Transportation Global Supply Chain Perspective 10th edition Novack Solutions Manual

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Solution and Answer Guide

NOVACK, TRANSPORTATION: A GLOBAL SUPPLY CHAIN PERSPECTIVE, 10E, 2024, 9780357908549; CHAPTER 1: GLOBAL SUPPLY CHAINS: THE ROLE AND IMPORTANCE OF TRANSPORTATION

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[STUDY QUESTIONS]

1. Transportation has sometimes been described as the glue that holds global supply chains together. What is the meaning of this statement and do you agree? Why or why not?

   Solution:
   Most students will probably agree that transportation is the “glue” of the supply chain since it connects the individual parts of the chain. Still, they should point out that information is also important to hold the supply chain together. The essence of the statement is that supply chains are extended enterprises with many parts, and the final outcome is a product delivered on time to a particular location without damage or delay. Transportation and information flows are key to this outcome. They should also point out that transportation and information can provide a strategic advantage, so they should be an important part of the planning process. Overall, supply chains play an important role in helping organizations gain a strategic advantage in the global economy of the 21st century.

2. During the last 20 to 30 years, there have been a number of countries whose economies have experienced important economic expansion and development. One group of countries has been labeled the BRIC countries and the other the VISTA countries. Identify each of the nine countries and provide some insights about their economies and economic importance.

   Solution:
   BRIC countries are Brazil, Russia, India, and China. The VISTA countries are Viet Nam, Indonesia, South Africa, Turkey, and Argentina. The BRIC group is generally considered to be the most advanced economy. China is clearly the most important, as indicated by the grade flow data in the chapter. They are important for manufactured production well as resources. India has advanced rapidly through their educated and industrious citizens and technology, and organizations in India have become an important part of

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many supply chains. Russia and Brazil both have vast resources that can be the basis for funds, but they are also developing more advanced manufacturing sectors. They are challenged by their geography, size, and political factors. The VISTA countries have established themselves as countries for sourcing some basic manufacturing because of low labor costs. They also provide agricultural products and other resources for exporting. The key dimension for both the BRIC and VISTA countries is that establishing global supply chains has allowed them to be a part the global economies.

There is abundant information about the BRIC and VISTA countries on the internet if you want to make this question a special assignment or extra credit.

3. The theories of absolute and comparative advantage have been offered as an economic rationale for trade between and among regions and countries. Compare and contrast the two concepts. Which of the two do you think is more important for explaining the growth in global trade during the last 25 years? Why?

   Solution:
   Both theories are offered as a rationale for expanded trade between and among regions and countries to promote growth and development. Absolute advantage is the oldest concept and easiest to explain, since each country has an advantage in the production of one or more products in the two-country scenario. Comparative advantage postulates that even if one country has an advantage in both products, trade can still be advantageous. Comparative advantage has probably been the most important for overall development in our complex global economy since countries can produce so many products that are competitive with other countries, to some degree. However, complete advantage is still important to rationalize some major work flows, especially for basic materials and agricultural products. There are also seasonal and weather-related factors that provide advantages at particular times of the year for different regions.

4. The overall growth of global trade has more than doubled since 2000. Why? What has been the most important factor prompting this growth? Is this rate of growth likely to continue in the future? Why or why not?

   Solution:
   There are several reasons for this growth. Some of it can be explained by population growth and improved education systems in developing countries. Capital for development has become more widely available from private and public sources. There is also more acceptance of products manufactured in other countries. But probably the most important reasons are trade agreements and lower tariffs on imported products. These have been greatly expanded because of the recognition of how important global trade can be to economic development and the health and welfare of the citizens of the country. One of the biggest challenges to progress in promoting global trade is the political instability and terrorism that have developed in some areas of the world, such as Africa and parts of the Middle East. These factors undermine the benefits that can accrue from the growth in global trade. One can argue that the growth will continue because of the economic and political forces at work in the global economy, but there will be ups and downs or bumps along the road because of human error and greed.

