



THE TRADE ACCOMPLISHMENTS IN MAJOR PORTS OF INDIA THROUGH CONTAINERS BY LOGISTICS OPERATORS

P.Jothilakshmi¹ and K. Jayaraman²

¹Ph.s.D Research Scholar, Department of Economics, Periyar University, Periyar Palkalai Nagar, Salem, Tamil Nadu, India.

²Associate Professor, Department of Economics, Periyar University, Periyar Palkalai Nagar, Salem, Tamil Nadu, India.



ABSTRACT :

India has around 7516.6 Km (4671 miles) of natural peninsular coastline strategically located on the critical East- West trade route this connect Europe and Far East, with 12 major ports and about 180 minor and intermediate ports. Most of the major ports were established in the last few decades after independence. This major tries to analyze total container traffic, trend and compound growth rate analysis and forecasting of the same.

KEYWORDS : Performance of Indian Major Ports, Container Traffic Import and export in Total Tonnage.

INTRODUCTION :

Ports play a pivotal role in the economic development of a nation and the world. Since the majority of goods in transit between countries have been being transported ocean vessels. Ports, as important maritime institutions, have been contributing for the changing demands of the global shipping trade, not merely place to load and unload cargo. At present ports are highly sophisticated and integrated systems paying way for range of services for the shipping industry multi – modal transport becomes the norms, extending from origin of cargo to its final destination.

The seaports of India emerge at the machine of the growth of marine traffic and economy in India. Certainly, maritime trade in India has been and continue to be roughly synonymous with India’s overseas trade, accounting for over 95 per cent of India’s total cargo volume.

DEVELOPMENT OF PORT SECTOR IN INDIA

The major ports of India have been doing yeomen service to the nation. After the economic reforms, the port and shipping industry are progressive. The macroeconomic change and strong economic conditions have helped the international trade to flourish all around the world. The same is the case with India also.

**Table - 1
NUMBER OF BERTHS AVAILABLE**

(Based on Reassessment of Existing Port Capacities as on 31- 3- 2015)

Port	Pol	Iron Ore	Coal	Fertilizer	Container	Bulk	Total
KOLKATA	7	-	-	-	4	22	33*
HALDIA	3+ (2BJs)	2	2	-	2	8	17 + (2BJs)
PARADIP	2+3SBM	1	2	2	-	9	16 + 3 SBM
VISAKHAPATNAM	5 + 1	1	-	1	1	16	24 + 1 SBM

	SBM						
ENNORE	1	1	3	-	-	1	6
CHENNAI	2	1	-	-	7	14	24
V.O. CHIDAMBARANAR	1	-	3	-	1	10	15
COCHIN	4 +1SBM	-	-	1	2	12**	**19 +1 SBM
NEW MANGALORE	5 + SBM	1	1	-	-	8	15+ SBM5
MORMUGAO	1	1+3 Tran shippers	1	-	-	4	7 + 3 Tran shippers
MUMBAI	5	-	-	-	1	25	31
JNPT	2	-	-	-	9	1	12
KANDLA	8 + 3SBM	-	-	1	2	14	25 + 3SBM
TOTAL	46 + 2BJs + 9 SBM	+ 3 Tran shippers	12	5	29	144	244 2BJs + 9 SBM + 3 Tran shippers

Source: Indian Ports Association, 2015

As obvious from Table -1, the number of berths is not exactly in proportion to the traffic handled. Output varies hugely at these ports.

NEED FOR THE STUDY

The increased world trade, change in the design and the size of the ships conforming to the new norms of modern technology have made tremendous impact on the port sector. This has pushed up the traffic handled all the major ports of India. The goods handled have increased over the years and so the economy also. This study strives for predicting the future trend of the same. This would be useful for rapid policy making with regard to port sector development.

SCOPE OF THE STUDY

This study covers different components of the import and export performance of India's twelve major ports. The study also examines the potential of major ports in India, import and export performance, commodity wise operational analysis of India's twelve major ports. Among all the modes of operations, majority of ports import and export during containers for quick and safe reach.

OBJECTIVES OF THE STUDY

1. To give an overview of Indian ports, with special reference to twelve major ports.
2. To study the operational efficiency of major ports in India
3. To study the commodity and mode wise import and export performance of major Indian ports.
4. To highlight the various problems faced by the port authorities

REVIEW OF LITERATURE

According to Xu (2011) an evaluation of the current situation of Port of Shanghai and Port of Rotterdam in terms of the performance and efficiency will be investigated. So, a comparison of the two ports can be evaluated by different factors, namely infrastructures, operation processes, business environments and logistics services with an emphasis on logistics development which can define the necessity of changing the role of the ports from traditional transport hub to value-added logistics centre. The author exposed that each port has its own strengths and weaknesses in the logistics system.

