

# Study of Container Shipping Trends and Services in Viet Nam in the period of 2011-2015

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This paper aims to study the common trends of container shipping in Viet Nam market and the evolution of container route structure during the period 2011- 2015. Particularly, we focus on the vessel flows from/to the south part of Viet Nam. Main findings of the paper are Ho Chi Minh City ports who play the role of spokes for hub ports have accommodated bigger and longer vessels over last four years. In addition, Cai Mep ports in Baria Vung Tau province emerge as a local hub for cargo from South Eastern Viet Nam and Cambodia bounding for Transpacific and European services. Our results suggest that in spite of increasing size of vessels at Sai Gon New Port (SGNP), the shares of Singapore and Hong Kong which have been playing as the transshipment ports of SGNP get decreased.

*Key Words:* container shipping companies, current trends, hub and spoke

## 1. INTRODUCTION

Year 2015 is an important turning point for ASEAN whose members of ten territories and 608 million people (2014) will be unified to become a single market with free movement of goods, services, investment and skilled labour. Therefore, synchronizing and improving domestic and regional connectivity among member countries is an important issue in air, road, and maritime connectivity. Consequently, we introduce series of research projects about enforcing the development of port system in Viet Nam, a member of ASEAN, to become a powerful and efficient chain in connecting with the big supply chain of ASEAN region and the global transport network.

Results from T-LOG paper (Tran, Takebayashi, 2014) concluded that container cargo in Viet Nam was highly concentrated in a small number of ports while other ports were in lowly utilized condition, and the reason was attributed to the wide gap in port development policies and the actual port performance in terms of planning, port structure of authority. Following that, we aim at studying the container carriers in Viet Nam, and the shippers' behaviour for export cargo from Viet Nam.

Understanding about current container shipping trends will help us to provide strategies for container ports in Viet Nam to adapt with the new environment.

In this paper we are going to testify two major trends of container shipping in the world for Viet Nam market. First, larger container ships have been continuously put into operation, resulting from the urge for a lower cost per TEU and energy efficiency (Cullinane, Khanna, 1999; Notteboom, 2004, Tran, Haasis, 2015). Second, mainline/ feeder service for Far East- Europe/ U.S West Coast, and end-to-end intra-Asian shipping service were introduced. Among Asian ports, Hong Kong, Singapore (first-order ports), Kaohsiung and Pusan (second-order ports) play the role of turnables for the liner services of two different trades (Rimmer, 1998; Foschi, Francesetti, 2000; Robinson, 2006).

This paper has three parts. In section 1, we highlighted some trends in container shipping. In section 2, through empirical researches we observe the trend of container shipping in Viet Nam and comment the differences. In the last section, we summarize the finding results and further research direction.

## 2. STUDY OF SHIPPING TRENDS AND CONTAINER SERVICES OF VIET NAM

### (1) Overview

Viet Nam ports are separated into six groups from North to South geographically from 2009. But the container cargoes are mainly through port group No.5 (68%) and Port Group No.1 (18%) during 1995-2012 (Tran, Takebayashi, 2014). In this paper we collect the container vessel flows from ports in Ho Chi Minh City (HCMC), Baria Vung Tau (BRVT) during December 2012, 2013, 2014 with some major indicators, namely the number of calls, Dead Weight Tonnage (DWT), Length overall (LOA), next port destinations, to reflect Viet Nam shipping trend with international container shipping trends.

**Table 1** Summary on average berth length (metres), draft (metres) of major container ports

Port	Area	Avg length of berth	Draft
SGNP	Ho Chi Minh City- No.5	200	11-12
SG		124	8-10
BN		204	7.5-13
VICT		170	11
SPCT		250	11
SP-PSA	Ba Ria Vung Tau – No.5	300	14.5
TCIT -TCCT		300	16.5
CMIT		300	16.5
Chua Ve	Hai Phong – No.1	153	8
Dinh Vu		198	8
Doan Xa		220	8
Transvina		169	7.9

**Source:** authors composed from Viet Nam Port Association website (2015)

Table 2 and 3 summarize all container vessel sizes calling three most dynamic port clusters in Hai Phong (HP), Ho Chi Minh City (HCMC) and Ba Ria Vung Tau (BRVT) province during december 2014. We find that current trend of ship's specifications and quantities varies by regions. Hai Phong ports receive the highest number of calls, but the large majority of vessels are smaller than other two areas. Fifty percent of vessels's LOA to HP, HCMC, BRVT are 132.3, 168.8, 320.3 metres, respectively. Average DWTs of vessels calling the above three areas are 11308, 17890, and 90826 tons.

