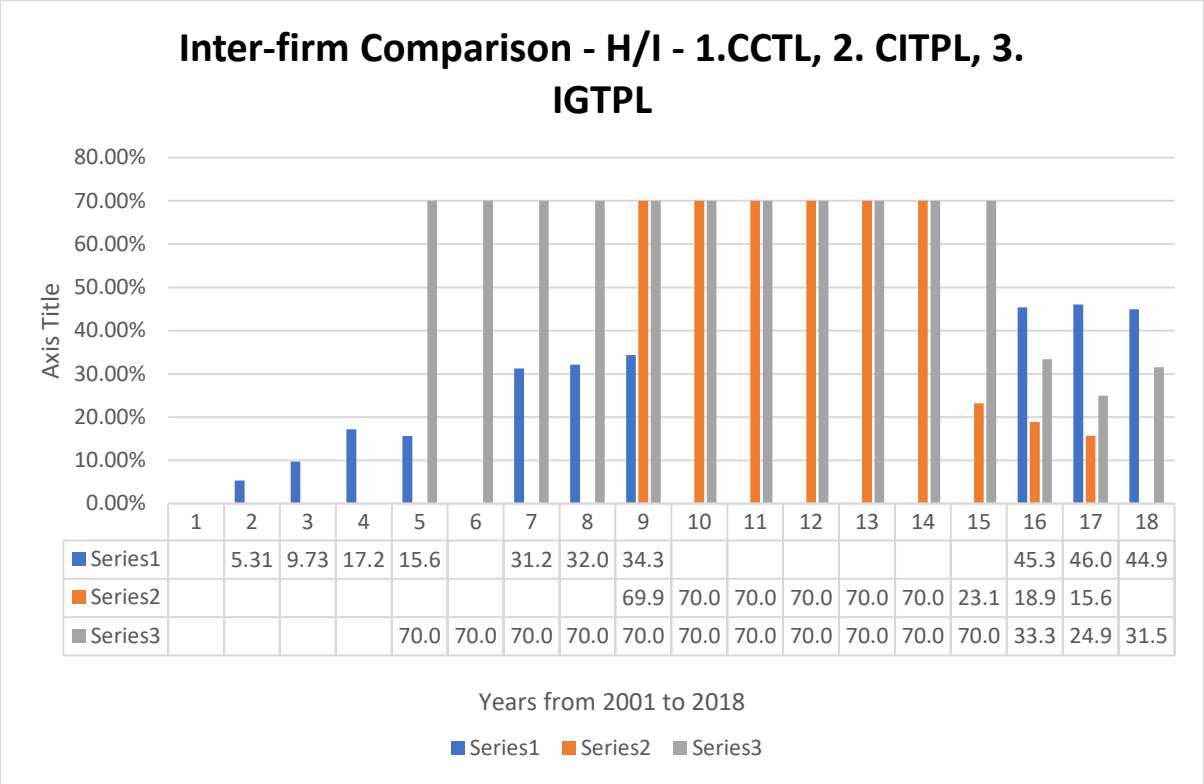


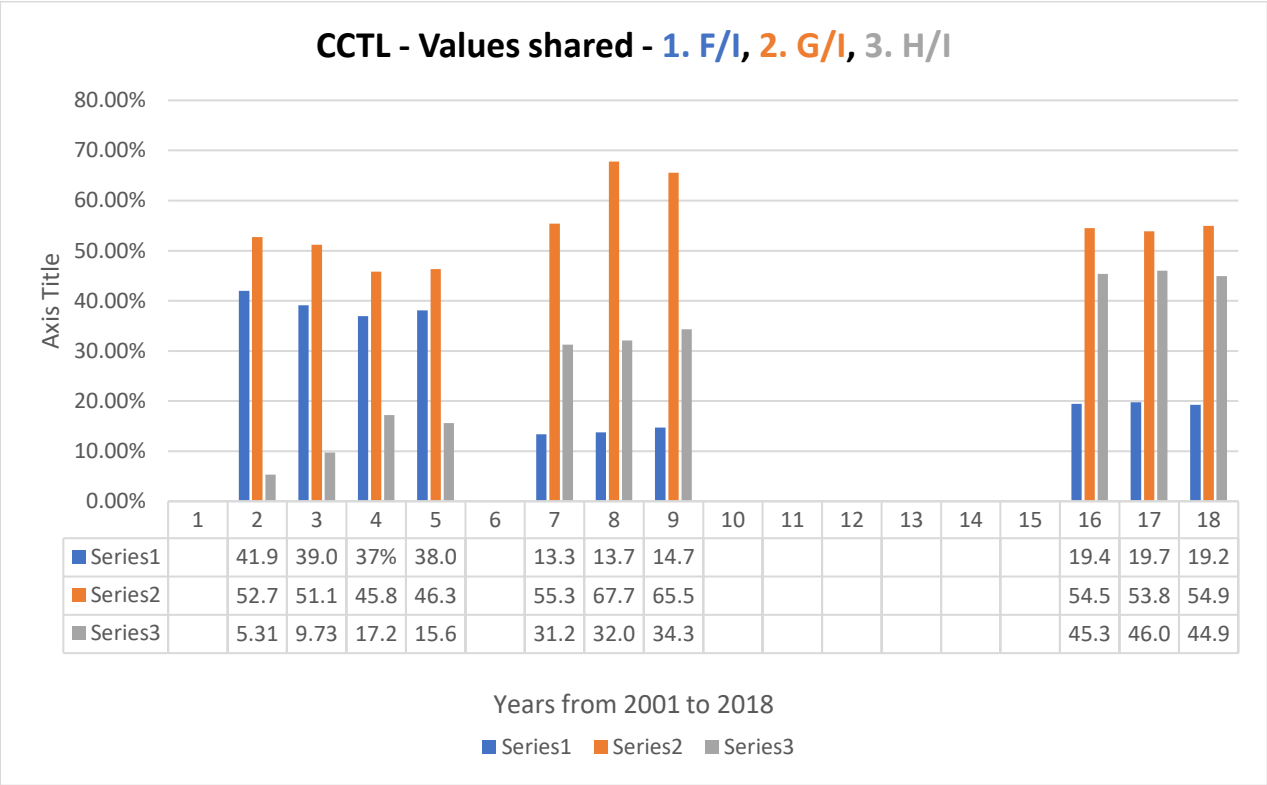
Figure 47: Inter-firm comparison for H/I ratio

Inter-firm comparison is the H/I ratio gives us the share of interest that various operators are giving to their respective lenders. In 2009, CCTL is giving the least interest share but the other two are similar. But when it comes to 2016-17, CCTL was paying more share as interest when compared to the other two operators. IGTPL is next in terms of H/I ratio followed by IGTPL.

4.4 Who benefits the most?

After computing the graphs of all the F/I, G/I and H/I, the detailed comparison of these three ratios for each operator is done to know greatest beneficiary among the various stakeholders. It can be observed that for CCTL, G/I ratio is higher than the other two ratios, this signifies that the revenue share to the port authority holds the largest share in the total value shares in all the years. If we look at the average of all the available data, it can be observed that port authority takes away an average of 54% of total value shared between the stakeholders. This is primarily because of the concession agreement and the back ended royalty agreement that the concession agreement calls for. Aggressive bidding is done and larger royalty share is quoted to get the

concession agreement. This creates this problem that ultimately defeats the purpose of the whole private partnership.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Series1		41.9	39.0	37%	38.0		13.3	13.7	14.7							19.4	19.7	19.2
Series2		52.7	51.1	45.8	46.3		55.3	67.7	65.5							54.5	53.8	54.9
Series3		5.31	9.73	17.2	15.6		31.2	32.0	34.3							45.3	46.0	44.9

Figure 48: Year-wise break up of total value shared by stakeholders for CCTL

If we look at the case of CITPL, because of the lack of revenue share data in the TAMP notification, the comparison is restricted to the last three years i.e. 2015-17. It can be observed that the port authority is the one who gets the larger share of the total value shared. This is also in line with the point made for CCTL earlier. For the case of private operator and the lender, the percentage share is more or less the same i.e. average of 20%.

