

Blockchain and International Trade: An Empirical Analysis

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Abstract: Blockchain has great potential in international trade because it has the possibility to disrupt bureaucracy, simplify the task of monitoring commodities by removing vast paper trails, and reduce losses due to delayed payments (Morabito, 2017). By analysing time series data between 2012 and 2021, this study will analyse the deployment and application of distributed electronic ledgers in global trade. The study topic is justified since there is a limited knowledge on how blockchain may affect international trade. Furthermore, there is a lack of understanding regarding its relevance in facilitating trade finance. To put it another way, blockchain technology has a significant impact on global trade. Additionally, we demonstrate that per capita GDP has a significant positive impact on international trade. Our findings are congruent with those of Derindag et al. (2020), Keller (2021), and Yu (2021). This study advises decision-makers, notably executives and customers, to validate blockchain's potential advantages and embrace its application for international trade objectives, resulting in higher global trade flows. Companies who commit to embracing blockchain technology will reap huge future rewards.

Index terms: Blockchain, International Trade, Generalised Linear Model

Introduction

Blockchain technology is a decentralized database driven by the distributed ledger idea that maintains track of the state of digital assets (Ganne, 2018). The technology is extremely important because it uses cryptographic algorithm technology and a decentralized process to make virtual currencies unalterable and transparent (Zheng et al., 2017). Blockchain is seen as a breakthrough technology that decreases risk and fraud by enhancing transaction transparency and scalability (Kharitonov, 2017). Additionally, blockchain is often regarded as secured by consumers because of its digitally signed feature and a decentralized system which is not controlled by regulatory authorities such as central governments or financial institutions, making transactions easier and secured (Zyskind and Nathan, 2015).

With the creation of the first blockchain application, Bitcoin, blockchain technology has gained a great deal of interest. The use of crypto currencies, such as Bitcoin, in the financial industry is only one example of a blockchain-based application. There are several additional applications for blockchain technology. Blockchain technology has huge potential to revolutionize the way multinational corporations conduct business. The need for openness and accountability in the distribution chain has expanded in recent years; the future integration of the internet of things (IoT) and blockchain technology can bring tremendous productivity to the worldwide supply chain, providing digital safety and openness at every stage (Deloitte, 2017).

The benefits of blockchain include transaction immutability, speed, and anonymity, as well as providing reliability and safety (Zhu and Zhou, 2016). It does, however, have a number of drawbacks. For starters, there is no governing repository to keep a watchful eye on bitcoin transactions. Additionally, there is still a lack of confidence among countries who have declared it as a component of their financial system. Lastly, the

development and deployment of blockchain-centred technology for international commerce are still in the planning and starting stages, and complete support and integration require study (Swan, 2015). Despite these shortcomings, blockchain has a lot of promise in international trade since it may help disrupt bureaucracy, drastically decrease the complexity of monitoring goods by eliminating extensive paper trails, and cut losses due to payment delays (Morabito, 2017).

This study will assess the implementation and utilization of distributed ledger technology in global trade. The study subject is warranted because there is a knowledge vacuum on how blockchain technology might affect international trade. Additionally, there is a knowledge gap about its importance in aiding trade financing. As a result, the study topic was rationally chosen since it can give a clear analysis of the relevance of innovation in global transactions as well as its prospective applications in financial transactions and the supply chain.

Distributed ledger technology has the potential to change the world by streamlining trade financing and simplifying global supply networks. Consequently, the goal of this study was to perform a comprehensive examination of the relationship between distributed ledger technology and international trade by weighing in all economic factors. This study will demonstrate an empirical link between blockchain and international trade. The findings of this study shall assist policymakers in paying attention to blockchain technology in order to validate the prospective benefits of this technology as well as contributing to the body of knowledge about the relationship between blockchain technology and international trade.