Noticeably, BR-VT ports along Cai Mep river emerge since 2011 for being able to accommodate deep-draft container vessels with capacity up to 118,000 DWT- 10,000 TEUs, namely Post-Panamax Plus class.

**Table 2** Descriptives of all vessel calls to Hai Phong, Ho Chi Minh City and Ba Ria Vung Tau in terms of LOA (metres) in December 2014

	Hai Phong	HCMC	BR-VT
<b>Mean</b>	129.4	153.4	318.8
<b>Shipcalls</b>	444	439	31
Max	205.5	222.6	366.9
Min	51.6	60	260.6
Std.dev	32.1	43.8	32.3
<b>50%</b>	132.7	168.8	320.3

**Source:** authors composed from available data of ship schedules of Port Authority in HCMC, Hai Phong website

**Table 3** Descriptives of all vessel calls to Hai Phong, Ho Chi Minh City and Ba Ria Vung Tau in terms of DWT (tons) in December 2014

	Hai Phong	HCMC	BR-VT
<b>Mean</b>	11308	17890	90826
Max	38123	39598	118835
Min	864	1416	50188
Std.dev	6928	10471	22107
<b>50%</b>	10000	20116	90647

**Source:** authors composed from available data of ship schedules of Port Authority in HCMC, Hai Phong website

### (2) Container vessels calling Ho Chi Minh City Ports a) Domestic vessels

Coastal shipping is very useful for a country with 3000 km coastal length like Viet Nam to transport cargo. Therefore, separation domestic vessels whose service routes are shuttling among Viet Nam ports helps us understand more clearly about international and domestic shipping changes over time. .

Domestic vessels calling ports in HCMC have increased in quantities, from 61 to 94 (see Table 4). However the vessel sizes have slowly reduced, for example, LOA of 50% vessels shorten by 5 metres, and DWT decreases by 801 tons after four years. In comparison with vessel calls in Hai Phong, number of calls per month is twice more than in HCMC. But majority ship sizes calling Hai Phong in smaller and shorter than that calling HCMC. Major destination for domestic vessels from HCMC are Hai Phong ports (70%), Da Nang port (17%), and Quang Nam, Quy Nhon, Cai Lan port.

**Table 4** Descriptives of length overall (LOA) domestic container vessels calling port in HCMC (in metres)

	2011	2012	2013	2014
<b>Mean</b>	126	120.7	118.2	128.6
<b>Ship calls</b>	61	72	94	91
Max	198.4	193	198	212
Min	85.5	60	65	60
Std.dev	12.1	24.4	21.8	31.1
<b>50%</b>	128.5	119.1	119	123.5

**Source:** authors composed from available data of ship schedules of Port Authority in HCMC website

**Table 5** Descriptives of Deadweight Tonnage (DWT) domestic container vessels calling port in HCMC (in tons)

	2011	2012	2013	2014
Mean	9911	9364	8091	8880
Max	23600	24386	23600	23600
Min	3582	4463	1200	2288
Std.dev	4428	4330	3769	3763
50%	9039	7980	7055	8238

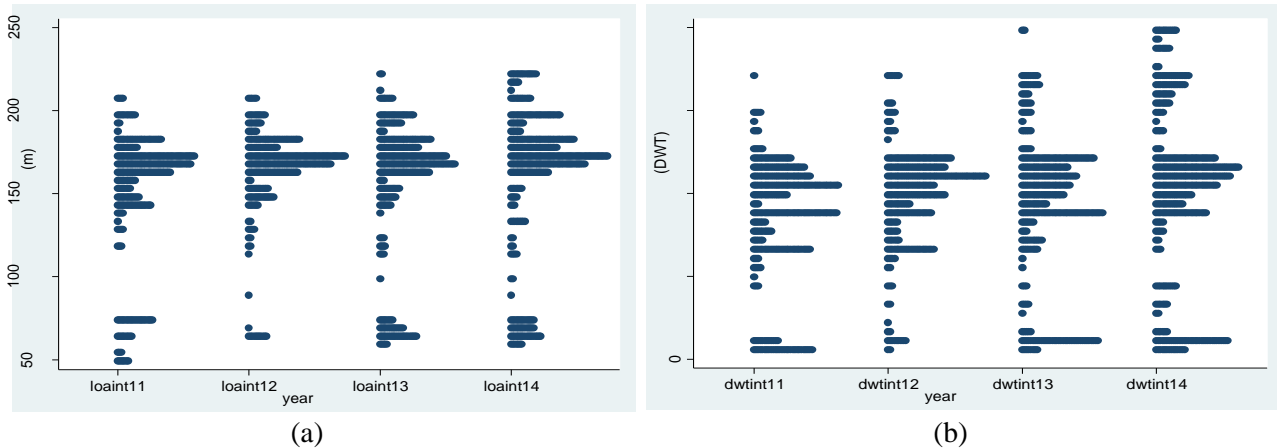
Source: authors composed from available data of ship schedules of Port Authority in HCMC website

