

# The Impact of Infrastructure on International Trade from Ancient Times to the Present

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**Abstract.** This paper focuses on the changes in French infrastructure from the 17th century to the 21st century. How is the improvement and development of infrastructure, and its impact on France's international trade? In this paper, there are many comparisons of different periods which helped to get the research result, and some instances are demonstrated by specific references. The port, shipbuilding industry, and railway transportation are described in the paper in detail. In addition, by comparing the changes in the development of infrastructure, this paper describes how France conducts foreign trade through these infrastructures, showing the indispensable role of infrastructure in France's economic development. In the last part of the article, a comparison of other factors that may affect France's international trade is made, and a conclusion is drawn. After researching such changes in France, the final result is that although these infrastructure projects do promote the economic development of France, it does not seem to be the most important factor affecting France's foreign trade.

**Keywords:** Infrastructure, history, French international trade.

## 1. Introduction

To what extent infrastructure has an impact on international trade has always been a controversial issue. High-quality infrastructure has great benefits for a country's import and export, such as providing better and cheaper raw materials, more labor and purchasing power, and so on. In this case, almost every country in the world will develop its economy depending on the infrastructure. Use an example of Chinese infrastructure, at present, the development of new energy infrastructure construction focuses on clean energy and renewable energy power construction field. The proportion of the total investment and financing of China's new energy power in China's GDP has steadily increased since 2018, and the financing scale of new energy power construction is in it achieved positive growth of 31% in 2017 [1].

### 1.1. Situation of French International Trade in the Early Days and Nowadays

It is obvious that the developed countries in Western Europe are generally the birthplace of the Industrial Revolution and have experienced two industrial revolutions. They experienced population expansion in the second half of the 19th century and the first half of the 20th century. Eventually, it gained relatively high political and economic status through its population advantages and technological accumulation. They completed industrialization, popularized education, and opened colonies earlier. Therefore, the economy is developed. This paper will focus on how the development and improvement of infrastructure affect economic growth in the international trade part, which also plays a role in pushing the development of the economy and international trade in France.

Before the improvement of France's infrastructure, international trade was hindered by various challenges. The outdated transportation system, including roads and railways, limited the efficient movement of goods. Additionally, the inadequate port facilities restricted maritime trade. These limitations resulted in higher transportation costs and longer delivery times, which means France has low efficiency in production. This makes France less competitive in the global market. However, with the enhancement of infrastructure, such as the development of modern transportation networks and upgraded port facilities, France's international trade has significantly improved. The efficient movement of goods has reduced costs and delivery times, boosted France's competitiveness and

facilitated increased international trade. France's international trade and economic situation is currently improved. France is known for its diverse range of exports, including luxury goods, aerospace products, automobiles, and agricultural products. The country has a strong presence in the European Union and benefits from the single market. France has also established strong trade relationships with countries outside the EU, such as the United States, China, and Japan. In recent years, France has been focusing on promoting innovation and technology-driven industries, such as renewable energy, digital services, and biotechnology. This has helped to diversify its economy and attract foreign investment. But there are also some challenges for France in the process of developing its international trade. The country has a relatively high level of public debt, which can impact its competitiveness. Additionally, there are concerns about protectionism and trade tensions globally, which can affect France's exports. Overall, France's international trade and economic situation is positive, but it requires continuous efforts to maintain competitiveness and adapt to changing global dynamics.

### **1.2. The Reasons for the Changes in French Infrastructure**

Almost every country needs to develop its infrastructure, take aviation as an instance. After the first world war of 1914, the Aviation industry had revolutionized and experienced rapid development worldwide. The economic powers of countries are pushed and thrive up to the maximum due to aviation industry development. It has become an integral component of the country's infrastructure and enhanced the mode of transportation [2]. There are several reasons for France to finish its infrastructure. The first reason is the economic development needs. Infrastructure is an important support for economic development and plays an important role in improving productivity and promoting economic growth. As a developed country, France needs to constantly improve and update its infrastructure to meet the needs of economic development.