Literature Review

Blockchain Technology

Blockchain technology, as per Swan (2015), is composed of blocks, nodes, as well as mining. To broadcast any transaction, the user must also have a digital wallet (akin to a bank account) that is protected by the user's private key and may be accessed via an appropriate signature created by that encryption key (Puthal et al., 2018). Miners use specialized software to solve complicated mathematical problems in order to produce new blocks via mining, and if it is successful, it shall result in a cash payout for the client (Andoni et al., 2019). The network verifies new transactions while not invalidating prior transactions to ensure that only legal transactions are logged, and only when the networked machines establish an agreement on the transaction's legitimacy via various voting procedures, is the transaction recorded (Wright and Flippi, 2015). Since bitcoin is a digital asset, a user may attempt to over spend it, consequently, the networks must reach an agreement on which transactions should be preserved on the blockchain to guarantee that there are no corrupted branches or conflicts (Casino et al., 2019). Because there is no reliable party participating in the blockchain based verification process, nodes use consensus to validate or reject each block and transaction (Puthal et al., 2018). There are several methods for reaching a consensus on the blockchain. The two conventional approaches are addressed in this paper.

Blockchain technology has a tremendous impact on worldwide cost and supply. It has the potential to lower trade costs while increasing visibility into supply chains and opportunity for entrepreneurs (Dutta et al., 2020). Users, producers, and governments all want accurate supply chain information (Allen et al., 2019). Supply chains are fast altering as a result of rising digital technologies such as sophisticated robotics, blockchain, cloud computing, and IOT, that are influencing worldwide supply chains, trade patterns, and the possibilities for export-led industrialization (World Bank, 2019). The primary impact of blockchain-based solutions on international commerce would be to facilitate trade by providing a trustworthy and secure framework for data transfers, assuring relative equality among players, and automating some operations, resulting in total cost savings (Copigneaux et al., 2020). Blockchain technology has the potential to eliminate trust-related concerns in international trade. Because the system is tamper-proof, each alteration must be authorized or mutually agreed upon; hence, organizations with minimal awareness of each other can operate a business without fear of deception or losses (Derindag et al., 2020).

As per De Caria (2017), blockchain technology has an influence on the insurance industry due to the automation process utilizing smart contracts. Smart contracts based on blockchain minimize administration costs while also reducing the complexity of operations such as billing process (Tarr, 2018). As a consequence, insurance premiums will be greatly lowered, and the effects will be seen across the supply chain management process (Queiroz et al., 2019).

Blockchain has had a significant influence on the pharmaceutical business. The pharmaceutical sector frequently faces the challenge of providing counterfeit pharmaceuticals, which can have disastrous implications for individuals (Agbo et al., 2019). Blockchain can solve this problem by enhancing pharmaceuticals supply chain administration and reliability through blockchain implementation, which uses unique IDs for each medical device and smart contracts to monitor medications. Additionally, the doctor may use the blockchain to automatically and securely transfer patient information to health insurers or other interested stakeholders (Rawat et al., 2019).

The financial sector is another area where blockchain technology has had a substantial influence. Cross-border transactions are now time-consuming, long, and costly. Blockchain accelerates these payments by offering a solid cross-border common platform and diminishes expenses through the elimination of costly proxies; these advancements will be the most major effect of blockchain and will become evident when considering the present payment infrastructure and the high ineffectiveness of global trade (Holotiuk et al., 2017). As an alternative to the traditional financing system, the rise of an entirely novel product line integrating cryptocurrencies and distributed database technology (DLT) aided fundraising: initial coin offerings (ICOs) have become a key fundraising option for enterprises and SMEs. Given the rapid expansion of ICO and venture funding, investment expanded exponentially on an unimaginable scale in 2017 and continued to stay at a record high in 2018, surpassing 7.4 billion euros, while facing stiff competition coming from the United States and China, which now appear to be the leaders in smart contract start-ups, with the UK having an important impact in Europe in regards to the amount of blockchain based start-ups and trying to attract around 70% of the investment opportunities (Nascimento et al., 2019). According to the World Economic Forum, by 2027, 10% of global GDP will be kept on the public blockchain, and the technology is predicted to generate new commerce worth more than \$3 trillion by 2030 (Derindag et al., 2020). The forth coming section shall detail out the concepts involved with international trade.

