

The Benefits of Container Exchange between Carriers: A Case Study

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1. Introduction

The paper proposes that the container exchange mechanism is an effective solution to the container inventory imbalance problem. Drewry Shipping Consultants state that about 20% of total container flows at sea around the world are empty, and the costs of repositioning are about USD 400 per container [3]. There is a tremendous pressure on reducing logistics cost and carbon footprint. The fundamental reason for Container Inventory Imbalance (CII) is the external trade imbalance of countries. A major challenge revolves around repositioning of empty reusable containers [6]. It is noted that the exchange mechanism works well with respect to the shipping space (slots) that has proved immense benefits to carriers as well as to the industry in general. However, the carriers believe that there is no opportunity for container exchange as the intrinsic trade imbalance is commonly applicable to all carriers. The industry has not made any attempt to evaluate the benefits of container exchange due to this myopic view.

2. Container Exchange

Many service agreements between carriers already have provisions to exchange containers in addition to slot exchange between consortium partners. However, the fact remains that there is no exchange of containers taking place in reality. This is mainly due to the lack of initiatives by shipping agents and it is quite a paradox as carriers regularly spend considerable amount of money on container re-positioning. Shipping companies spend in average USD 110 billion per year in management of their container fleets (purchase, maintenance and repairs) of which USD 16 billion is for the repositioning of empties [5]. If few leading lines take the initiative and exchange containers wherever possible, the rest may follow suit [4].

3. Analysis

Given the dispersed international nature of shipping business it is rather difficult to evaluate this phenomenon on a truly global scale. Therefore, the study was

conducted in Sri Lanka which was considered achievable and realistic. It is justifiable because Sri Lanka attracts 16 out of the ‘top twenty’ global carriers. They carry 72% of world container capacity [1], thus suggesting that data provides a reasonable representation. Industry statistics reveal that 289,474 TEUs of empty containers were evacuated from port of Colombo during 2014[2]. It actually reflects 50.3 % of 515,875 TEUs of total domestic exports (both laden and empty) which shows the seriousness of the issue. Paradoxically, carriers have imported 48,629 TEUs of MTYs in 2014 to already overflowing Colombo Port. Table 01 provides the 40’ container inventory (of carriers with excess containers and those who are short of containers) in Sri Lanka for the first three months in 2014. These data challenges the carriers’ myopic view. Similarly, opportunities for exchange are evident in other months also.

Table 01- Status of 40’GP Container Inventory -2014

Month	Status of container inventory			
	prior to exchange		after the exchange	
JAN	Excess	557	Excess	211
	Shortage	346	Shortage	0
FEB	Excess	286	Excess	0
	Shortage	369	Shortage	83
MAR	Excess	477	Excess	0
	Shortage	672	Shortage	195

Source: Industry data based on individual carriers’ unpublished data in Sri Lanka

As the results show a positive outcome, the same exercise was repeated for all container types. Table 02 summarises the outcome of two scenarios namely, the imbalance of containers under ‘work alone’ and ‘collaboration’ for the year 2014.

Table 02- Analysis of Container Inventory (selected types/sizes) in Sri Lanka -2014

Container Type& Size	Imbalance when Work alone	Imbalance when Exchange
20’GP	158221	156285
40’GP	10486	794
40’HC	44586	27842
45’HC	2155	101
20’&40’RF	5975	4791
Total	221423	189813

Source- Industry data based on individual carriers’ unpublished data in Sri Lanka

In order to make the result more realistic the estimation of exchanging rate was examined though interviews with ten leading carriers. The estimation was done for the month of March 2016 and only the 40’ GP containers were considered. Each carrier was proposed the possible combination to share containers. Except for one

pair, all other combinations were found workable. Table 03 illustrates the agreed combinations between carriers. The carriers are listed anonymous due to marketing reasons.

Table 03 - Exchange of containers between 10 carriers

Pair of carriers	A	B	C	D	E	F	G	H	I	J	No of containers agreed to share
A--> D				32							32
B--> F						8					8
G--> H								28			28
I--> J										Not agreed	
CI level	32	44	21	-36	63	-8	34	-28	45	-11	

4. Conclusions

It is clear from these analyses that the imbalance could have been reduced by 31,610 containers in 2014 if carriers opted to exchange containers. The estimated saving is approximately USD 12.6 Million. Sri Lanka has exported 269,931 TEUs in 2014. If carriers used this money to assist exports from Sri Lanka freight rates could have been reduced by USD 47 per TEU. In addition, it would help reduce environmental pollution which is the most critical factor in today's business world for sustainability. This study clarifies the actual position using real container data and response from industry professionals proves that opportunities exist for container exchange between carriers. Accordingly, the CII could be reduced by 14% at least which reflects a reasonable saving to carriers.

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