Secondly, building infrastructure improves competitiveness. Good infrastructure is one of the most important factors to improve national competitiveness. Developing infrastructure and improving its level of infrastructure such as transportation, energy, and communication, can attract more investment and enterprises. In this case, it will enhance the competitiveness.

The third reason why the France government improves its infrastructure is that it will improve the quality of life of residents. The development of infrastructure can improve the quality of life of residents. For example, improving transport infrastructure can reduce traffic congestion and increase travel efficiency; Improving public facilities such as water, electricity, and gas can provide better living conditions. France achieves the regional balance in infrastructure construction, promoting economic development in different regions and reducing regional disparities through the development of transportation. The last reason is that infrastructure helps promote sustainable development, which is the most attractive point nowadays. Infrastructure development can also promote sustainable development. France focuses on environmental protection and sustainability in infrastructure construction, such as the development of clean energy and the construction of environmentally friendly buildings, to reduce the impact on the environment and promote sustainable development

## **2. The Development of the Port of Marseille**

A port is always one of the biggest areas that helps international trade. For the instance of a specific harbor in China which is the biggest one, Haikou Port is located at Haikou Bay and Chengmai Bay in the middle of the north coast of Hainan Island. The port's cargo throughput increased from 61,228,900 tons in 2012 to 109,000.0 tons in 2021, an increase of 78.02%. Container throughput increased from 1.001 million TEU in 2012 to 201.09 million TEU in 2021, an increase of 101.06% year-on-year [3].

## 2.1. The Harbor in the Past

Before its development, the port of Marseille in France was an unassuming harbor. The Mediterranean coast served as a small fishing village with limited maritime activities. The port lacked the infrastructure and facilities necessary to accommodate large vessels and international trade.

## 2.2. How the Harbor Change

In the early days, Marseille's port just catered to local fishermen who relied on the sea for their livelihood. The harbor consisted of a few piers and rudimentary facilities, which were sufficient for the needs of the local community. The port's activities were limited to the fishing industry, with small boats and traditional fishing techniques dominating the scene. During the Middle Ages, Marseille's port played a crucial role in the expansion of European trade. It became a major center for the exchange of goods between Europe, Africa, and the Middle East. The city's strategic location allowed it to establish strong trade links with countries such as Italy, Spain, and North Africa. The port became a bustling hub of activity, and ships arrived and departed regularly, carrying a wide range of goods including spices, textiles, and precious metals. In the 19th century, Marseille's port underwent significant modernization and expansion. The construction of new docks, warehouses, and infrastructure transformed it into one of the largest and busiest ports in Europe. The introduction of steamships and the development of railway networks further enhanced its connectivity and trade capabilities. Marseille became a key area for goods entering and leaving France, contributing to the country's economic growth. In the 20th century, Marseille's port faced challenges due to the changing global trade patterns and the decline of traditional industries. However, it adapted to the changing times by diversifying its activities and focusing on new areas such as tourism. The improvement of modern terminals and the expansion of cruise ship facilities helped attract new business and hence boost the domestic economy. Nowadays, the port mainly carries out the loading and unloading work, and whether the traditional operation mode can achieve a good working effect depends on the proficiency of the operator. Some terminals use semi-automatic loading and unloading equipment, which is set according to manual parameters, which greatly improves the efficiency and stability of the operation [4].

## 2.3. How the Harbor Affected International Trade and the Difference

In the beginning, French ports served as vital gateways for imports and exports, and connecting France to the global market. The strategic location of French ports allows it to transport efficiently of goods from various regions. For instance, the Port of Marseille, located on the Mediterranean coast, is one of the busiest ports in France and serves as a major hub for trade between Europe, Africa, and the Middle East. Its well-developed infrastructure and deep water beneath enable it to hand some large container ships, facilitating the movement of goods on a global scale.

French ports contribute significantly to the country's economy by generating employment opportunities and attracting foreign investments. The running and maintenance of ports require a diverse range of skills. The employment opportunities created by the ports not only benefit the local population but also contribute to the overall economic development. Moreover, the presence of well-functioning ports attracts foreign companies to invest in France, leading to increased trade and economic growth. In addition, these ports will never be the burden of a country, as although port and city are structuralized effects, they are not an 'absolute' given but only 'in permanence'. These port areas stop existing, eventually becoming a relic or just disappearing in time [5].