International Trade

Global commerce is a complicated web of interconnected systems. It comes with high prices and stringent rules. It also necessitates constant technological advancement in overseas trading. This blog discusses how blockchain technology may be used to overcome such difficulties. International trade depends on transaction volumes and cost planning, which are affected by both inherent and external causes. The underlying principles of blockchain include decentralization and disintermediation, data transparency, immutability, trade consensus, and reliability and trust. Blockchain, as recognized by the World Trade Organization and the European Commission, is a yet another remedy to ease the record keeping management of foreign trade. It is the key to transforming the worldwide market by developing a more comprehensive vision for the use of technology and the digitalization of global trade payments.

Typically, international commerce entails cross-border capital movements, and this includes the transfer of knowledge, products/services, and financing, just like any other supply chain activity (Gaur and Gaiha, 2020). Controlling these three flows is critical, but it is a difficult process. Information flow is critical. One of the most important resources in the contemporary supply chain is information, which enables organizations to decrease supply chain unpredictability and generate better forecasts. This emphasizes the need of a commercial transaction mechanism that covers both the exchange of knowledge and the transfer of financial assets. Trade financing accounts for around 80% of global commerce. Foreign commerce is expected to rise at a 4% yearly rate, with a potential value of \$24 trillion by 2026 (ICC, 2018). Trade financing assists in closing the divide between complex interaction while reducing credit risks. Document collecting, opening an account,

countertrading (barter) and shipments are some of the procedures used in trade finance to carry out commercial transactions. The most significant is the Letter of Credit (LC)(Belu, 2019).

Blockchain And International Trade

According to Crosby et al. (2016), blockchain technology can be applied to a variety of industries, including finance, healthcare, and supply chain management. In international trade, blockchain technology can be used to facilitate the exchange of goods and services, provide a secure and transparent platform for payments, and reduce the risks associated with fraud and counterfeiting.

Foreign trade is extremely complicated since it involves several parties, including the exporter, custom, shipping company, port, and buyer. With several parties engaged, communication issues have arisen among stakeholders. Communication issues stem from a lack of transparency among stakeholders, which can develop as a result of a lack of openness among stakeholders, upsetting the global commerce process. For instance, when a producer has already given their goods to the importer, yet the product is still on the way, implying that the product is still in the hands of the forwarder.

The application of blockchain technology in international trade is still in its early stages. However, several researchers have highlighted the potential benefits of using blockchain technology in international trade. The following sections explore the various applications of blockchain technology in international trade.

Researchers have addressed the possibility of blockchain technology to improve trade finance, particularly while considering the LC. Samy et al. (2021) looked into the efficiency of the blockchain decentralized network in order to improve dependability for various business applications. They recommended a change within the Istanbul Byzantine Fault - tolerant voting method. Chang et al. (2019) investigated the use of blockchain technology in international trade. To discover and assess the possibilities for procedure and to improve the overall trade effectiveness of the suggested model, the authors carried out a feasibility investigation and comparison analysis. Agibalova et al. (2019) conducted a comparative study of LC in international payments and got useful experience deploying LC on a Blockchain Technology (BT) infrastructure in the Russian trade setting. In addition, smart contracts were used in the platform. They found that, based on the policymaking process in both Russia and other nations, Russian and foreign lawmakers were still in the early stages of such public affairs. Belu (2019) conducted a study of the available research to demonstrate the possible benefits of BT in international trade. By in-depth interactions with industry experts, Kowalski et al. (2021) investigated how BT impacts connections among trade agreements in international commerce.

Additionally, other articles have investigated the influence of BT again from supply chain, financial, and technical perspectives, focusing on international trade procedures such as logistics, paperwork, and finance (Sangeetha et al., 2020). Not just in terms of communication, but the majority of international economic transactions are still conducted on paper. A lot of documentation is also required when there are several parties. In international trade, a large amount of documentation had to be produced. Additionally, not only do these many paper-intensive methods increase communication and administrative expenses, but they are also frequently prone to errors, losses, and fraud. Despite tremendous advances, total digitization of cross-border goods trade transactions remains a long way off. The intricacies and expenses involved with trading goods internationally have prompted an increasing variety of businesses and governments to investigate how block chain technology might be utilized to reduce documentation and improve mechanisms involved in exporting goods, ranging from financial transactions to border processes and transportation(Ganne, 2018).