5. The size of a country's population and the associated age distribution can be causal factors for economic growth. Why is the size of the population important to economic development? Can size be a disadvantage? Why is age distribution important?

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Solution:
The sheer size of the population can be very important because labor is one of the prime factors for economic growth, and population numbers indicate the availability of labor. The size of the population can also indicate the market size and potential for selling products. Size can be a disadvantage if the economy cannot provide employment opportunities. Large size can also challenge the education system and may require government resources to sustain the basic needs of the citizenry. Age distribution affects the size of the labor pool of available employees. Also, older populations require more medical assistance and other services, which can drain the resources of individuals or government agencies. The population data and commentary in the chapter provide the basis for some interesting discussion. Again, this topic has abundant information available on the internet and could be the basis of a special assignment. The differences in population size, growth rates, age distribution, and education levels are all factors for economic development.

6. Energy, food, and water are frequently cited resources that are critical for economic development. Explain the importance of each one to economic development. What disparities exist among countries with respect to these three resources? How can these challenges be resolved?

Solution:
Energy is a primary ingredient to support agriculture, manufacturing, and transportation. Consequently, if much of the needed energy has to be imported, it will increase the cost of producing products and may put a country at a disadvantage in producing and exporting products. Food is almost self-explanatory since it is needed to sustain the citizenry of the country. When there is a food shortage, a country will be challenged unless it can offset this shortage with advantages in other areas, such as mineral resources or labor productivity. Water is a critical resource for individuals, agriculture, manufacturing, and other businesses and organizations. The absence of an adequate water supply is one of the most debilitating conditions for an economy. There are major differences around the globe regarding the availability and quantity of these resources. Technology may be able to solve some degree of this problem, but not all of it.

7. Technology can impact economic development on both a macro and a micro level. What types of technology do we need to have such impacts on a macro basis? On a micro basis?

Solution:
On a macro basis, technology is needed to increase the productivity of agriculture and manufacturing in many parts of the world. Improvements can also be made in the supply chains, especially in transportation. On a micro basis, technology can improve the quality of life for many people through medical treatment, safety, and aids for seniors. We have made significant progress with technology, but some individuals feel that we have only scratched the surface of the potential to improve economic development. The supply chain has been the beneficiary of technology, especially information technology, to improve efficiency, effectiveness, and execution. However, in the last decade, technology's “hard side” has been receiving more attention in transportation, warehousing, and manufacturing to improve efficiency and effectiveness.

8. Robotics has attracted more attention in recent years. Why? How are robots being used in supply chains?

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Solution:
Robotics has indeed received more attention in many areas, especially health care, manufacturing, and distribution. Some people see robotics as a replacement for labor, but now robots are being viewed as complementary. It will improve manufacturing, distribution, health, and welfare of the population. Robots are being used in warehouses for shelving, order picking, loading, and unloading. Robots have potential in other areas of the supply chain, especially transportation.

9. The economic integration associated with globalization can provide an opportunity for more widely dispersed development. Why is this possible? What are the major stumbling blocks to such integration?

Solution:
Economic integration can release the power of comparative advantage and provide more growth, development, and prosperity. The major stumbling blocks are "fear" and "terror," which are associated with individuals and groups who will exercise their ability to thwart trade flows for selfish or self-serving agendas. Collaboration among organizations in a global supply chain can be a driving force for more efficiency and effectiveness.

10. Supply chain management has enabled some companies to operate more efficiently and compete more effectively on a global basis. What inherent characteristics of supply chain management contribute to these outcomes?

Solution:
Supply chains that are efficient, effective, and well executed can make companies more competitive. The basis of this outcome is related to systems analysis and trade-off analysis, which allow organizations to do what they can do best and depend on other organizations to provide the rest. The coordination and collaboration that should be inherent in supply chains are important ingredients for efficiency and effectiveness.

END OF SECTION EXERCISE SOLUTIONS

[CASE QUESTIONS]

Case 1-1 Off-Shoring? Near-Shoring? On-Shoring?