Furthermore, French ports play a crucial role in promoting regional integration and cooperation. The European Union (EU) has implemented various initiatives to enhance the connectivity and efficiency of European ports, such as the Trans-European Transport Networks (TEN-T) program. French ports, being an integral part of this network, facilitate the seamless movement of goods within the EU and promote trade among member states. The collaboration between French ports and their European counterparts strengthens economic ties and fosters regional integration.

French ports also contribute to sustainable development by implementing environmentally friendly practices. With growing concerns about climate change and environmental degradation, ports have taken initiatives to reduce their carbon emission. For example, the Port of Le Havre has implemented measures to reduce air pollution by promoting the use of electric vehicles and investing in renewable energy sources. These sustainable practices not only benefit the environment but also enhance the reputation of French ports as responsible and eco-friendly trade hubs.

At last, French ports serve as important centers for innovation and technological advancements in the maritime industry. The development of advanced technologies, such as automated container terminals and digital platforms for logistics management, has revolutionized port operations. French ports have embraced these innovations to improve efficiency, reduce costs, and enhance the overall competitiveness of the country's trade sector. By staying at the forefront of technological advancements, French ports continue to attract international trade and maintain their position as key players in the global maritime industry. Take an example of French living arts productions, quality data on art are hard to gather - especially those concerning productions far away from the main historical centers of production/diffusion [6].

In conclusion, the development of French ports has played a significant role in facilitating international trade and contributing to the country's economic growth. Their strategic location, employment generation, regional integration, sustainability initiatives, and technological advancements have made French ports crucial gateways for imports and exports, attracting foreign investments and promoting economic development. As global trade continues to expand, the importance of French ports in international trade is expected to further increase in the future.

### **3. The Development of Shipping Industries and Railroad in France**

#### **3.1. The First Shipyard in France at the Beginning of 17ths**

The first shipyard in 17th century France was a remarkable achievement that played a fundamental role in the country's maritime development. The shipyard which was located on the banks of the Seine River in the city of Le Havre was evidence of France's growing naval power and its ambition to become a dominant force in global trade and exploration. The first shipyard in 17th century France was a remarkable establishment that symbolized the country's growing naval power and ambition. It was the center of innovation, craftsmanship, and trade, contributing significantly to France's maritime development and its rise as a dominant force in global affairs.

#### **3.2. The Improved Industries of the Ship in France**

The shipyard was a complex area of land and equipped with state-of-the-art facilities. It was strategically positioned near the mouth of the Seine River, allowing easy access to the open sea and facilitating the construction and repair of ships of various sizes. The shipyard boasted a large dry dock, where ships could be built and repaired away from the water, ensuring a more efficient and controlled construction process. Skilled craftsmen and shipbuilders from all over France were employed at the shipyard, bringing their expertise and knowledge to create magnificent vessels. These craftsmen meticulously crafted each ship, paying attention to every detail, from the selection of the finest timber to the intricate carvings on the ship's hull. The shipyard also had a dedicated team of engineers and architects who designed innovative and seaworthy vessels, pushing the boundaries of naval technology.

#### **3.3. How France Traded with Other Countries by Ships and the Gross Profits They Got by Ships to Transported**

It was not only responsible for constructing merchant ships but also played a vital role in the French Navy's expansion. It produced warships that were instrumental in protecting French interests and projecting its power across the globe. These warships were equipped with the latest artillery and navigational instruments, making them formidable adversaries on the high seas.

France, as a maritime nation, utilizes its fleet of ships to engage in extensive trade with other countries. With a rich history of seafaring and a well-developed port infrastructure, the nation has established itself as a major player in the global trading network.

French trade relies heavily on maritime transportation, with a significant portion of goods being transported by ships. The country's numerous ports, such as Marseille, Le Havre, and Bordeaux, serve as vital gateways for international trade. These ports accommodate a wide range of vessels, from container ships to tankers, allowing for the efficient movement of goods across the globe.

