

The Growth Potential of Port and Inland Container Transport Systems

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Even if the site of port terminals can be a highly constraining factor in terms of availability for expansion, there are not that many technical limits to significantly improve their efficiency or productivity. For instance a more efficient interface with inland transport systems, such as on dock rail facilities, barge services or higher container flows between the dock and the stockage areas through automated systems, can easily double the throughput of most existing terminal facilities. It becomes an issue of engineering (e.g. equipment), operations research (e.g. stacking) and management (e.g. scheduling), all of which well covered by existing research.

Additionally, as the traffic handled by a port increases, the emergence of an inland network of load centers linked with high capacity corridors has emerged, particularly at major gateways. This is commonly known as “port regionalization” (Notteboom and Rodrigue, 2005) where some of the activities are moved further inland, alleviating land pressures at main port terminals.

It could also be anticipated that if traffic continues to grow that a functional specialization of ports (or their terminals) along a cluster could emerge. This specialization could involve ports mainly handling imports, others exports, or even a specialization by commodity, supply chain and inland markets. In many ways, it could be a step back from the notable port usage flexibility than inland markets have in terms of port selection and timing, notably in the North American and European contexts. This pattern already exists, but could further be expanded, leading to high throughput regional port systems.

However, the real matter behind potential future traffic growth remains macroeconomic factors, which tend to be overlooked. Transportation is after all mainly a derived demand. Containerization, like all technical improvements, goes through a cyclic phase of introduction, growth, maturity and eventually a possible decline. Previous transport systems have expressed a similar diffusion behavior, so it is expected that such a pattern will be repeated. It must be underlined that it is very likely that containerization is getting close to have attained a stage of maturity. The recent fast growth years could be an indication that containerization has reached peak growth and that such figures are unlikely to ever be seen again. Containerization went through a phase of functional and geographical diffusion and its associated surge both in volume and carried distances. Most supply chains, particularly related to retailing, have now been entirely containerized when possible and the latest containerization phase concerns commodities such as grains, wood products and chemicals, taking advantage of empty backhauls on international routes. Again, recent evidence underlines the growing difficulty of finding empty containers for backhaul movements in North America.

The geographical diffusion of containerization is still ongoing, but all the major markets have been connected to intermodal transport systems. What is left is of lesser importance volume-wise, particularly as far as ports and maritime transportation is concerned. It must also be underlined that

economic prospects are very negative on the medium term as a good share of the recent growth (and its demand for the production, transport and consumption of goods) was attributed to asset inflation and debt (aka real estate bubble). The massive repudiation and default of this debt by consumers (foreclosures), governments (inflation) and institutions (bankruptcies) will seriously undermine growth prospects. Already, traffic at several North American ports has started to decline (e.g. Los Angeles / Long Beach), taking many analysts by surprise. Future traffic growth is thus likely to be less than what is currently expected. It may be argued that we are moving from an era of underestimating future traffic trends to an era of overestimating them. This implies a potential convergence between international transportation growth and economic (GDP) growth after several years of divergence and even the possibility of lower growth rates than GDP if a phase of economic regionalization takes shape in a high energy price environment.

One significant factor that would prevent larger ports as well as the setting of inland terminals (particularly satellite terminals) is related to the weight (or the tyranny) of externalities. Issues related to energy, the environment, nimbyism, and local congestion are likely to be the single most significant restraining factor for further port growth and for transport terminal growth in general. Policy, pricing and investment strategies will have to take a much greater attention to these soft factors in terminal development.