**b) International vessels**

Following that, we classify ships calling HCMC with departure and destination ports from foreign countries as international vessels. Descriptive statistics on ship flows proves that the number of international vessel calling HCMC ports has increased over four years from 279 calls/month to 348 calls/month, which most of the time triples number of domestic ship calls. Also, vessels calling HCMC have got bigger in Dead Weight Tonnage and longer in Length Overall. The average LOA

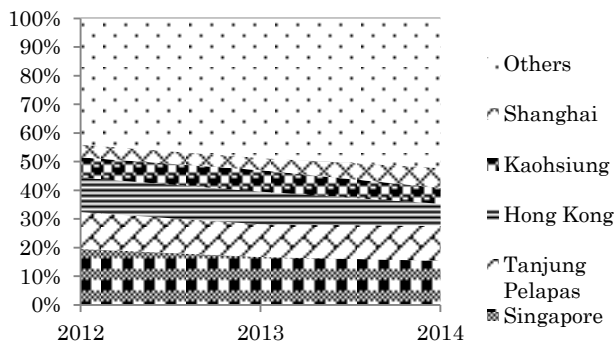
(mean) of vessels calling is relatively unchanged 152, 164, 154, 159 metres over four years, respectively. But 50 percent of ships' LOA has risen from 166.6 to 172 metres. Similarly, more than half of vessels recorded have their DWT value increased from 18,595 to 21,940 tons from 2011 to 2014.

Figure 1 illustrates the distribution of international vessel sizes calling HCMC ports, we see that vessel's LOA ranges from 50 to 250 metres (panel a). Moreover, vessel's LOA value has high density around 160 to 190 metres. Similarly, the majority of vessel's DWT scale is 18,000 to 25,000 DWT (panel b). International Container Handbook (IHC) (2011-2015) recorded that the number of container trunk lines services to HCMC has increased from 33 (2011) to 44 sailings (2015) per week. Over five year period, three fourths of number of vessels's capacity has changed from 1626 to 2540 TEU, regarding as Fully Cellular Container Ships.



**Figure 1** Distribution dotplots of international container vessels calling HCMC ports in terms of LOA (panel a) and DWT (panel b) over 2011, 2012, 2013, 2014

Source: authors composed from available data of ship schedules of Port Authority in HCMC website



**Figure 2** Percentage of port of destinations for containers (including direct and tranship cargo) departing from SGNP in Dec 2012, 2013, 2014

Source: authors composed from container statistics of SGNP

Figure 2 presents the share of top-5 ports of destinations for containers departing from SGNP,

namely Singapore, Tanjung Pelapas (South East Asia), Hong Kong, Kaohsiung, Shanghai (North East Asia). From the figure, we can see that the shares of Singapore and Hong Kong get decreased. These ports have been working as the transshipment port SGNP for a long time, but this fact suggests that this long time relation is going to change. We need to have more detailed investigation for understanding what happens in this relation in the next research. We can also confirm that the scale of activities for most container vessels from HCMC are among South East Asia nations (short-haul) and with North East Asia countries (medium-haul). Container ports in Ho Chi Minh City area play the role of spokes in the bigger hub and spoke network, where HCMC ports consolidate/distribute cargo from/to South Viet Nam. Then, these containers will