France's trade network encompasses various sectors, including agriculture, manufacturing, and luxury goods. The country exports a diverse range of products, such as wines, cheeses, automobiles, aircraft, cosmetics, and fashion items. These goods are loaded onto ships and transported to destinations across the world. Through its fleet of merchant vessels, France connects with countries from every corner of the globe. Ships depart from French ports and navigate through international waters, reaching various continents. The French merchant navy serves as a crucial link, facilitating the exchange of goods and fostering economic relations with partner nations. In addition to exports, France also imports a significant amount of goods via maritime trade. Raw materials, energy resources, and consumer products are among the commodities brought into the country through its seaports. These imports are essential for sustaining domestic industries, supporting economic growth, and meeting the needs of the population.

France has established trade agreements and partnerships with numerous countries to ensure the smooth operation of its maritime trade, these agreements aim to reduce trade barriers, promote cooperation, and foster mutually beneficial economic relationships. Through diplomatic negotiations, France actively engages in trade discussions to secure favorable terms for its exports and imports.

Overall, France's reliance on ships for international trade highlights its status as a maritime powerhouse. With a well-developed port infrastructure, a diverse range of exportable goods, and strategic trade partnerships, the nation effectively utilizes its maritime fleet to connect with the global economy and sustain its economic growth.

### **3.4. The Situation in France Without the Railroad**

The next important part is the railroad. The bill delivered what we would call today a strategic design for the expansion of railway across France, listing out the connections to be built in the coming years. The star-shaped design with Paris in its center, known as 'étoile de Legrand', still structures France's railway network today [7].

When there were no railways, the transport situation in France was relatively difficult. Long-distance travel and the transportation of goods depended just on horse-drawn carriages and ships. Roads are in poor condition, making travel slow and uncomfortable. Trade was also restricted because goods needed to be transported by river or canal. As a result, the absence of a rail network limited France's international connections, making transport and trade more time-consuming and expensive. The traditional railway way does not have the function of proof of property right, it is only the proof of railway transport contract and the receipt of goods, cannot be transferred, and does not have the function of financing, which makes the goods in railway transport in cross-border settlement and transaction transactions are greatly restricted, so it cannot meet the development needs of land trade [8].

### **3.5. How France Developed Its Railroad System**

With the development of its railway network, France has significantly enhanced its ability to be involved in foreign trade. The extensive rail system serves as an essential link, connecting the nation's major cities and ports and facilitating the efficient movement of goods.

France's railway infrastructure allows for the seamless transport of goods to and from neighboring countries, such as Germany, Belgium, Spain, and Italy. The interconnected rail lines enable the swift and cost-effective delivery of a wide range of products, including manufactured goods, agricultural produce, and raw materials.

The railway network also plays a vital role in connecting France with the rest of Europe. Through international rail routes, such as the Eurostar and Thalys, France is linked to the United Kingdom, the Netherlands, Switzerland, and beyond. This enables the smooth flow of goods and passengers, supporting international trade and fostering economic cooperation.

And French railways provide a reliable and efficient mode of transportation for exports to distant markets. High-speed trains transport goods to major ports, such as Le Havre and Marseille, where they are loaded onto ships for international distribution. This integrated transportation system ensures that French products reach global markets promptly.

The railway network also supports France's import trade. It facilitates the transport of raw materials, machinery, and consumer goods from other countries, providing the necessary resources for domestic industries and meeting the demands of the French market.

In conclusion, France's railway network plays a vital role in facilitating its foreign trade. By connecting cities, ports, and neighboring countries, the rail system enables efficient transportation of goods, strengthens international partnerships, and supports the nation's position in the global market.

## **4. The Role of Infrastructures in Improving International Trade in France**

### **4.1. Many Other Factors that can also Develop the Economy**

Some other factors can be attributed to the economic growth within a country, such as investment and innovation, quality education, and skills training, effective government policies and regulations, and so on. In 1994, the World Bank published the World Development Report 1994: Providing Infrastructure for Development, which focuses on the significance of economic infrastructure for economic development. The economic infrastructure defined therein includes mainly public facilities and public works, as well as other transport sectors. From this definition, it can be seen that transportation infrastructure accounts for a very heavy part of the economic infrastructure that can support and promote social development [9]. In this part, the paper will focus on the part of the effect of infrastructure in improving the economic situation.