Bernhofen et al (2013) A recent empirical study confirmed the " effects of the Container Revolution on World Trade. The predominance of maritime transport has increased in particular for manufactured goods due to the intensification of containerized transport services. Because containerization and the global liner shipping network, small and large exporters and importers of finished and intermediate containerizable goods from far away countries can trade with each-other, even if their individual trade transaction would not economically justify chartering a ship. As a result of a network of regular container shipping services with transshipment operations in so-called hub ports, basically all countries are today connected to each other.

Nyema (2014) assess factors influencing container terminals efficiency with a case study of the Mombasa Entry Port using a descriptive survey designs. This study revealed that factors such as Inadequate cargo handling equipment, reducing berth times and delays of container ships, dwell time, container cargo and truck turnaround time, custom clearance, limited storage capacity, poor Multi-modal connections to hinterland and infrastructure directly influencing container terminal Efficiency.

Prafulla Sudame & Pavan Nagorao Bahekar (2015) this, the review of development of port studies and case studies of ports are indicating origin, growth and development of port plays very important role mainly in the impact of port development on cities, infrastructure development in catchment areas of port. while, facilities such as security safety measures is available at all ports in India, facilities such as warehouses, break bulk general cargo terminal, container depots, oil terminals, dry bulk terminals, passenger terminals, dry docks and ship repair are available at majority of ports. According to major facilities are available at ports in India still there is lack of some important facilities at the ports, which must be fulfilled for better operations and to improve efficiency of the port. The canvasser has establish that the Indian Ports has to give top priority to undertake modernization of their ports through, construction of new berth terminals, and various expansions and up gradation project for berths, proper of new and modern equipment, up gradation through higher capacity cargo handling equipment.

Julian Martinez Moya & Maria Feo Valero (2016) the aspire of this paper is to provide a review literature to explain the role played by port Authorities and to point out prospect lines of research that should be undertaken to fully include current ports environment and performance. Port in establishment in determining the competitiveness through investing in port infrastructure, improving port efficiency and surrounding area accessibility. Ports have become decisive for the development of countries acting as trade facilitators. As a result of the intense changes occurring in port environment over the most recent new models of competitiveness have been developed, port authorities try to increase their Attractiveness.

METHODOLOGY OF THE STUDY

In the present study, an extensive use of secondary data was made. The study was based on descriptive and analytical approaches.

Secondary Data

The secondary data were gathered from the records of Indian ports association website, internet services and libraries.

Frame Work of Analysis

Mean Standard Deviation, Coefficient Variance of such as and Growth Rate these tools were used to analyze the import and export performance of twelve major ports.

Period of the Study

The secondary data for a period of twenty years (From 1993 to 2015) were collected and used for the present research.

Performance of Indian Major Ports

Shipment Forwarders' presentation on import and export of goods with the help of containers was calculated for a period twenty years from 1993 -1994 to 2014 – 2015. For this purpose, 12 major ports operating in India were selected exclusively for Freight forward operations through containers. They are Kolkata Port, Haldia, Paradip, Visakhapatnam, Chennai, Tuticorin, Cochin, New Mangalore, Mormugao, Mumbai, JNPT and Kandla. The particulars of container traffic engaged in import and export of goods. While analyzing the operational efficiency of major ports in India, it is experiential the Indian port ability is very low.

As analyzing nation wise boat show, Greece is the major operator with 3153 vessels whereas India's vessel operations are just 429. The cargo in the study area entirely depends on feeder services instead of large sized ships. Hence, the high capacity vessels are unable to enter into Chennai and Tuticorin ports.