For IGTPL, port authority is still having the larger share averaging 40% of the total value shared. For the case of private operator and the lender, the percentage share is more or less the same i.e. average of 27%.

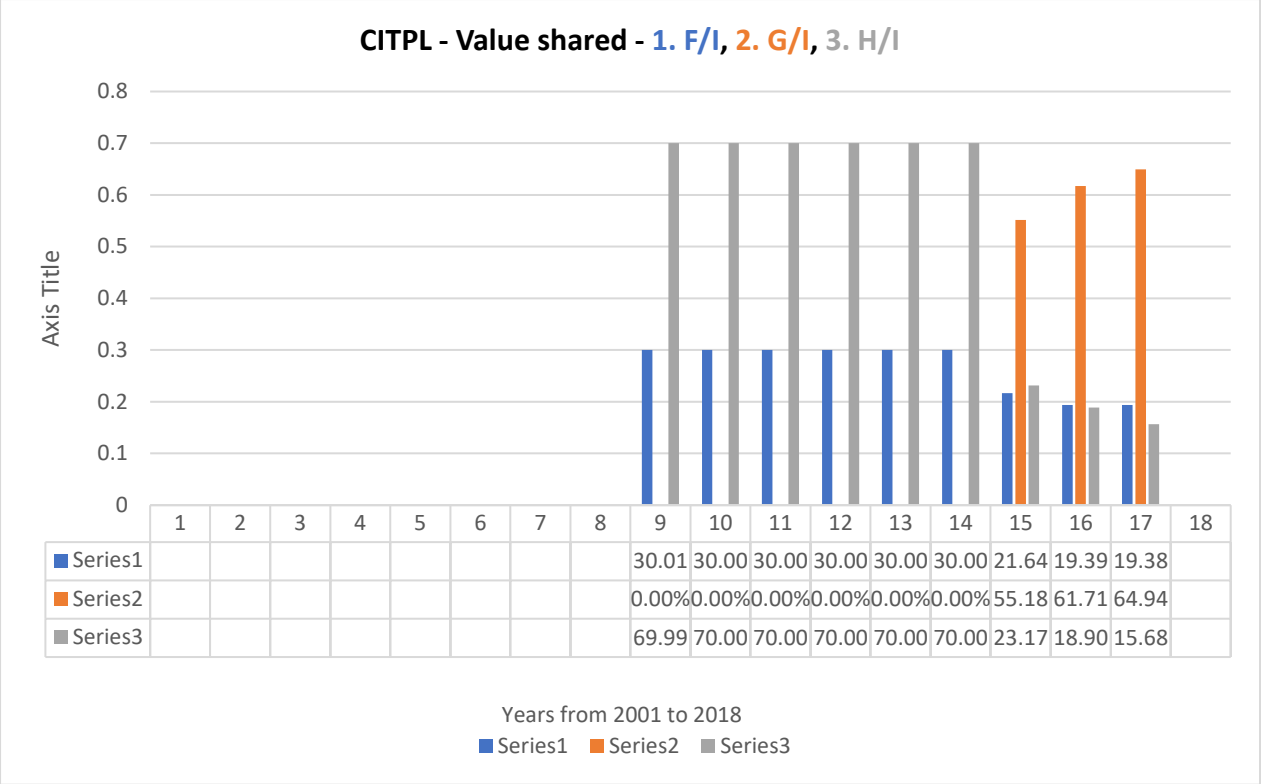


Figure 49: Year-wise breakup of total value shared between stakeholders for CITPL

