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GLOBAL INTELLIGENCE

Covering the Costs of Globalization

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Freight containers holding chemicals sit on a container ship docked in Tilbury, England, on Feb. 1, 2007.
(DANIEL BEREHULAK/Getty Images)

Executive Summary

Rising transportation costs and improvements to technology will transform global supply chains over the next decade. The way goods move has drastically changed over the past 15 years because of the rise of globalized manufacturing supply chains. Now, as infrastructure struggles to keep pace with advancements in shipping technology, governments and manufacturing companies must shoulder many of the costs transport companies once bore. This shift will shape the future of the manufacturing industry and will have important implications for companies and governments alike.

Analysis

The export-based economic model that we now take for granted depends on supply chains. The growth of many global powers is directly correlated with the global growth in maritime trade, which has increased by almost 160 percent since 2000. China, for example, has become the world's largest exporter and the second-largest importer of goods in terms of value. Between 2000 and 2013, it accounted for 17 percent of the growth in global exports and 15 percent of the growth in global imports, more than any other country. The United States comes in second, responsible for 16 percent of global trade growth, roughly half that of China.

Moving goods is easier than ever because of an array of technologies, relatively cheap and globally accessible credit, and a host of other factors, including the United States' protection of the world's sea-lanes. But supply chains have changed significantly over the last decade. The ability to acquire goods from a staggering number of suppliers in vastly different locations, frequently referred to as globalization, has only recently become possible, in large part because of technological advancements. However, these systems rely on low transportation costs and on the ease of moving goods and their unfinished parts over vast supply chains. Shipping prices have been artificially low since the financial crisis began, but now that transport companies are becoming increasingly unable to bear the losses, rising transportation costs are threatening the world's supply chains.

Rising and Shifting Costs

Transporting goods will likely become more expensive over the coming decade. There is no doubt, for example, that shipping costs will rise as the shipping industry recovers from its oversupply problems. Since the global financial crisis, shipping companies have struggled to be compensated for the total cost of moving goods from point to point because of the large oversupply of ships relative to demand. This oversupply essentially led shipping companies to unintentionally subsidize exporting economies to maintain their market share, but recently companies have started to take drastic measures to lower their costs. However, these measures have passed the costs of transportation to other actors in the global supply chain, indicating that artificially low transport costs are coming to an end.

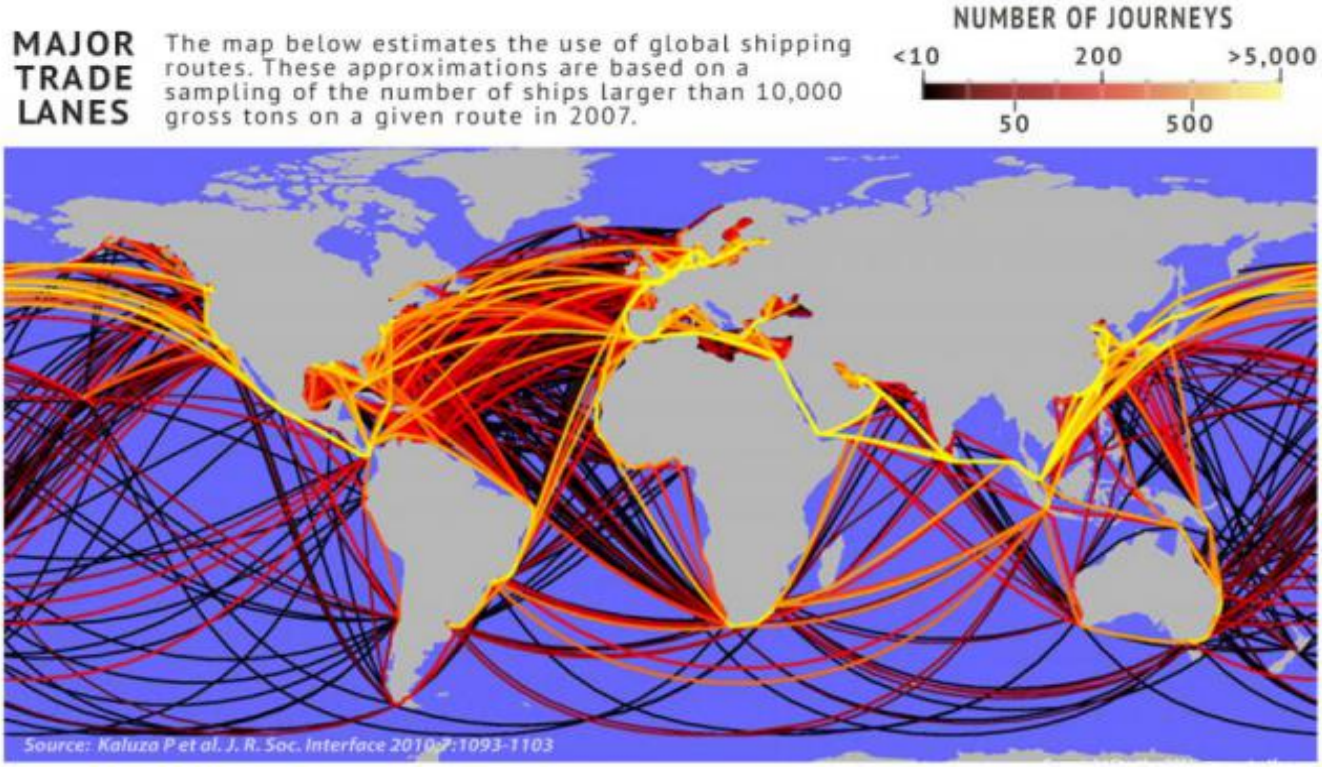
Container shipping companies have been forced to create larger, more efficient container ships and, to a lesser extent, larger bulk ships in their efforts to reduce costs. The cost of moving a ship across the Pacific Ocean does not increase much as the ship gets larger. By adding more containers, the transportation cost per container is reduced. Recent congestion in ports on the U.S. West Coast, in Northern Europe and in Eastern Asia, however, demonstrates that global infrastructure and the companies that develop it are not fully prepared for the rapid expansion in ship sizes. Moreover, most places in the world, such as India and Brazil, already needed significant infrastructure improvements before factoring in the new ships. Some of this congestion is, of course, temporary, as new terminals and massive cranes are built. But the broader issue remains: Now that shipping companies are finding ways to lower costs, other actors in the market are facing increased costs, and will continue to do so for at least the next 10 years.