Total Container Traffic Import (In Tonnage)

Table-2

Total Container Traffic Import at Major Port (Tonnage) from 1993 to 2015

Year	Kolk Ata	Hadia	Par a dip	Visa kha Patna m	Chen nai	Tuti corin	Cochi n	New Mang alore	Morm u gao	Mu m bai	JNPT	Kan dla	Total
93-94	639	33	0	16	661	120	48	0	2	2697	912	268	5396
94-95	833	24	0	49	922	226	165	4	2	3271	1369	331	7196
95-96	879	6	0	25	1037	280	194	0	6	3506	1861	366	8160
96-97	879	19	0	55	1105	271	248	0	13	3916	2182	421	9109
97-98	1006	89	0	51	1351	374	275	0	12	4175	2661	494	10488
98-99	1159	51	0	88	1471	428	357	0	18	3938	3795	394	11699
99-00	1272	68	0	130	2018	708	403	0	33	3542	5006	431	13611
00-01	1194	148	0	110	2956	629	753	4	19	2597	6730	481	15621
01-02	899	549	3	143	3100	919	682	7	21	2496	8531	588	17938
02-03	924	651	8	105	3682	926	996	26	29	2332	9582	688	19949
03-04	1110	839	3	80	4522	1101	1062	35	41	2104	12169	800	23866
04-05	1287	809	-	265	5146	1244	1152	65	56	2003	13349	1277	26653
05-06	1918	773	1	266	6092	1393	1245	68	53	1494	15482	972	29757
06-07	2393	812	-	287	7357	1567	1492	107	61	949	19229	1047	35301
07-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08-09	3176	1054	-	624	10617	2675	2139	218	75	571	24671	910	46730
09-10	4112	1076	-	794	12067	3203	1970	234	117	549	28487	997	53606
10-11	3421	1323	-	1242	15041	3238	2631	224	105	566	2945	991	5824

											8		0
11-12	3563	1340	10	2168	15540	3098	2728	289	144	498	2974	978	6009
12-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13-14	3361	983	13	2296	14435	3888	2916	353	114	440	2739	53	5624
14-15	4454	1017	15	2096	15591	4389	3459	498	140	534	3013	-	6233
Mean	1923	583.2	2.65	544.5	6235.5	1533	1245.7	106.6	53.05	2108	1363	624	2859
S.D	1267	480.73	5.27	771.35	5532.6	1359	1051.3	145.75	47.097	1333	1103	333	2024
CV	65.88	82.42	149	141.66	88.72	88.68	84.39	136.72	88.77	63.26	80.93	50.6	70.79
CGR	10.20	18.70	-	27.60	17.12	19.72	23.85	-	23.67	-7.78	19.11	-	13.01

Source: Indian ports association (<http://www.ipa.nic.in>)

The import performance of ports depict in Table – 2 shows that JNPT port recorded the maximum volume of average operation at 13637 thousand tonnes. The average performance of container operation in the study area for imports shows 6235.5 thousand tonnes in Chennai port and 1533 thousand tonnes in Tuticorin ports.

Trend Analysis of Import of Container Traffic in Tonnage from 1993 – 1994 to 2014 – 2015