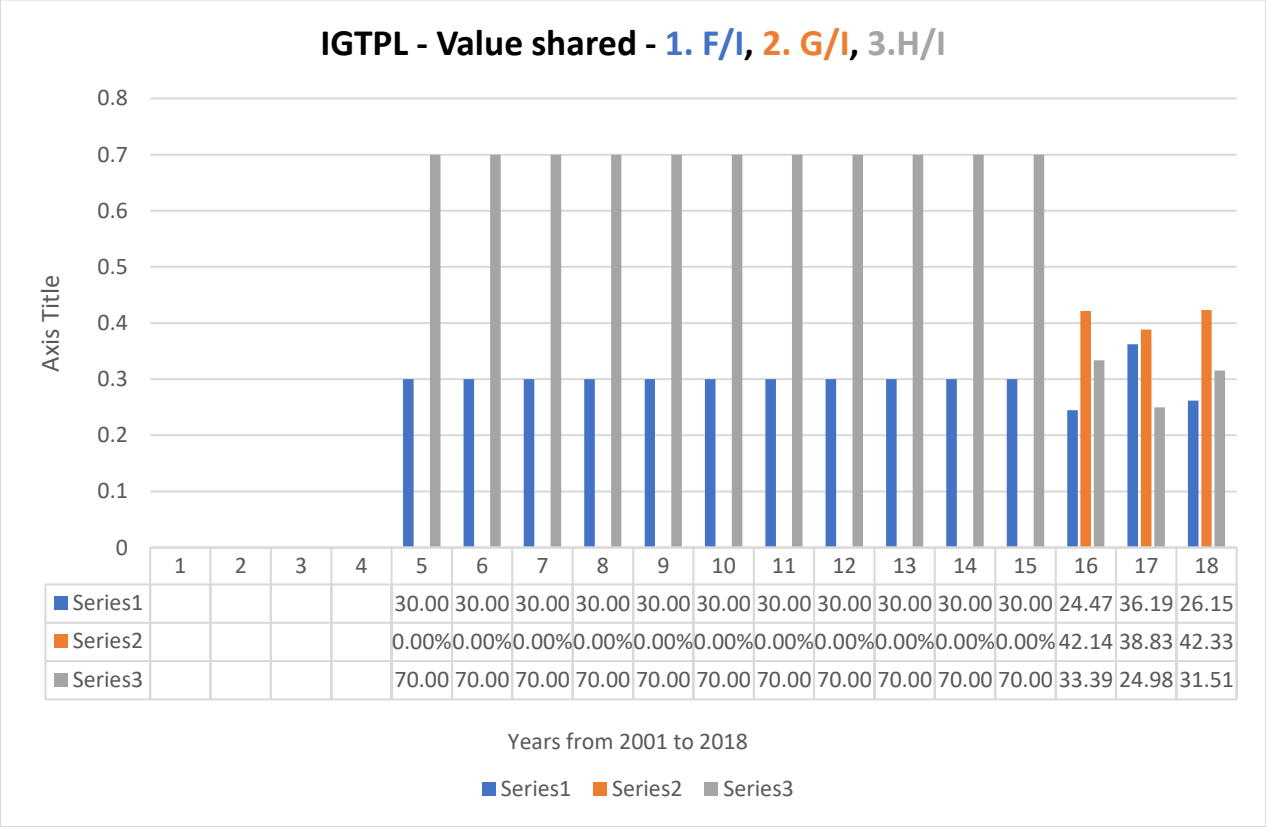


Figure 50: Year-wise breakup of total value shared by the stakeholders for IGTPL

CHAPTER – 5

Findings, Recommendations and Conclusion

The study has been conducted with the sole objective of evaluating the impact of tariff regulations in Major ports of India. For this, three terminals were selected which are under PPP i.e. they are under the landlord port model. Their performance evaluation will help in studying the contemporary landlord port model and thus will give a comprehensive idea regarding the performance of the private operators in landlord port model.