Costs are passed from carriers to other players when containers arrive at fewer ports in larger numbers. Even a small increase in the average size of a ship can have a massive impact on how much must be moved off the ship, stored and then loaded onto trucks or trains during peak times. U.S., European and East Asian roads and railways are also facing congestion problems, only increasing the pressure on the already strained systems that move goods between the coast and the interior. All of this congestion lengthens transport times, which further adds to companies' costs.

Congestion is likely to worsen even as global shipping lanes are improved. As larger ships are used on the major east-to-west trade lanes, smaller (but still quite large) ships move down to other trade lanes that are similarly unprepared to handle them. The largest container shipping companies are currently racing to build the biggest, most efficient ships, and a new reigning champion will likely be crowned at least once a year. Though a maximum container ship size will eventually be reached, the strain on existing infrastructure in the meantime will be acute.

MAJOR TRADE LANES

The map below estimates the use of global shipping routes. These approximations are based on a sampling of the number of ships larger than 10,000 gross tons on a given route in 2007.



MAJOR PORTS

Port rankings are based on the total number of twenty-foot equivalent units (TEUs) throughput in 2013, according to the Journal of Commerce.

1. Shanghai, China
2. Singapore
3. Shenzhen, China
4. Hong Kong, China
5. Busan, South Korea
6. Ningbo-Zhoushan, China
7. Qingdao, China
8. Guangzhou Harbor, China
9. Jebel Ali, Dubai, UAE
10. Tianjin, China
11. Rotterdam, Netherlands
12. Port Klang, Malaysia
13. Kaohsiung, Taiwan
14. Dalian, China
15. Hamburg, Germany
16. Antwerp, Belgium
17. Keihin hub, Japan
18. Xiamen, China
19. Los Angeles, U.S.
20. Tanjung Pelepas, Malaysia

Finding the Money

Shipping companies have formed alliances to save money. Alliances essentially allow competition while spreading out costs and profits among companies through the coordination of loads. Instead of running two half-empty ships, the companies run a single ship, dramatically cutting costs. This approach will become particularly important as ships get larger and are not fully utilized. But alliances have reduced ship reliability and frequency and have altered the flow of goods, forcing port and trucking companies to adjust. This has created major disruptions in the reliable movement of goods that companies count on to keep their supply chain costs low.