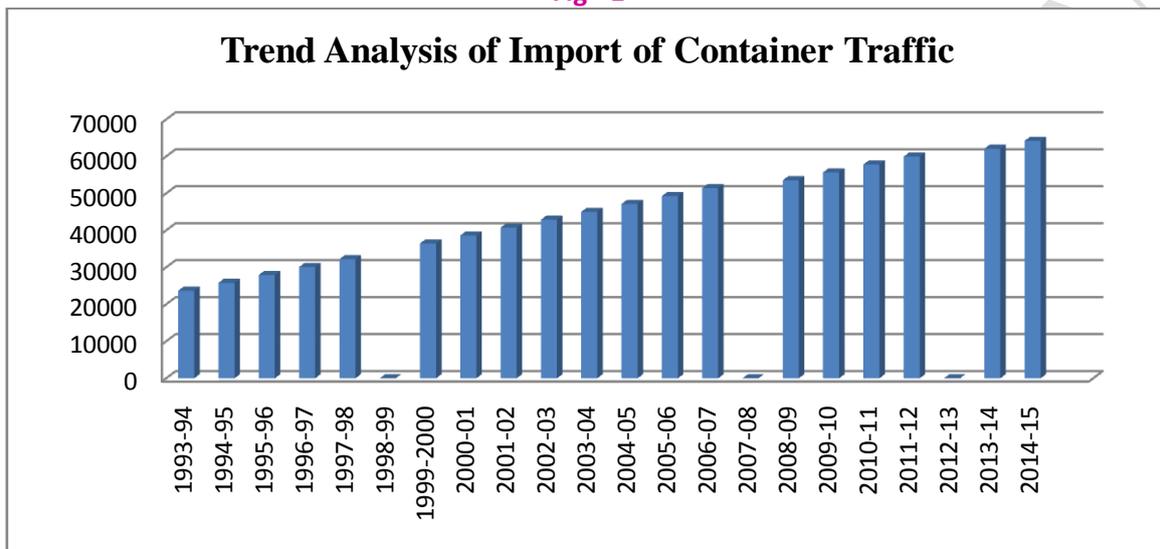
Table - 3

Year	x	Y	xy	X ²	Trend Analysis Yc=a+bx
1993-94	1	5396	5396	1	23693.38
1994-95	2	7196	14392	4	25826.45
1995-96	3	8160	24480	9	27959.52
1996-97	4	9109	36436	16	30092.59
1997-98	5	10488	52440	25	32225.66
1998-99	6	11699	70194	36	34358.73
1999-2000	7	13611	95277	49	36491.80
2000-01	8	15621	124968	64	38624.87
2001-02	9	17938	161442	81	40757.94
2002-03	10	19949	199490	100	42891.01
2003-04	11	23866	262526	121	45024.08
2004-05	12	26653	319836	144	47157.15
2005-06	13	29757	386841	169	49290.22
2006-07	14	35301	494214	196	51423.29
2007-08	NA	NA	NA	NA	NA
2008-09	15	46730	747680	256	53556.36
2009-10	16	52606	911302	289	55689.43
2010-11	17	58240	1048320	324	57822.50
2011-12	18	60096	1141824	361	59955.57
2012-13	NA	NA	NA	NA	NA
2013-14	19	56243	1181103	441	62088.64

2014-15	20	62330	1371260	484	64221.71
N=20	Σx=66	Σy=571989	Σxy=8649421	Σx²=370	

Trend analysis of import performance shown in Table -3, clearly shows that uniform development was noted from the year 1993 – 1994 to 2014- 2015. Year by year there was steady growth in the operation of containers traffic by the freight forwarders. An attempt has been made to forecast the future trend in freight forwarding operations, especially in the import performance through containers in different ports.

Fig - 1



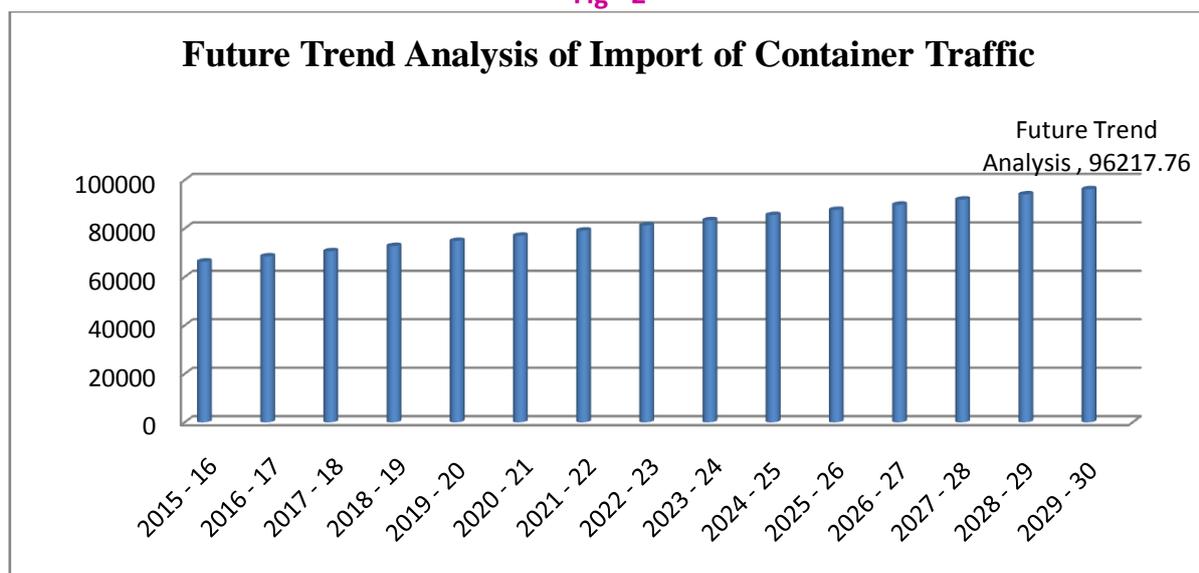
Forecast Analysis of Import of Container Traffic in Tonnage From 2017– 2018 to 2029 – 2030