5.1 Findings

Regarding the evaluation of PPP in major ports, it was found that it is still the best form of port development. Infrastructure development is capital intensive and port authority or the government cannot do this alone. Because of the highly competitive trade and the increased privatisation has resulted in cut throat competition and increased technological advancements are necessary to survive and a private operator gives that opportunity. But the government and the port authority and other regulatory authority must consult and make the whole process of PPP easier and more convenient as the illogical and unrequited regulations can cause confusion and problems to the private operators and this can result in an unfair advantage to their competitors. To evaluate the contemporary port model and to evaluate the performance of the private operators in a landlord port model, three operators are selected i.e. CCTL, CITPL and IGTPL.

CCTL

In the case of CCTL, Capital employed was increasing each year and from the inception and commencement of the concession agreement, the operator has installed all the required cargo handling facilities in the terminal. When it comes to capital efficiency financial, the trend shown by the operator is nor consistent as it was fluctuating but capital efficiency physical showed a steady increasing trend. When it comes to cargo traffic volume handled, the year-wise traffic was incrementing but the annual average growth shown in the Fig. 51 shows that it is also showing a fluctuating nature. CAGR of cargo traffic for the first 8 year showed 15.46%. In the case of the profit allowed to the investor by the regulator, the CAGR showed a growth of 1.52% while the CAGR of revenue shared by CCTL to Chennai port trust shows a

growth of 6.26%. Interest paid on the other hand showed a CAGR of 19.37% growth over the years.