1. Discuss the advantages and disadvantages of off-shoring, near-shoring, and on-shoring for these three industries.

Solution:
From a supply chain perspective, the advantages/disadvantages will be the same for the three industries.

Off-shoring
The obvious advantage of off-shoring is the labor cost advantage many other countries have. Another advantage is that the suppliers for these three industries have developed technical expertise and gained economies of scale in their production processes.

The biggest disadvantage, as seen as a result of the pandemic, is the distance to U.S. markets. Couple this with borders being shut down and U.S. tariffs on certain imports, and it is easy to see why off-shoring can present challenges.

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Near-Shoring
The advantage of bringing suppliers back to North America is the trade agreements the U.S. has with Canada and Mexico. These agreements facilitate border crossings and eliminate/minimize tariffs and duties. Another advantage is the relatively short distance among the three countries.

The disadvantage could be the lack of qualified suppliers and/or production processes in Canada and Mexico that could fulfill the needs of these three industries.

On-Shoring
The obvious advantage to bringing production back to the U.S. is distance and the avoidance of border closings and tariffs.

The disadvantage could be the lack of qualified suppliers/production processes available in the U.S.

2. What could the federal government do to convince firms in these industries to change their global trade patterns?

Solution:
The biggest incentive the federal government could give firms in these industries would be tax breaks to relocate. The government could also provide subsidies, or seed money, to incentivize firms to relocate production to the U.S.

CASE 1-2 TEA Logistics Services, Inc.

1. What opportunities do you see for TEA to expand globally, specifically to South Africa?

Solution:
Many U.S. companies are global in scope and need 3PL services wherever they locate. Following Systa's move to South Africa gives TEA the opportunity to expand its current domestic operations. South Africa is particularly attractive because of the expected growth of global manufacturing that will be positioned there.

2. What challenges do you see facing TEA in making this operating expansion?

Solution:
When locating operations in another country, several issues might face TEA. First is the availability and condition of the transportation infrastructure to be able to move products inland and to the ports. Second is the availability and skill level of the local workforce. Third is the ability to secure both transportation equipment and warehousing space. Fourth is the cultural differences in South Africa that could pose problems for TEA. Finally, government regulations in South Africa might not be conducive to conducting business as a 3PL.

3. If TEA were to accept the offer, how would you suggest that TEA enter the South African market when establishing operations?

Solution:
TEA could partner with an existing 3PL in South Africa to begin operations.

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Instructor Manual

Novack, Transportation: A Global Supply Chain Perspective, 10e, 2024, ISBN 9780357908549; Chapter 1: Global Supply Chains: The Role and Importance of Transportation

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Purpose and Perspective of the Chapter

The purpose of this chapter initially is to focus on developing an overview of the flow of global commerce and trade over time on a worldwide basis, not only to understand the importance and magnitude of global supply chain flows, but also to gain perspective on important changes that have occurred. We will review a variety of economic data to illustrate the impact of the overall changes and examine the underlying rationale and economics of global flows of goods and services. Lastly, the chapter provides an overview of the supply chain concepts including its development, key characteristics, and major activities.

Chapter Objectives

The following objectives are addressed in this chapter:

- Appreciate why efficient transportation systems are so critical to advance the growth and development of regions and countries, and how they contribute to social and political systems as well as national defense
- Discuss the importance of transportation to globalization and how it contributes to the effective flow of commerce among close and distant regions
- Understand how global supply chains can contribute to the competitive position of countries and allow them to penetrate global markets
- Appreciate the dynamic nature of the global economy, which can impact and change the competitive position of a region or country in a relatively short period of time
- Explain the underlying economic basis for international exchange of goods and services for the overall benefit of two or more countries or regions and gain some perspective on the volume and overall importance of the more advanced countries of the world
- Discuss the size and age distribution of the population and the growth rate of the major countries of the world and understand how the size of the population can impact a country positively or negatively
- Understand the challenges and opportunities associated with the worldwide growth in urbanization and why there has been such a major shift from rural to urban areas
- Appreciate the importance and impact of land and resources to the economic advancement and development of the various countries of the world and how they can be exploited to their advantage
- Explain why technology has become such an important ingredient for the economic progress of companies and countries in today's global economy and understand the need for and types of technology