Table – 4

Year	x	Future Trend Analysis	%
2017-18	23	70620.92	103.11
2018-19	24	72753.99	103.02
2019-20	25	74887.06	102.93
2020-21	26	77020.13	102.84
2021-22	27	79153.20	102.76
2022-23	28	81286.27	102.69
2023-24	29	83419.34	102.62
2024-25	30	85552.41	102.55
2025-26	31	87685.48	102.49
2026-27	32	89818.55	102.43
2027-28	33	91951.62	102.37
2028-29	34	94084.69	102.31
2029-30	35	96217.76	102.26

(Table – 4). For this purpose, twenty years data were used to forecast and the next Fifteen years trend up to 2029 – 2030 was identified by applying the regression analysis. The efficient total operations through containers by the Freight Forwarders witnessed a steady growth from 5396 thousand tonnes to 62330 thousand tonnes.

Fig - 2



Total Container Traffic Export at Major Port (Tonnage) from 1993 to 2015

Table - 5

Year	Kolk ata	Hadia	Para dip	Visa kha Pat nam	Chen nai	Tuti corin	Cochin	New Mang alore	Mormu gao	Mum Bai	JNPT	Kan Dla	To tal
93-94	760	54		65	945	285	378	15	8	2716	1165	462	6853
94-95	928	59		77	1097	427	535	4	11	2997	1560	467	8162
95-96	1072	45		69	1271	478	602	-	13	3242	2208	595	9505
96-97	1072	99		111	1459	630	719	-	21	3716	2896	758	11481
97-98	1116	294		95	1651	741	601	-	18	3922	3389	805	12632
98-99	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
99-00	845	366		132	1959	925	844	-	17	2615	5673	703	14079
00-01	817	658	7	168	2813	941	1037	16	25	1766	7547	806	16601
01-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02-03	574	1199	25	191	3536	1375	1074	58	61	811	13282	1537	23723
03-04	636	1436	57	197	4106	1586	1063	61	62	712	15616	1604	27136
04-05	1070	1220	31	370	4718	1961	1163	71	61	568	15398	1477	28108
05-06	1316	938	44	364	5664	2035	1294	81	52	605	16338	1339	29970
06-07	1610	1106	31	512	6809	2444	1457	158	66	631	21581	1731	38136
07-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08-09	2307	1319	31	738	9964	2807	1382	186	72	720	25931	1233	46659
09-10	2534	934	44	884	11410	3396	11958	241	75	57	24608	1439	47580
10-11	2799	1512	61	1330	14381	4931	1668	344	77	87	26968	1595	55753
11-12	3255	1279	99	2046	14536	6129	1855	356	87	53	28493	1813	600001
12-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13-14	3702	1247	86	2620	13895	6241	1869	394	122	10	27843	399	58428
14-15	3656	941	52	2277	14354	6645	1787	423	172	10	26796	-	57113
Mean	1670	817	31.5	680.3	6364.8	2443.1	1738.1	133.77	56.66	1402	14849	1042	60662.2
S.D	1073	527	25.9	829	5246	2148.9	2593.3	152.39	42.946	1402	10429	495	135776
CV	64.2	64.51	54.8	121.8	82.42	87.95	149.20	88.59	75.79	100.0	70.23	44.9	223.82
CGR	9.12	17.21	-	21.84	16.32	19.12	9.01	20.38	18.58	-26.7	19.03	-	12.50

Source: Indian ports association (<http://www.ipa.nic.in>)

The export performance of ports depicted in Table – 5 shows that JNPT port recorded the highest volume of average operations at 14849 thousand tonnes. The average performance of container operation in the study area for export shows 6364.8 thousand tonnes in Chennai port and 2443.1 thousand tonnes in Tuticorin ports.

