

The Internet's Impact on Trade – An Analysis Applying the Gravity Theory

Dena Bateh*

New York University, New York School of Management
& Technology, Excelsior College

***Corresponding Author**

Dena Bateh, New York University, New York School of Management
& Technology, Excelsior College.

Submitted: 2023, July 01; **Accepted:** 2023, Aug 29; **Published:** 2023, Sep 18

Citation: Bateh, D. (2023). The Internet's Impact on Trade – An Analysis Applying the Gravity Theory. *J Eco Res & Rev*, 3(3), 245-247.

Abstract

The gravity model of international trade analyzes synergistic trade flows based on the economic size and distance between two parts. The model suggests that trade tends to fall with distance due to geographical distance. This paper analyzes the internet's impact on the geographical distance of the gravity model. Firstly, it briefly describes the gravity model focusing on the importance of geographical proximity. Secondly, it illustrates the introduction of the internet and changes that occurred by it specifically targeting intangible services developed through the introduction of the internet. Thirdly, it analyzes the internet's impact on the distance advantages with historical trade data. Lastly, this paper forecasts how the model will change due to an increasing information technology dominance economy.

Keywords: Gravity Theory, Dominance Economy, Distance Advantages

1. Introduction

How is the size of the trade amount determined? The answer to this question is the gravity equation. The gravitational equation is an empirically very successful equation in international trade [1]. The gravity model considers that the number of trade increases between countries with a large economic scale but decreases when the distance between them is large. Many previous studies have been accumulated on such gravity models due to the simplicity of their estimation formulas and the ease of obtaining data. Another notable point of this model is its high explanatory power. The significance of variables in estimation using the gravity model is very high. However, while the gravity model has these advantages, the introduction of the internet has changed its fundamental idea of gravitational advantages as well as the trading system itself.

2. Developments of World Trade

The development of world trade can be classified into three stages. The first stage was the expansion of traditional trade, with reduced transportation costs allowing the goods produced to deliver across national borders to consumption areas. Goods traded at this stage are primarily final products, but consumers have become more accessible to new and lower-cost commodities. The second stage is global value chain trade, and by further reducing transportation costs and various adjustment costs, companies can subdivide the production process of goods across national borders and make each production process superior. The gravity model is highly empirical at this stage since distance is a primary factor in determining trade cost. The third stage is digital trade, which is made possible by the dramatic

reduction in the cost of sharing ideas through the transfer of data and information. The expansion of digital trade has dramatically improved global connectivity, contributing to the creation of new business models and the improvement of productivity.

3. The Fourth Industrial Revolution

With the progress of the Fourth Industrial Revolution, the amount of data traded in the world has increased intensely. The number of Internet users in the world has steadily increased, reaching about 4.6 billion in 2021 according to Statista [2]. The average annual growth rate from 2020 to 2021 was 7% - 875,000 new users per day, which is a significant increase. The extent of the Internet and mobile phones is now spreading to every corner of the world, including emerging countries. Cyberspace has come to be recognized as a crucial area, not only in the economy but also in all aspects of people around the world such as politics and security. There is no globally unified definition of digital trade, but for example, the OECD states that digital trade is based on the transfer of data across national borders, and consumers and businesses [3]. According to this statement, digital trade includes buying and selling goods and services over the Internet. Online hotel reservations, ridesharing, and services offered through online platforms such as music distribution services are the best examples. At present, U.S. exports of digital goods and services were 148 billion dollars in 2018 according to the Bureau of Economic Analysis [4].

In addition to this information and communication technologies, cross-border data exchange and communication are steadily increasing, along with sharing ideas and information between

individuals through Facebook, Twitter, and Instagram [5]. Even in the business world, communication with overseas offices using instant messages is becoming popular [6]. IT platform companies around the world are creating a variety of new businesses. For example, in addition to search engines used in computers and smartphones, various new businesses such as wearable terminals, health data platforms, self-driving cars, and smart home platforms are being utilized.

4. Effects of The Internet on Trade

The effects of the internet on traditional trade become comprehensive when compared with liner companies. The difference between IT platform companies and traditional businesses is that IT platforms play a role in building networks for transactions and facilitating transactions. In contrast to IT platform companies, linear companies sell the goods and services they produce downstream of the supply chain, and many of the industries that dominated the 20th century, such as manufacturing, retail, distribution, and service, fall into this category. Linear companies are building physical assets such as factories and distribution centers to manufacture their products and deliver them to consumers. For a linear company to expand its business, it needs a reasonable cost to increase inventories and the personnel who manage them. On the other hand, IT platform companies have made it possible to reduce these costs to the utmost by connecting companies and individuals through the internet, which is one of the reasons it's accelerating growth. Also, the value flow of IT platform companies moves in multiple directions within the network. For example, even in one online marketplace, users who supply products are everywhere. For a linear enterprise, one more customer means more buyers of a product or service; but for an IT platform company, one more user means everything that already exists in the network. It means building relationships with users and has dramatically expanded the possibilities of creating new value.