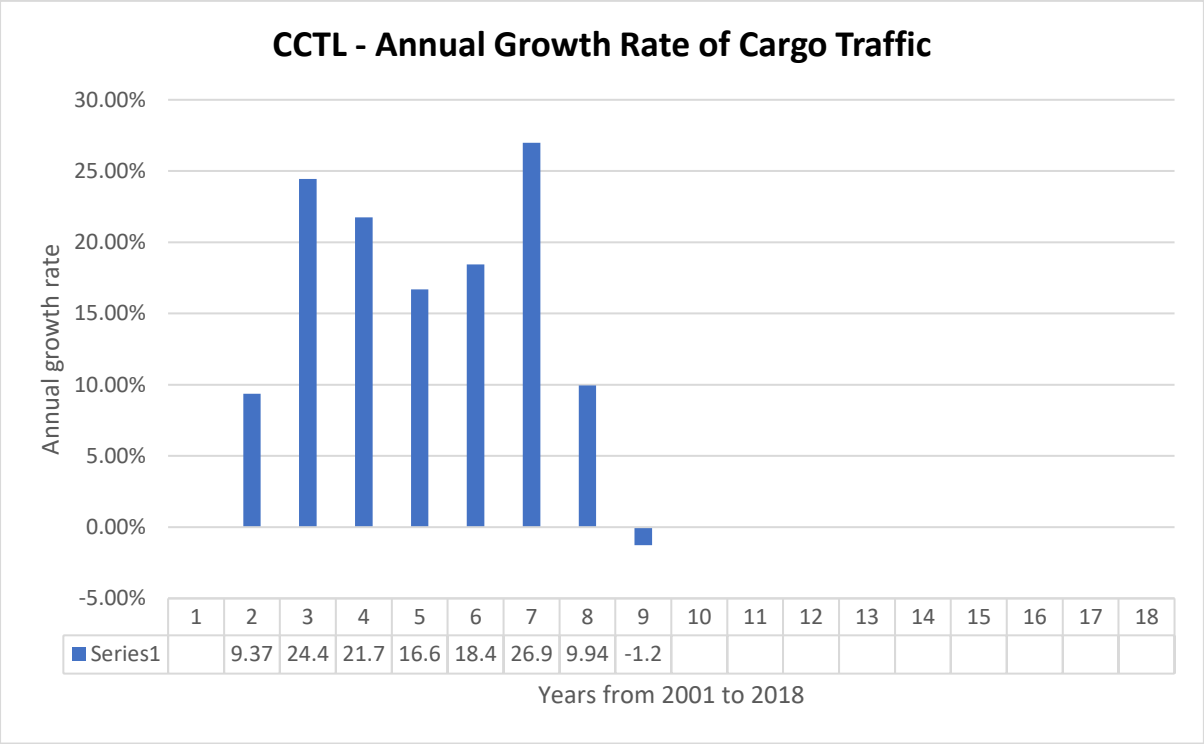


Figure 51: Annual Growth Rate of Cargo Traffic for CCTL

From the comparison of the various stakeholder's value shared over the years, which was discussed in detail in chapter 3, it can be inferred that the revenue shared with the port authority constitutes the largest share of the total value shared between the stakeholders.

CITPL

In the case of capital employed, as discussed in the previous chapter, over the years it was observed to have an increasing trend, although we couldn't get any data post 2017. All the necessary facilities were observed to have been developed for handling 1.2 M TEUs/year. For CITPL, both capital efficiencies, i.e. both physical and financial shows an increasing trend which is a good indicator for a private operated terminal. As the operating cost is increasing over the years, the operating efficiency is observed to decrease for CITPL. The cargo traffic is observed to be increasing with a CAGR of 3.8862% although the annual growth rate is not consistent. From the detailed analysis of the comparative graph between the various stakeholders regarding the value shared, it can be observed that for the years where all the data is available, the port authority is making the larges revenue share when compared to the private operator and the lender. Profit allowed to the investor is observed to increase at a CAGR of 4.55%, the revenue share on the other hand is observed to have increased a whopping 14.63%

over the years. The lender is the one who has least benefited as the interest paid has actually shown -8.13% CAGR growth.

IGTPL

IGTPL is an important and ambitious project that was envisioned to handle some of India's transhipment consignments that were currently handled from Colombo. The data that was observed from the previous chapter shows that the current situation is not in line with that vision. The capital employed was decreasing from the inception, although after 2010, a huge increment in capital employed was observed but after that the capital employed was showing a decreasing trend. Although the first phase of the transhipment terminal was completely constructed and fully operational to handle 1 M TEU per year, the actual numbers that are being handled aren't in line with the true capacity of the terminal. But the physical and the financial capital employed is showing an increasing trend. Operating efficiency on the other hand is fluctuating and an inference is difficult to formulate from the fluctuating data.