Blockchain technology can be used to provide a secure and transparent platform for supply chain management. Blockchain technology can help to improve the transparency and efficiency of the supply chain by providing real-time tracking of goods and services. Blockchain technology can also be used to prevent fraud and counterfeiting by providing a secure and transparent platform for verifying the authenticity of goods. Blockchain technology can help to reduce the costs and risks associated with trade finance by providing a secure and transparent platform for the exchange of documents and funds. Blockchain technology can also help to reduce

the risks associated with fraud and counterfeiting by providing a secure and transparent platform for verifying the authenticity of documents. (Böhme et al., 2015)

Smart Contracts

Smart contracts are one of the most intriguing aspects of blockchain technology, especially in the field of international trade. Smart contracts do not constitute a sort of blockchain in and of itself, but rather a feature of the blockchain. The phrase "smart contract" is a misleading term: smart contracts are neither "smart" (they lack cognitive or artificial intelligence) nor contracts in the legal sense (Deloitte, 2018). Smart contracts are software applications that autonomously enforce itself (self-execute) when particular circumstances are satisfied (based on the "if... then..." logic - for example, if goods are dumped at port of X, monies are sent). They specify each party's responsibilities under the "contract," as well as the rewards and fines that may be payable from either party under certain conditions. Unlike a standard legal contract, they may also receive information as input, analyse it according to the contract's rules, and perform any agreed-upon action as a consequence. Such data is given into the smart contract through so-called "oracles," which are data feeds supplied by outside service providers based on pre-defined circumstances.

These circumstances can include any external data, such as temperature, payment processing, price variations, and so on. A sensor put in a refrigerated container, for example, may serve as an oracle in a smart insurance contract. If the temperature exceeds a specified threshold, insurance pay-outs are immediately triggered, and an inspection request is made. Oracles are the sole means for smart contracts to "interact" with data outside of a blockchain ecosystem since blockchains cannot access the data outside of their network. In other words, smart contracts are usually combined with other technologies, particularly the Internet of Things (IoT), which is a network of smart devices and sensors that are linked to the internet and can transmit and receive data.

In general, smart contracts employ data collected by IoT to activate actions. The notion of contracts was initially presented and expanded upon by cryptologist Nick Szabo in several papers between 1994 and 1997, and was first used in the setting of block chain by Ethereum between 2015-2017. Nowadays, several blockchains support smart contracts. Smart contracts can operate outside of blockchain, however they have the same potential issues as centralized databases, such as a single failure point and the ability to simply update the data.

The notion of smart contracts is central to BT's efforts to improve peer-to-peer commercial interactions (Roriz and Pereira, 2019). Smart contracts, which are agreements written in code and implemented automatically in a blockchain context, are a fiercely disputed issue (Eenmaa-Dimitrieva and Schmidt-Kessen, 2019). An agreement is a series of commitments agreed upon at a "gathering of the minds," which is the conventional means to establish a partnership. Contracts are most commonly employed in commercial connections, but they may also be utilized in other sorts of interactions and agreements. As a result, he describes a smart contract like a bundle of digitally stated promises that contain procedures enabling the parties to fulfill these promises. He considers these contracts to be intelligent since they are significantly more practical than their inert paper-based forefathers. Smart contracts are defined as "protocols within which the counterparties perform" by Szabo (1997). As a result, when an occurrence or trade occurs, there really are rules that specify how the information ought to be handled in order to produce the desired result. This may be performed by converting smart contracts into computer code that includes agreements and clauses contained as lines of programming language. Smart contracts, and therefore decentralised independent organizations, decentralized apps, smart tokens, and smart property, have opened the way for the development of cryptocurrency-based automated trading systems (Di Francesco Maesa and Mori, 2020).