One may argue that the trading system has changed. Concerning personal imports, services that reduce various risks associated with foreign remittances have emerged for online payment, and by using international transportation services, it has become possible to use the procedures with almost no additional costs. Foreign goods and services are introduced directly through social media and video sharing services. Unless the foreign seller refuses to ship to the importing country and the acquisition or consumption of foreign goods and services in the country is not illegal, individuals can purchase them using online payment and transportation services. Comparing the global export trends of digital-related services and non-digital-related services, the growth rate of digital-related services exceeded that of non-digital-related services in 2019. Digital-related services have been increasing faster than non-digital-related services since 2011, and the ratio of digital-related services to total service exports exceeded 10% in 2018 and reached 11.2% in 2019. Besides, the contribution rate of digital-related services was 46.5%, and about half of the increase in service trade in 2019 was due to the expansion of digital-related services, according to the Bureau of Economic Analysis [4]. In addition to the progress of digitalization triggered by the COVID-19, the demand for online

contact with remote parties in real-time and online shopping is increasing, and the digital-related products that support these trade-in services are expected to grow. Comparing the year-on-year growth rates of digital services and overall service trade for the top five countries in terms of service imports in 2019, all countries saw growth in digital services in the second quarter of 2020. The rate exceeds the overall growth in trade in services. Among them, China saw a remarkable increase in digital-related service imports, rising 38.7% year-on-year in the first quarter of 2020 and 25.6% year-on-year in the second quarter.

5. Impact of Covid-19 On Internet Services

After the expansion of COVID-19, internet services such as online education, live distribution, and online shopping have expanded in the world, and the digital-related services that support these may have expanded. Trade-in digital services have recently been limited in some areas [5]. However, it is expected to expand in the long run against the backdrop of increasing demand. The WTO reported that the demand for digital services is becoming unprecedented and unanticipated as more people work from home, distance learning, and interact remotely [7]. Also, a clearer awareness of the importance of access to technology and connectivity to everyone, not just demand, could have a positive effect on the trade in ICT services. It is considered that the international transactions will be recorded as the amount of trade in digital-related services since communication services are mainly assumed. With the spread of remote work and online communication accompanying the expansion of the COVID-19, the demand for providing services via the Internet will increase in the future. Once new lifestyles take root, these demands are not temporary and are likely to persist after the end of the COVID-19. Also, the business model of the Corona Virus Era will be established in companies, and investment in digital-related services will recover. Trade in digital-related services were on an increasing trend until 2019, but new demand and changes in values triggered by the new corona crisis are expected to further boost that growth over the medium to long term.

6. Conclusions

In conclusion, the gravity model has been a great economic measure to explain the international trade phenomena; however, the introduction of the Internet has created new business models, which dramatically reduce transportation costs. Also, the digital trade is one of the largest portions of exports, altering the traditional trading style. As IT platform companies have advantages in the digital market, the importance of distance has been diminished in international trade. Due to COVID-19, many IT platform companies have grown; thus, this paper concludes that digital trade will be the major exports in the future of international trade, and the gravitational factors are not to be considered in the digital trade.

References

1. Feenstra, Robert C. (2004) "Chapter 5: Increasing Returns and the Gravity Equation," In *His Advanced International Trade: Theory and Evidence*, Princeton University Press.
2. Internet users in the world 2021 Statista.
3. OECD Guidelines on the Protection of Privacy and

-
- Transborder Flows of Personal Data -OECD. (2013).
4. The Bureau of Economic Analysis. (2021).
 5. Ciuriak, D., & Ptashkina, M. (2018). The digital transformation and the transformation of international trade. RTA Exchange. Geneva: International Centre for Trade and Sustainable Development (ICTSD) and the Inter-American Development Bank IDB.
 6. Lund, S., & Manyika, J. (2016). How digital trade is transforming globalisation. by International Centre for Trade and Sustainable Development (ICTSD) 7 Chemin de Balexert, 1219 Geneva, Switzerland Tel:+ 41 22 917 8492–E-mail: ictsd@ ictsd. ch–Website: www. ictsd. org Publisher and Chief Executive: Ricardo Meléndez-Ortiz World Economic Forum 91-93 route de la Capite, 1223 Cologny/Geneva, Switzerland Tel:+ 41 22 869 1212–E-mail: contact@ weforum. org–Website: www. weforum. org Co-Publisher and Managing Director: Richard Samans.
 7. World Trade Organization. (2020).
 8. Carrère, C., Mrázová, M., & Neary, J. P. (2020). Gravity without apology: the science of elasticities, distance and trade. *The Economic Journal*, 130(628), 880-910.

Copyright: ©2023 Dena Bateh. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.