Many of these problems can be solved with spending on port, road and rail infrastructure, but few countries are able or willing to commit enough resources to these projects. In the United States, for example, massive investments in infrastructure are needed despite significant geographic advantages. The United States is and will remain one of the most developed infrastructural systems in the world, but its needs are still rapidly growing. However, the country has struggled to make such improvements, despite clear evidence of the need.

China, on the other hand, has committed to lowering its relatively high logistics costs by 2 percent to 16 percent of GDP over the next five years, a goal that is not unattainable. China's target, however, is significantly higher than those of developed countries where logistics costs are usually around 10 percent of GDP or less. The vast majority of developing countries – including Vietnam, one of Stratfor's PC16 countries – find it difficult to come up with the money for the infrastructure updates that substantially reduce congestion.

It is not new for governments to struggle to fund infrastructure projects, but now there is a very real possibility that logistics costs could increase faster than GDP growth. The pace of globalized supply chains is becoming less and less forgiving for countries left behind, and governments have little choice but to fund infrastructure projects that require massive investments of labor, money and time. However, many of the world's global economic engines – China, the European Union and Japan – are entering into an era of lower economic growth and will have difficulty making such substantial investments.

The recent decline in the price of oil will undoubtedly help lower costs in the short term, but it is unclear how much individual companies stand to save. Moreover, many transportation companies have been reluctant to pass on their savings after years of difficult times. In fact, temporarily lower prices may eventually exacerbate the problem by encouraging continued growth beyond infrastructural capacity.

Predicting the Future

In addition to rising transportation costs, there will likely be a massive shift in consumer and labor markets and a change in the cost of basic building blocks for production, such as electricity, in the next 15 years. All of these variables considered together, along with potential

changes in technology, make it difficult to map the future of supply chains. Nonetheless, some interesting trends can be identified.

Rising logistics costs relative to GDP will not make or break national economies, but the rising costs they represent may force companies to change the way their supply chains work. The U.S. West Coast, Northern Europe and Eastern Asia all experienced significant and costly port, rail and road congestion over the past year, and it is likely that many of these problems are here to stay in one form or another. The likely result will be a decline in how much an individual item moves before it reaches the consumer.

Many suppliers use a strategy called just-in-time manufacturing, which keeps the inventory of goods low, reducing costs while also increasing the risk to a company's supply chain. Some companies keep as little as five days' worth of inventory on hand because, quite simply, inventory is expensive and requires cash on hand. Most companies would rather spend that cash elsewhere in their businesses. However, congestion creates variability, making just-in-time manufacturing more difficult and increasing the cost to move goods.

Each transition between modes or in and out of temporary storage is an added expense. Many top companies have made efforts to reduce the number of these transitions, called touches. During the last 15 years, global supply chains have spread out in an effort to reduce labor costs but increased transportation costs will likely push back against this trend. Significant increases in congestion may augment costs to the point that companies will need to slowly move away from the global model that pulls parts from hundreds – in some cases thousands – of suppliers from all over the world. However, some industries, particularly higher-end manufacturing, may be more suited to a concentration of activities than others.

Though the cost of labor will remain a more important cost consideration for many companies, it is likely that transportation costs will still shape their practices. For example, labor-intensive industries such as textile manufacturing will still follow demographic trends, while those industries with extremely complex supply chains – technology manufacturing, for instance – are more likely to condense their activities.

New technologies, such as additive manufacturing, that significantly reduce labor and materials costs, will continue to develop, making production nearer consumption centers an increasingly attractive option for many industries.

China and Southeast Asia will likely see the largest transformation from newer technology and rising transportation costs, since growth in global consumption is likely to be centered in this area and since intraregional trade in unfinished goods is relatively high in the Asia-Pacific region. Moreover, the Chinese government has been attempting to focus on the types of higher-value industries that higher transport costs and new technology will affect the most. While China may be able to significantly decrease transportation costs in some regions, it cannot control transportation costs and infrastructure in all parts of the globe. This all makes consolidated business practices more likely in the region.

When it comes to predicting the future of manufacturing and freight transport, there are many unknowns, but it is becoming increasingly clear that shipping prices are on the rise and that transport companies will no longer absorb many of the costs they previously had. In the coming years, governments and companies will struggle to find innovative strategies to update infrastructure and adapt supply chains to be more efficient, all while dealing with a recovering economy. The transport industry may have transformed over the past 15 years, but it appears the transformation is far from complete.

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