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Key Terms

Advanced shipment notices (ASNs): forward information in a supply chain environment

Bull whip effect: the uncertainty of levels of stock and potential patterns of demand, which result in higher inventory (safety stock) or stock out costs

Extended enterprise: an organization's supply chain that crosses the boundaries of the individual firms to span their related activities

Free cash flow: when a company has negative working capital

Information flow: when information is the trigger or signal for the logistics or supply chain system to respond to a customer order

Reverse logistics systems: in a supply chain, the return of products that were unacceptable to the buyer for some reason like damage, maintenance, obsolescence, and so forth

Supply chain management: viewed as a pipeline or a conduit for the efficient and effective flow of products and materials, services, information, and financials (usually cash) from the supplier's supplier through the various intermediate organizations out to the customer's customer

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What's New in This Chapter

The following elements are improvements in this chapter from the previous edition:

- Updated Global Trade: Absolute and Comparative Advantage
- Added Growth in First Half of 2017

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Chapter Outline

The following outline organizes activities (including any existing discussion questions in PowerPoints or other supplements) and assessments by chapter (and therefore by topic), so that you can see how all the content relates to the topics covered in the text.

I. Global Supply Chain Flows (PPT Slides 1-8)
   a. Early twenty-first century trade flows of merchandise
   b. BRIC (Brazil, Russia, India, and China)- top emerging economies
   c. VISTA (Vietnam, Indonesia, South Africa, Turkey, and Argentina)- developing at a fast pace

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II. The Economic Basis and Logic of Improved Global Trade (PPT Slides 9-10)
    a. Absolute and Comparative Advantage
        i. Adam Smith 1776 book, *The Wealth of Nations*, provided rationale for a market economy based on open or free competition, aka Theory of Absolute Advantage or "free trade."
        ii. The Theory of Comparative Advantage maintained that if two countries produced and consumed the same two products and one country could produce both products at a lower cost than the other country, it could be beneficial for both countries to specialize and trade.

III. Contributing Factors for Global Flows and Trade (PPT Slides 11-15)
    a. Population Size and Distribution

IV. Urbanization (PPT Slides 16-17)
    a. The demographic shift from rural to urban
        i. 2000, 47 percent lived in urban areas
        ii. 2020, increased to 56.1 percent

V. Land and Resources (PPT Slides 18-19)
    a. The availability of land and critical resources such as energy, food, and water are paramount for economic viability and future development.

VI. Technology and Information (PPT Slides 20-22)
    a. Technology has two important dimensions
        i. Viewed as internal change agent that can enhance the efficiency and effectiveness of an organization and its ability to complete in the global marketplace.
        ii. External driver of change like globalization; changes the "rules of engagement" and enables new forms of competition or new business models

VII. Globalization (PPT Slides 23-25)
    a. It can be used synonymously with economic integration and development across country and regional borders.

VIII. Supply Chain Concept (PPT Slides 26-36)
    a. Development of the Concept - Supply chain management is not a new concept and represents the third phase of an evolution that started in the 1960s with the development of the physical distribution concept, which focused on finished goods or the outbound side of a firm's logistics system.
        i. Physical distribution management – focuses on system costs and analyzing trade-off scenarios to arrive at the best or lowest physical distribution system cost.
        ii. Business logistics or integrated logistics management – developed in the 1980s and could coordinate the inbound and outbound transportation movements of large shippers, which

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could impact a carrier's outbound costs by minimizing empty backhauls, and lead to lower rates for the shipper.

iii. Supply chain management – developed in 1990s and continues to be a focal point for making organizations more competitive in the global marketplace.

IX. Summary

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