Smart contracts, in general, are computer protocols meant to digitally verify, simplify, or enforce the terms or execution of an agreed contract. They were proposed over a decade ago, but the recent progress of Bitcoin and cryptocurrency technology has reignited interest in their possibilities among engineers and businesses (Werbach and Cornell, 2017). Smart contracts enable trustworthy transactions to be carried out without the intervention of a third party. These transactions can be tracked and are irrevocable. According to De Graaf (2019), smart contracts that operate on the ledger are more difficult to define in a concise manner. These programs were

created to automate operations and let participants to agree on the results of a certain event without the requirement of a central system (Roriz and Pereira, 2019). A smart contract tries to harness the BT's immutable, trust less characteristics to enable peer-to-peer, unmediated agreements enforced instantly by computer programs (Brennan and Lunn, 2016).

Future Of Blockchain And International Trade

While blockchain technology has the potential to revolutionize international trade, there are several challenges and limitations that need to be addressed. The following sections explore the various challenges and limitations of using blockchain technology in international trade. One of the major challenges of using blockchain technology in international trade is regulatory and legal compliance. There is a lack of clarity around the regulatory and legal requirements for using blockchain technology in international trade.

The goal of the future international commerce platform is to reduce international trade obstacles and increase efficiency throughout multinational supply chains. In addition, the platform's objectives are to connect and assist the distribution network ecosystem. A worldwide network of linked shipping corridors linking ports and terminals, customs agencies, shipping companies, 3rd logistics (3PLs), inland transport, shippers, and other participants. Maersk, among the shipping sector's leaders, has been vigorously collaborating with IBM to develop TradeLens, a Blockchain-based world trade network that aims to connect the various parties involved in foreign trade - from delivery companies to government agencies - and to computerize the supply chain from beginning to end, with the objective of simplifying and trying to promote procedures. The ClearWay trade document module enables distributors, exporters, customs brokers, and reputable third-parties, such as border control and other government agencies, to engage in cross-organizational business processes and to automate different company procedures, including such import and export clearance, using smart contracts. The platform's effectiveness will be primarily influenced by the ability of the many actors involved in foreign commerce to join up (Ganne, 2018).

Methodology

For the purpose of this study, time series data of the world shall be employed between the period from 2012 to 2021. The main dependent and independent variable chosen for this purpose shall be international trade and blockchain respectively. The contribution of imported and exported goods to GDP is used to measure international commerce. We gathered data from the World Bank's Global Development Indicators on the global average of the percentage of imports as well as exports to GDP. We obtained blockchain technology statistics from blockchain.com, which is quantified by bitcoin circulations. Similarly, we obtained from World development Indicators, statistics on GDP per capita, inflation rate, population growth, and foreign direct investment (FDI).

Variable Definition

We investigate whether blockchain technology improves international trade in this study. As a result, we consider international commerce to be a dependent variable that is measured as a percentage of the total of exports and imports to GDP. International commerce refers to the global interchange of products, services and capital, as well as the expansion of market size and production level, which leads to faster economic growth. According to Jouini (2015), international commerce is favourably associated to economic development and hence governments should establish methods for boosting international trade. As a result, several authors have defined international commerce as a percentage of the combination of imports and exports in relation to GDP.

Control Variable

According to existing research, we employ numerous control factors in this study to separate the relationship involving blockchain and international commerce. First, we evaluate GDP per capita, that also measures a country's average economic production per person. Increases in GDP per capita improve income, which increases a country's exports or imports, leading to a rise in international commerce. According to Ulasan

(2012), per capita GDP has a beneficial impact on foreign commerce. As a result, we anticipate and provide an encouraging sign to this variable. In our analysis, we additionally examine the yearly inflation rate as determined by the consumer prices index as an interaction term. Inflation is defined as the continuous rise in market prices that affects a country's product competitiveness. A rise in the price level adds to a rise in the price of products and services, as a result of greater production costs, and eventually leads to a reduction in trade flows. According to Karbalaee et al. (2014) and Stockman (1981), inflation is adversely related to foreign trade. As a result, we anticipate and apply a negative sign toward this parameter. As a control variable, the yearly percentage of population increase is also included.