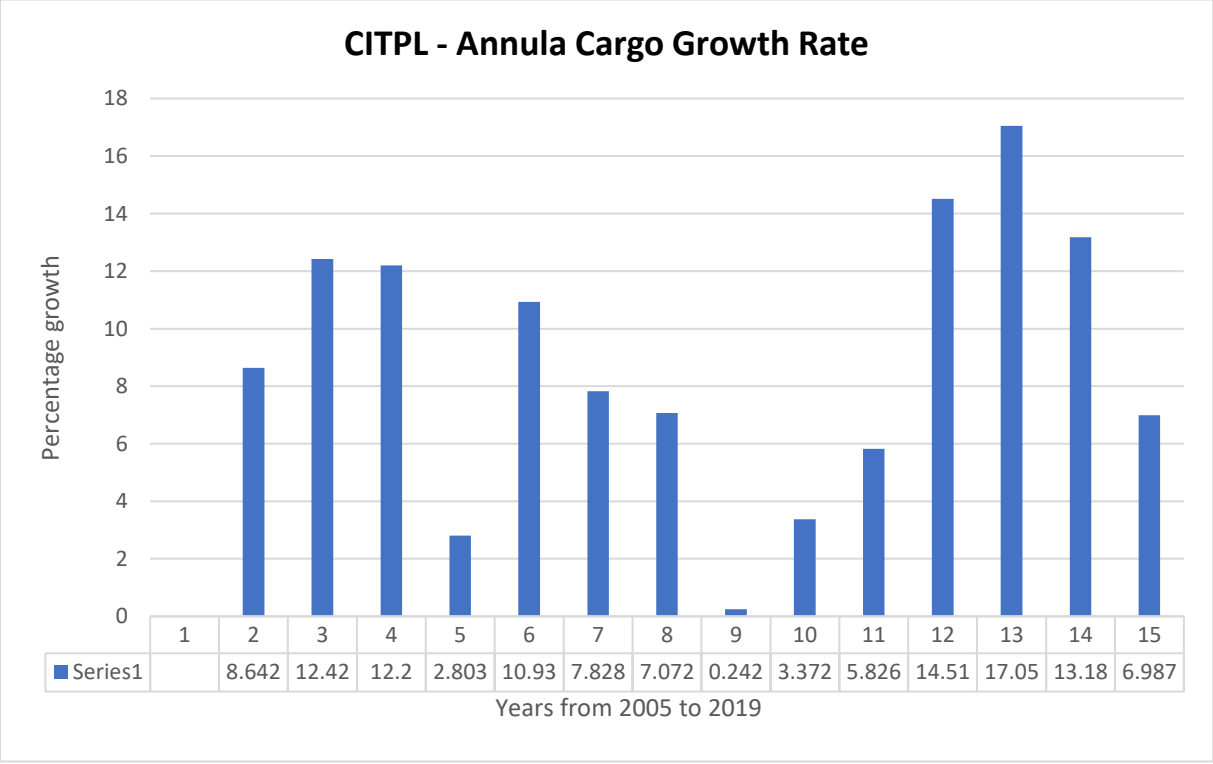


Figure 52: CITPL - Annual Growth rate of Cargo Traffic

From Fig.52, it can be observed that the cargo traffic is increasing but the annual percentage growth of the cargo has been inconsistent. Annual growth rate has been fluctuating over the years although the CAGR is 8.69%. When it comes to the profit allowed by the regulator, the

CAGR is observed to be 22.46% while the CAGR of revenue shared with the port authority is only 12.72% and the interest paid to the lender is 16.40%. Although the CAGR is more for profit allowed to the investor, in terms of value shared, the largest percentage of the total value shared between the three stakeholders is by the port authority. This is in line with the trend of the other two operators that was considered for the study.

5.2 Recommendations and Conclusion

From the study it was observed that the system of tariff regulation is greatly affecting the performance of the private operator. The back handed royalty agreement is unfairly benefiting to the port authority as they are the ones that gets that largest share of the revenue. So, it is recommended that the fixation of the revenue share percentage for the whole concession period before hand should be avoided and along with tariff recalculation, this also maybe re-estimated. The profits that the private operator gets and the annual growth rate of the profit is an incentive for the private operators to come in and take part in the PPP agreements. If the profit percentages are decreasing as it was observed in the above cases, the private participation in the PPP agreements will come down. In order for the private party to invest more, the return on their investment must be ensured. This is primarily impaired by the tariff regulation by TAMP. They are forced to compete with private operators in non-major ports where there is no tariff regulator to regulate their scale of rates. This makes private operators in major ports less competitive. So, it is recommended to empower the private operator to fix their own tariff's in line with the competitive landscape of their hinterlands. This could encourage more private operators to invest in port infrastructures in the future. As it was extensively discussed in the earlier part of this report, infrastructure development in ports and other gateway terminals are of paramount importance to the economic development of the country. It is through international trade that a country gets prosperous and port and gateway terminals has a major role in it. They need to be equipped to facilitate the growing challenges and technological developments that the global shipping and trade sector is developing. And development of port infrastructure is done in the most effective and best way possible through PPP agreements. So, it is very important to rectify these small problems that are making PPP less attractive for the private players in the industry.

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