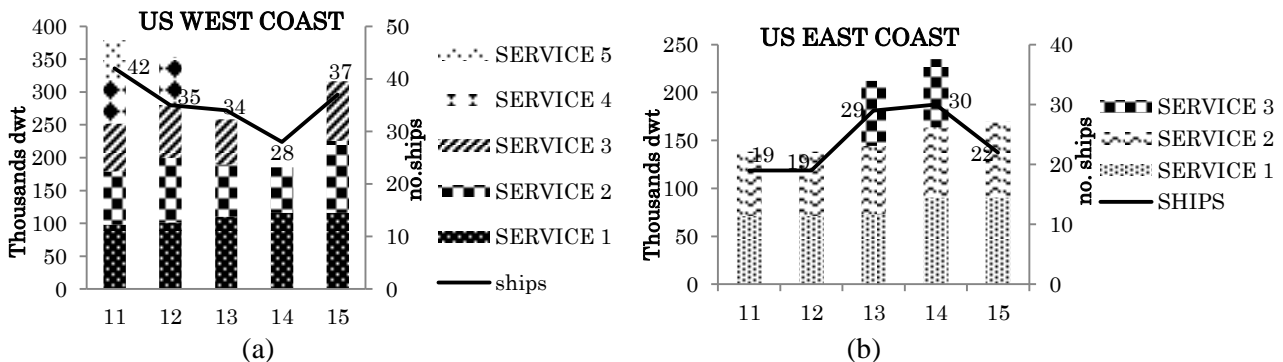
be shifted to mother vessels before shipping to the other side of the ocean.

### 2.3 Container vessel calling in Ba Ria Vung Tau Ports

Ba Ria Vung Tau ports since 2005 have been planned and invested to be the international gateway deep sea ports for vessels calling in to South Eastern Viet Nam. They have big advantage of deep draft (see Table 1) and new land for port expansion in the future. We found that the average DWT of current vessels calling Cai Mep is 90826 tons, and the LOA is 319 metres, equivalent to 8,000-10,000 TEU. From Cai Mep ports, there are frequent service to US. West Coast, U.S East Coast ports, and 1-2 sailings/ week for container service to U.K, Continent European and Mediterranean port ranges.

Figure 3 summarizes the change of vessel sizes and the number of container services from Cai Mep ports (BR-VT) bound for U.S West Coast (panel a) and East Coast ports (panel b). Panel (a) shows that number of sailing has reduced slowly from 5 (2011) to 2 (2014), but the ship size tends to get bigger.

The direct container services from Cai Mep ports (BR-VT) since 2011 have become an exception of



**Figure 3** Container service from Cai Mep to U.S West Coast (panel a) and East Coast Ports (panel b) during 2011-2015  
 Source authors composed from International Container Handbook 2011, 2012,2013,2014,2015

### 3.CONCLUDING REMARKS AND FUTURE RESEARCHES

In this paper, we summarize recent five years container shipping trends through ports in Viet Nam, especially Ho Chi Minh City and Ba Ria Vung Tau ports in the South Viet Nam. Our main findings are as follows:

1) The major class of container vessels through HCMC ports is the Fully Cellular containership, and bigger, longer vessels longer have been put into operation. Vessels from HCMC play the role of feeding containers from mainline ports, Singapore, Tanjung Pelapas, Hong Kong, Kaohsiung. But the shares of Singapore and Hong Kong which have been playing as the transshipment ports for SGNP get decreased. This fact suggests the

the common hub-spokes container network. According to Robinson (2006) Viet Nam ports had not appeared in the Asia's hub-spokes networks until mid-1990's, when all the containers to/from Viet Nam to other intra-Asia countries were transhipped via Singapore. In fact, Viet Nam did not regard the trend of containerization a significant phenomenon until 1990s, when they started normalizing foreign and trading relations with the United States and other countries. Since then, the volume of import/export containers has witnessed an impressive growth from half a million (1995) to 1.1 million (2000) and 8.5 million TEUs (2014). With the high growth rate of 18 percent per year for container cargo, we believe that during last decade Viet Nam shippers have got more bargaining power which demands for more direct port of calls to Viet Nam, as Notteboom (2004) mentions "ship follows cargo" principle. As for now, Cai Mep ports in BR-VT have worked as a local hub for containers transhipped from Ho Chi Minh City, Mekong River Delta provinces and Phnompenh.

structural change in container cargo transport between SGNP and these ports.

2) Deep-draft ports in Ba Ria Vung Tau, also called Cai Mep, have emerged from the common trend to attract the Super-Post Panamax Plus containerships calling for Trans-Pacific and European service.

Container shipping in Viet Nam, as we can see, follows common trend of the world, at the same time it has their own different characteristics. Viet Nam is an developing economy, which is assumed to experience a lot of changes in the future. Following this, how container terminals in Viet Nam should establish their strategies considering the international shipping container lines' changes is a question for our future research.

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