

# The Business Impact of Private Container Terminals on Ghana Ports

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## **Abstract**

Seaports and Marine Terminals are an essential link in the intermodal transfer of ocean cargo. Ports and Terminals facilitate the interchange of consumer goods exports between Ocean Carriers and land-based transportation such as trucks and railroads. Because of their essential functions and strategic locations, the viability and productiveness of Seaports can have a significant economic impact on the surrounding hinterland and national regions served. As such, many Seaports are owned and subsidized by public entities. Private Seaports, which are less prevalent, are often designed for single purpose cargo transfer (e.g., bulk products) for the benefit of a specific commercial enterprise or as a general cargo facility (e.g., in countries with limited national investment resources).

Container Ports specialize in the high volume transfer of Ocean Containers utilizing special purpose cargo management and handling equipment. Some Ports can achieve vessel discharge rates of over 50 Containers per hour. In addition to the traditional activities of carrier loading and unloading, freight consolidation, storage, and customs bonding and clearance, some Ports & Terminals are now providing Value-Added Services including, product labeling, inspection, packaging, assembly and product exhibition in or near Port facilities, often in areas designated as Foreign Trade Zones.

**Keywords:** *Container Terminals, Ghana Port, Port Terminals*

## **I. INTRODUCTION**

The basic function of a container terminal is the transfer and storage of containers. Terminal operators are accordingly concerned with maximizing operational productivity as containers are handled at the berth and in the marshalling yards, and with efficiently utilizing available ground space. Container handling productivity is directly related to the transfer functions of a container terminal, including the number and movement rate of quayside container cranes, the use of yard equipment, and the productivity of workers employed in waterside, landside, and gate operations. The efficient use of available ground space relates to the number of containers stored in a given area of the terminal. Improving the utilization of ground space typically reduces the operational accessibility to containers; that is, ground space utilization and container accessibility are inversely related. The challenge is therefore to define container accessibility in relation to ground space utilization based on a terminal's operational targets and unique physical characteristics (Murphy, 2006).

The productivity of a container terminal is influenced by a range of factors, only some of which can be controlled by terminal operators (DOWD et al, 1990). Factors internal to the terminal and under the control of the operator include terminal configuration and layout, capital resources invested, and, to a certain extent, labor productivity. External factors beyond the control of operators include trade volumes, shipping patterns, and the ratio of import to export containers (which influences the number of empty containers handled at a terminal and the availability of container chassis). The size and type of ships accommodated by a terminal, as well as the landside capacities and performance of intermodal rail and highway systems, are additional external factors affecting the productivity of terminal operations (Murphy, 2006).

## **II. IMPACT OF PRIVATE CONTAINER TERMINALS ON PORTS**

Seaports and Marine Terminals are an essential link in the intermodal transfer of ocean cargo. Ports and Terminals facilitate the interchange of consumer goods exports between Ocean Carriers and land-based transportation such as trucks and railroads. Because of their essential functions and strategic locations, the viability and productiveness of Seaports can have a significant economic impact on the surrounding hinterland and national regions served. As such, many Seaports are owned and subsidized by public entities. Private Seaports, which are less prevalent, are often designed for single purpose cargo transfer (e.g., bulk products) for the benefit of a specific commercial enterprise or as a general cargo facility (e.g., in countries with limited national investment resources).

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Today, possibly one of the most obvious phenomena in port industry is port privatization since it is widely believed that ports form a vital link in the overall trading chain and, consequently, port efficiency is an important factor for a nation to achieve internationally competitive advantage (Tongzon, 1989; Chin and Tongzon, 1998) and that increasing private sector participation in the ownership and operation of container ports (terminals) can help port authorities improve their operation efficiency. Therefore, it is indispensable to identify the relationship between the ownership structure and port efficiency.

Economic theory fails to provide unequivocal propositions on the issue of the relative efficiency of public vis-à-vis private enterprises (Liu, 1995). Based on the principal-agent theory, private ownership should be more efficient than the public one. It is believed that the transformation from public to private ownership, even without change in the competition, will be associated with improved efficiency (Hartley et al., 1991; Parker, 1994). However, a number of economists (for instance, Vickers and Yarrow, 1989; Estrin and Perontin, 1991) have argued against the strength of the opinion in favor of private ownership and suggested that principal-agent problems may also arise in the private sector as a result of capital market imperfections. Thus, the question of the relative efficiency of alternative forms of ownership is an empirical one (Liu, 1995).

The empirical studies that have investigated the association between port ownership structure and port operation efficiency seem to provide more evidence that there is no clear-cut relationship, or even a negative correlation, between the type of ownership and port efficiency. For example, Liu (1995) uses the stochastic production function to calculate technical efficiency and compare the influence of public and private ownership on inter-port efficiency differences. Based on the observations of output and inputs for 28 ports in UK, Liu (1995) failed to show that port ownership has a significant effect on port performance. Notteboom et al. (2000) used the Bayesian Stochastic Frontier Model, developed by Van Den Broeck et al. (1994), to compare the efficiency level of a set of 36 European container terminals, supplemented with four Asian container ports. After comparing the efficiency levels among the studied terminals, no relationship was found between the type of ownership, operations of a terminal and the efficiency level. Coto-Milla'n et al. (2000) covered the efficiency problem in port industry by using a stochastic frontier cost function to estimate the economic efficiency of Spanish ports through panel data of 27 Spanish ports.