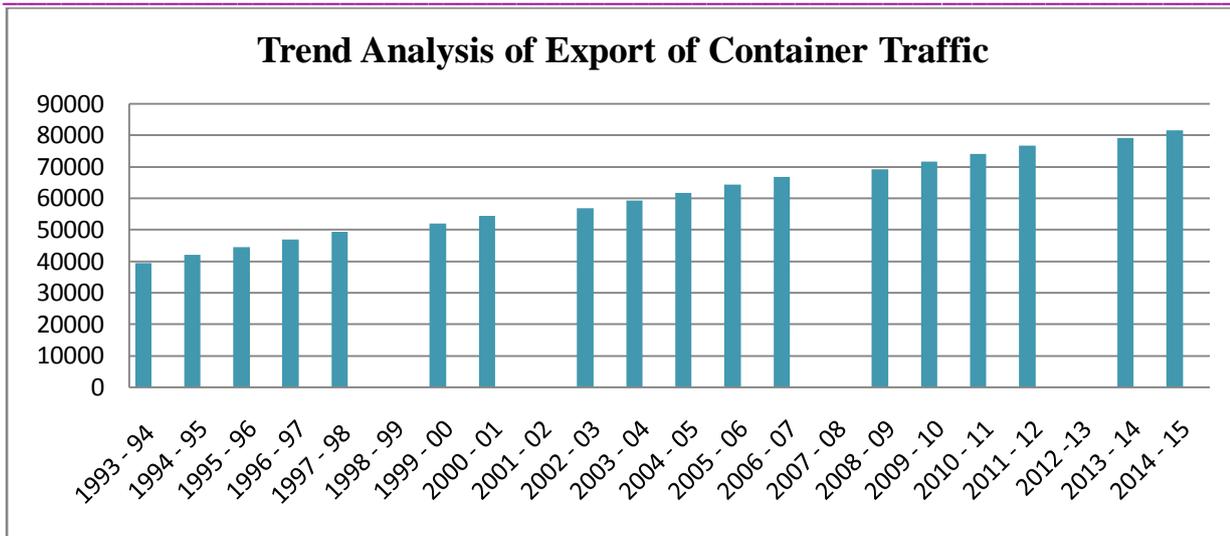
**Trend Analysis of Export of Container Traffic in Tonnage
From 1993 – 1994 to 2014 – 2015**

Table - 6

Year	x	y	Xy	X ²	Trend Analysis Yc=a+bx
1993-94	1	6853	6853	1	39620.13
1994-95	2	8162	16324	4	42095.67
1995-96	3	9505	28515	9	44571.21
1996-97	4	11481	45924	16	47046.75
1997-98	5	12632	63160	25	49522.29
1998-99	NA	NA	NA	NA	NA
1999-2000	6	14079	84474	36	51997.83
2000-01	7	16601	116207	49	54473.37
2001-02	NA	NA	NA	NA	NA
2002-03	8	23723	189784	64	56948.91
2003-04	9	27136	244224	81	59424.45
2004-05	10	28108	281080	100	61899.99
2005-06	11	29970	329670	121	64375.53
2006-07	12	38136	457632	144	66851.07
2007-08	NA	NA	NA	NA	NA
2008-09	13	46659	606567	169	69326.61
2009-10	14	47580	666120	196	71802.15
2010-11	15	55753	836295	225	74277.69
2011-12	16	60000	9600016	256	76753.23
2012-13	NA	NA	NA	NA	NA
2013-14	17	58428	993276	289	79228.77
2014-15	18	57113	1028034	324	81704.31
N=18	Σx=171	Σy=1091920	Σxy=15594155	Σx²=2109	

Trend analysis of export performance shown in Table – 6, clearly shows that uniform development was noted from year 1993 – 1994 to 2014 - 2015. Year by year there was steady growth in the operation of containers traffic by the freight forwarders. An attempt has been made to forecast the future trend in freight forwarding operations, especially in the export performance thought containers in different ports.