### **4.2. To What Extent do These Factors Affect the Economy**

The first important factors that pushed the increased international trade is the investment and innovation. Through increased investment in various sectors, such as infrastructure, technology, and research and development, France can reap several benefits. Firstly, investment stimulates job creation. As companies expand their operations or establish new businesses, they require a skilled workforce. This demand increases employment opportunities and reduced unemployment rates. It also boosts consumer spending and supports economic growth. Secondly, investment fosters productivity and competitiveness. By upgrading infrastructure, such as transportation networks and digital connectivity, companies can operate more efficiently, reducing costs and enhancing their competitiveness in domestic and global markets. Additionally, investments in research and development foster innovation, leading to the creation of new products, processes, and technologies that drive economic progress. Furthermore, investment attracts foreign direct investment (FDI). When foreign companies invest in France, it brings capital, expertise, and access to new markets, contributing to economic growth. FDI also promotes knowledge transfer, as foreign firms bring new technologies, management practices, and skills that can benefit domestic companies and industries. Investment and innovation also encourage entrepreneurship. A favorable investment climate and access to funding opportunities inspire individuals to start their businesses, creating a vibrant ecosystem of startups and fostering innovation and job creation. Lastly, investment in sustainable development and clean technologies can drive the transition to a greener economy. By promoting renewable energy, energy efficiency, and environmentally friendly practices, France can reduce its carbon footprint, create new green jobs, and position itself as a leader in the global fight against climate change.

Education also plays a significant role in driving economic growth in France. It provides numerous benefits that contribute to the development of individuals, industries, and the overall economy. At first, education equips individuals with the knowledge, skills, and qualifications necessary to meet the demands of the job market. A well-educated workforce is more productive, adaptable, and capable of driving innovation, leading to increased efficiency and competitiveness in industries. Moreover, education promotes entrepreneurship and innovation. By fostering a culture of creativity, critical thinking, and problem-solving, education encourages individuals to develop new ideas, start their businesses, and contribute to economic growth through innovation and job creation. Additionally, education enhances social mobility and reduces income inequality. By providing equal access to quality education, France enables individuals from diverse backgrounds to acquire the skills and knowledge needed for better employment opportunities and higher wages. This leads to a more equitable distribution of wealth and a more inclusive society. Furthermore, education contributes to research and development. Universities and research institutions play a crucial role in generating new knowledge, conducting scientific research, and developing breakthrough technologies. This fuels innovation, attracts investment, and supports the growth of high-tech industries in France. Education also promotes lifelong learning and adaptability. In a rapidly evolving global economy, continuous learning is essential for individuals to remain competitive and for industries to stay relevant. By providing opportunities for upskilling and reskilling, education enables individuals to adapt to changing job market demands and contributes to a more flexible and agile workforce. It is apparent that the French government realized it, teachers for the 35 schools were taken for special training after which they were deployed in the respective institutions. In addition to being facilitated for capacity building, these teachers who were selected by the Ministry of Education and Sports were recruited onto the government payroll at a much faster speed than teachers of French who have been in service for more than ten years but remain on the private list of the schools' Parent-Teacher Associations [10].

### 4.3. Comparing Them to the Infrastructure

After all, this paper gives several factors that infrastructure attributed to the high-speed development of international trade with France. However, the most significant factor of the economic growth in France seems like not the infrastructure, as the function of infrastructure is very superficial. While infrastructure and basic development are crucial for economic growth, they are not the sole determinant of France's economic prosperity. The main effort of infrastructure is indeed to improve citizens' living standards; however, in the big picture of the French economy, it can just push a little increase in the French whole economy.

## 5. Summary

Lastly, after researching such a paper, it is easy to identify that infrastructures actually have a positive effect on improving an economy. In this case, governments can recognize that making up domestic infrastructure is necessary for them to increase the inhabitants' satisfaction and improve their economic situation. In addition, governments and researchers should pay more attention to other factors that can be used to stimulate the economic system, as it cannot totally depend on finishing domestic infrastructure.

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