They found that the type of organization has a significant effect on economic efficiency, but ports with autonomy are less efficient than the rest. Contrary to these studies, some studies argued that port ownership has an effect on port efficiency. For example, Estache et al. (2002) illustrated the efficiency effects of Mexico's 1993 Port Reform by using panel data of 44 observations from 11 independent Port Administrations. The efficiency scores based on the statistical results showed that the reform of decentralization and privatization taken at Mexico\_ ports has generated large short-term improvements in the average performance of the port industry. Cullinane et al. (2002) employed both the cross-sectional and panel data versions of the stochastic frontier model to assess the relative efficiency of 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 does seem to be some support for the opinion that privatization should have some relation with the improvement in efficiency.

Moreover, Baird (2000) argued that an outright sale of port land, combined with a transfer of operation and regulation functions to the private sector will not definitely increase the operation efficiency, or may even be counter-productive. 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 will result in significantly delayed investments on crucial operation facilities and equipments, which are obviously contrary to the original objective of port privatization. Thus, full port privatization will impede the improvement on port performance while some extent of private sector participation can increase the efficiency level, which implies that the extent of private sector intervention in the port sector has an inverted U-shaped effect on port operation efficiency. Although it is not categorically proven that there exists a direct casual link between the degree of private sector involvement and economic efficiency, deregulation policies have been commonly used in many industries and across many countries

(especially to the landside transportation sector), and privatization is perceived to be the most important policy for improving the efficiency of the ports sector (Cullinane et al., 2002).

In addition, some empirical studies also examined the effect of port size on port efficiency. Liu (1995) found that port size is significant when explaining port efficiency, but the effect is small. Martinez-Budri'a et al. (1999) applied the Data Envelopment Analysis (DEA) to study the relative efficiency of the 26 Spanish port authorities. They showed that ports with larger size are more efficient than the smaller ones. Notteboom et al. (2000) found that port size has a positive effect on port efficiency. Cullinane et al. (2002) argued that ports with larger throughput seem to have certain performance advantage over their smaller competitors.

However, Coto-Milla'n et al. (2000) showed that port size is not significant when trying to explain the economic efficiency. Tongzon (2001) applied Data Envelopment Analysis (DEA) to make international comparisons of port efficiency among four Australian and twelve other international container ports. The main findings showed that a port's efficiency level has no clear relationship with its size and its function (hub or feeder).

### **III. METHODOLOGY**

This article discusses the design, the population and sample. It also discusses the instrument that was used in the data collection, the procedure for data collection and the method for data analysis. Research is a systematic method of finding solutions to problems. It is essentially an investigation, a recording and an analysis of evidence for the purpose of gaining knowledge. According to Clifford Woody (2007) research comprises defining and redefining problems, formulating hypothesis or suggested solutions, collecting, organizing and evaluating data, reaching conclusions, testing conclusions to determine whether they fit the formulated hypothesis. The rationale for choosing one methodology over another is connected to the nature of the subject studied and the underlying goals of the research (Fraenkel & Wallen, 1993).

#### **A. Research Design**

The research design used is descriptive design. Descriptive research design is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. Descriptive research is used to obtain information concerning the current status of the phenomena to describe "what exists" with respect to variables or conditions in a situation. The study aimed at assessing the Impact of Private Container Terminals on the Operations of Tema Port. The research was descriptive in nature and Malhotra (1999) defines descriptive research as a type of conclusive research which has as its major objective the description of something.

#### **B. Sampling Techniques**

In this study, non-probability sampling was used since it was impossible to identify the elements beforehand because there is no list available which corresponded with the required elements and so random sampling was not possible. Non-probability sampling relies on the personal judgment of the researcher rather than chance to select sample elements. These sampling techniques do not use chance selection procedures (Malhotra, 1999).

Two steps were used to sample the population for this study: Firstly, the selection of the sampling units, that is to say the places where the interviews were conducted. Thus judgmental sampling was used to choose those units. According to Malhotra (1999), judgmental sampling is a form of convenience sampling in which the population elements are purposefully selected based on the judgment of the researcher. This method is necessary as the places which are believed to be representative of the target population had to be chosen subjectively (Crask, et al., 1995).

To select the respondents to be interviewed the study employed the purposive sampling technique in the determination and selection of the institutions and the organizations- GPHA, TCT, ACS, and MPS. Asuliwonno (2011) postulated that this sampling technique is used where the sampling units are chosen because they meet set criteria of importance. In the purposive determination of the units sampled, institutions whose activities include Terminal operations and have knowledge and role to play in activities were the focus of the research.

### **IV. CONCLUSION**

This study sought to assess the bottlenecks in freight forwarding in Ghana and what could be done to mitigate their impact on the industry. To achieve this main objective, descriptive statistics was used to describe the socioeconomic characteristics of the respondents and the results shows that the demographic age profile of the study participants shows that the industry is dominated by youthful population. The data also shows that both males and females were

nearly equally represented in the sample size of this study and the distribution of the level of education and occupation were widely varied. This might have been as a result of the time and venues of data collection.

The findings of this study show that, Private container terminals have positive impact on the Ghanaian Ports. Indeed this is formalized in Vickers and Yarrow's (1989) conclusion that ownership of a firm will have significant impact on its performance given that ownership rights modify the structure of incentives available to decision-makers in the firm.

In addition, benefits that the community gets from private container terminals are: employment, human resource development, reduces yard congestion, facilitate easy and quick evacuation of container, income to the government through payment of tariffs, foreign exchange and promotes specialization.

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