According to Lehmijoki&Palokangas (2009), population growth can increase trade volume by enhancing the benefits of specialization. As a result, we anticipate that population increase will have a beneficial influence on our study. The share of FDI net inflows to GDP is another control variable included in this study. By speeding global supply chains, FDI promotes commerce in transitional commodities. Sujová et al., (2021) suggested that increased FDI flows boost productivity, resulting in increased trade volume. Keller (2021) discovered that FDI has a favorable influence on international commerce in the short run. As a result, we anticipate a promising development for this variable in our study. Taxation is a representation of the tax burden imposed by the relevant authorities. A higher rate of taxation raises a country's manufacturing costs, resulting in decreased global markets in the long term. A higher rate of taxation has a detrimental impact on foreign commerce. As a result, we regarded tax as an interaction term and anticipated a negative sign. The company freedom index is used to assess the efficiency with which company regulations are administered. The proportions of the inconvenient aspects of starting, running, and closing a firm are quantitatively assessed. The index value ranges from 0 to 100. A higher index number indicates that the corporate organization is less complex. According to Abasimi and Khan (2018), corporate independence has a strong positive influence on international commerce. As a result, we employ business flexibility as an interaction term in our study and anticipate a favourable result.

Research Model

Based on prior research works of Ayeche et al. (2016) and Qin and Ndieg (2013), we use an econometric generalized linear model (GLM) phrased as follows to investigate the effects of block chain on international commerce.

$$IT_t = \beta_0 + \beta_1 BT_t + \beta_2 GDP_t + \beta_3 INF_t + \beta_4 POP_t + \beta_5 FDI_t + \beta_6 TAX_t + \beta_7 BF_t + \mu$$

In the regression model, IT_t represents the dependent variable, international trade at period t , BT_t indicates our major key variable, blockchain technology, and symbolizes the model coefficient. Similarly, GDP_t means GDP per capita, INF_t implies inflation rate, POP_t denotes population growth, FDI refers FDI, TAX_t denotes taxation index, BF_t indicates business freedom, and μ is the squared error term. All the selected control terms were regrouped by retrieving data from the world development indicators.

Empirical Results And Discussion

Descriptive Statistics

The descriptive statistics for the variables utilized in this investigation are shown in Table 1. With regards to international trade, the ordinary mean is 85.043, with a minimum of 11.850 and a maximum of 430.56, as well as a lower level of standard error. Our main independent factor of interest, blockchain technology, has a mean of 8.89, a maximum of 11.725, and a minimum of 5.236. Similarly, with a reduced standard deviation, we determine the maximum, lowest, and mean values of per capita GDP, rate of inflation, population growth, FDI, taxes, and business freedom. In summary, the relatively low, minimum, mean, and standard deviation values suggest that all of the variables used are appropriate for future investigation.

Table 1. Descriptive Analysis

Variables	Obs	Mean	Std. Deviation	Minimum	Maximum
IT	483	85.043	1.203	11.85	430.5
BT	483	8.891	3.215	5.236	11.72
GDP	483	2.543	3.423	-46.08	86.82
INF	483	5.001	0.234	-3.042	59.01
POP	483	1.221	5.362	-5.281	9.758
FDI	483	24.89	2.346	23.51	28.35
TAX	483	16.54	4.423	0.354	147.6
BF	483	5.484	4.201	0	10

Correlation

Correlation analysis is used to determine the relationship between variables. According to Wooldridge (2015), a correlation value that is smaller from 0.7 suggests modest reliance among variables. Table 2 shows that the applied parameters in our analysis have a low correlation, indicating a low degree of multi-collinearity. As a result, multi-collinearity does not pose an issue in doing additional analysis in this study.

IT	1							
BT	0.536	1						
GDP	0.532	0.624	1					
INF	0.234	0.437	0.124	1				
POP	0.326	0.726	0.655	0.236	1			
FDI	0.165	0.069	0.365	0.045	0.633	1		
TAX	0.334	0.631	0.752	0.564	0.422	0.063	1	
BF	0.362	0.231	0.366	0.523	0.364	0.367	0.222	1
	IT	BT	GDP	INF	POP	FDI	TAX	BF