Fig - 3



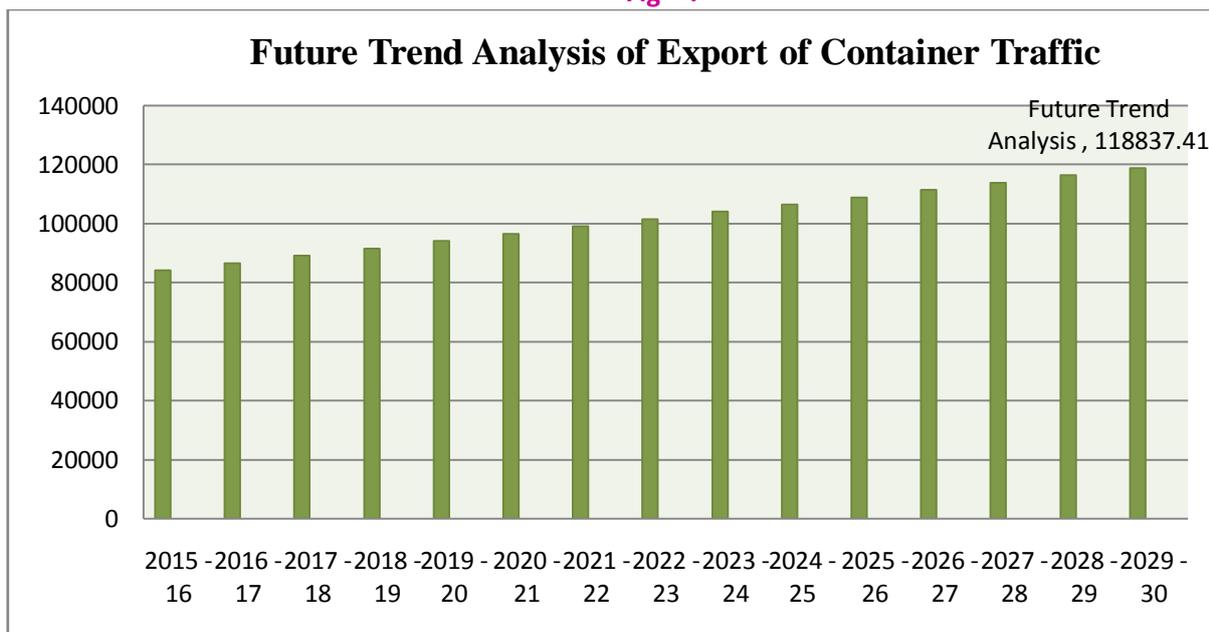
**Forecast Trend Analysis of Export of Container Traffic in Tonnage
From 2017 – 2018 to 2029 – 2030**

Table – 7

Year	x	Future Trend Analysis	%
2017-18	21	89130.93	102.85
2018-19	22	91606.47	102.77
2019-20	23	94069.59	102.68
2020-21	24	96557.55	102.64
2021-22	25	99033.09	102.56
2022-23	26	101508.63	102.49
2023-24	27	103984.17	102.43
2024-25	28	106459.71	102.38
2025-26	29	108935.25	102.32
2026-27	30	111410.79	102.27
2027-28	31	113886.33	102.22
2028-29	32	116361.87	102.17
2029-30	33	118837.41	102.12

(Table – 7) for this purpose, Eighteen years data were used to forecast and the next thirteen years trend up to 2029 – 2030 was identified by applying the regression analysis. The efficient total operations through containers by the Freight Forwarders witnessed a steady growth from 6853 thousand tonnes to 57113 thousand tonnes.

Fig - 4



SUGGESTIONS

1. Better connectivity should be developed between the road, rail and the sea.
2. Chennai and Tuticorin should be ports should be equipped with advanced equipments to the turnaround time.
3. The number of births available to be increase on par with international standards.

CONCLUSION

This study trend analysis to identify the Major ports of India through containers logistics operators. The recent policy of LPG by the Government of India paved the way to earn good financial position and enhance the Economics status. Though various problems are studied and highlighted in this research the Chennai and Tuticorin ports perform excellently with small vessels. Theses ports are not fit to operate with mother vessels due to the limited depth in the sea level. Hence the Government of India should come forward to provide adequate financial aid to construct world class port in Chennai and Tuticorin instead of depending on Colombo port.

REFERENCES

- Bernhofen et al. 2013) Liner shipping connectivity as determinant of trade Fugazza and Hoffmann Journal of Shipping and Trade (2017) 2:1 DOI 10.1186/s41072-017-0019-5
- Rajasekar T, Sania Ashraf P Malabika Deo (2014) "Measurement of efficiency of major ports in India – a data envelopment analysis approach" International Journal of Environment Sciences Volume 4, No. 5,2014
- Julian Martinez Moya & Maria Feo Valero (2016) "Port choice in container market: a literature Review" Transport Review 2017 Vol.37, No. 3, 300-321
- Dr.Prafulla W Sudame & Pavan Nagorao Bahekar (2015) "study of facility available with respect to port operations at major port in India "International Journal of Management (IJM) volume 6, Issue 10,pp.11-17.
- Samuel Monday Nyema (2014) factors influencing container terminals efficiency a case study of Mombasa entry port European Journal of Logistics Purchasing and supply chain Management Vol.2, No.3, pp. 39 – 78, December

-
- Jane Jing Xu Tsz Leung Yip, & Peter B.Marlow (2011) "The dynamics between freight volatility and fleet size growth in dry bulk shipping markets" *Transportation Research part E: logistics and transportation review*, pp. 983-991.

LBP PUBLICATION