Table 2. Correlation Test

Glm Regression Analysis

According to the empirical investigation, blockchain technology has a substantial beneficial influence on international trade. The use of blockchain technology reduces taxes and prices, removes the need for middlemen, and increases security and transparency, all of which contribute to lower trade barriers and faster global trade. According to Derindag et al. (2020), blockchain technology boosts efficiency by decreasing paperwork. The use of blockchain technology in international trade finance and payment operations cuts financing and payment expenses (Belu, 2019). In other words, blockchain development has a big influence on international trade throughout the world. Furthermore, we discover that per capita GDP has a considerable beneficial influence on foreign commerce. Increasing GDPs of exporter and importer nations promote productivity and per capita income, which aid in the expansion of both public and private investment, as well as foreign trade. Doanh and Heo(2007) both confirm this outcome. We find that inflation has a significant

detrimental influence on international commerce. High inflation on buyer and producer countries raises product prices, limiting the volume of foreign commerce. This outcome is comparable to Stockman's (1981). We also discover a favorable relationship between investment and foreign commerce.

This finding suggests that increases in FDI promote international commerce. Increased FDI flows boost efficiency and distribution network efficiency, resulting in increased commerce. We see the same beneficial effect of population expansion on foreign trade as Mátyás (1997). Population expansion increases labour force participation, production supply and demand, and so trade volume. We also discover that taxes have a large detrimental impact on international commerce. Higher tax rates increase the cost of manufacturing, limiting the volume of trade flows. Our results are comparable to those of Keen and Syed (2006). The empirical data further demonstrate that corporate independence benefits international commerce. Business procedural proficiency, infrastructural development, and a regulatory system provide new business prospects, which enhances international commerce. This conclusion is consistent with the findings of Abasimi and Khan (2018).

Conclusion

Blockchain technology is frequently referred to as a game-changing invention and the precursor to a new economic age. It is a cross-border digital transaction platform with enormous potential for facilitating international commerce flows. The underpinning smart technology is well praised for making global trading processes simple. Utilizing data from 2009 to 2018, we did an empirical analysis to analyse the relationship between blockchain and world trade using empirical evidence not before investigated in any study. The results of the Hansen variable instability cointegration test revealed that when all of the variables moved together, they had a long-term link. The VAR Granger causality test discovered unidirectional causation from blockchains to international commerce, implying that blockchain technology impacts international trade. We used the GLM estimate approach to investigate the impact of blockchain on international commerce. We discovered that blockchain technology has a positive impact on international trade. The proper deployment of blockchain technology speeds up international trade by boosting security, trust, and transparency while lowering all types of trade-related expenses. Similarly, we discovered that GDP had a favourable effect on foreign commerce. Greater economic growth is associated with a country's level of income, which leads to a rise in trade flows. We investigate a negative relationship between inflation and foreign commerce. Inflation affects the price level of goods and services, influencing the production costs of importer and exporter nations as well as the contours of trade flows. Furthermore, we discovered that population expansion has a considerable influence on international trade. Population expansion within a country has increased labour forces, demand, supply, and productivity, all of which boost trade volume. We discovered that FDI has a favorable relationship with international commerce. Increased FDI boosts supply chain productivity, resulting in greater trade flows. Taxes has been demonstrated to have a considerable negative impact on global commerce. Increased tax rates impact a country's manufacturing costs and impede overseas commerce. We also discovered that business independence benefits international commerce. Business efficiency, regulation, and infrastructural development produce new business, increasing trade flows. Our results have been found to be consistent with the studies of Derindag et al. (2020), Keller (2021) and Yu (2021).

Policy Implications

Blockchain is still in its early stages, and many countries must properly integrate and adjust to it in order to reap the benefits. When combined with the subject of international commerce, blockchain technology has become a growing topic of academic study that presents several potentials for future academic research. Further conceptualization and research of factors related to cross-border e-commerce is required to determine how possibilities may be conveyed in international trade, resulting in financial cognition and viewpoint. This study encourages decision-makers, particularly executives and customers, to validate the potential benefits of blockchain and embrace its use for international trade objectives, which would lead to increased global trade flows. Businesses which commit to using blockchain technology will enjoy significant benefits in the future.

The study's findings encourage policymakers to develop regulations that will enhance the use of blockchain by establishing an enabling environment.

Further study should be performed to establish how blockchain technology may aid actual traders. Also, future research may include more blockchain technology indicators and explanatory factors, making the conclusion more complete.

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