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Research on the Influence of Digital Technology and Policy Restrictions on the Development of Digital Service Trade

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Abstract: Due to economic globalization and the progress of digital technology, digital service trade develops rapidly, but it also faces challenges such as digital trade policy barriers, and gradually attracts the attention of all countries in the world. Based on panel data of 40 countries or regions from 2014 to 2020, this study empirically analyzed the moderating effects of digital technology and policy restrictions on digital service trade and the moderating effects of policy restrictions on the relationship between digital service trade and the other two by using a double fixed effect model. The results show that: first, the improvement of digital technology level enhances the scale of digital service trade import and export significantly; Secondly, the higher the degree of policy restriction is, the more significant the development of digital service trade will be inhibited, and according to the heterogeneity of import and export scale, the more significant the restriction is only on export. Third, restriction policy has a significant positive moderating effect on the positive relationship between digital technology and digital service trade, and only supports emerging economies according to the heterogeneity of countries. Therefore, China should strengthen its own digital technology construction, reduce the difference between China and its trading partners in digital service trade restriction policies, and actively participate in the construction of a digital service trade governance system under a multilateral cooperation mechanism, so as to promote the vigorous development of digital service trade.

Keywords: digital service trade; digital technology; policy restrictions

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1. Introduction

With the vigorous development and wide application of digital technology, the world economy has entered a new stage of digital globalization. Reducing the cost of information sharing and enhancing the tradability of traditional services helps to refine the international division of labor, specialization and the continuous extension of the value chain. As an emerging industry in service trade, digital service trade represents the development idea and direction of new service modes, and plays an important role in promoting a country's real economy, national economic growth, industrial structure and trade structure adjustment, enterprise structure and scale optimization. According to the data of the United Nations Conference on Trade and development (UNCTAD), the scale of global digital service trade reached US $3.13 trillion in 2020, accounting for 62.8% of service trade, and its dominant position gradually emerged; In 2020, although the growth rate of global digital service trade fell by 1.9% year-on-year, the impact of the epidemic was significantly lower than that of service trade and goods trade, highlighting the resilience of digital service trade, which has become a new driving force for economic development. Although technological progress has promoted the growth of the digital service trade, it is not the only factor. More open and favorable national policies are also crucial. However, in order to promote the development of the digital economy and strengthen the protection of intellectual property rights and privacy, countries continue to strengthen their own supervision. Trade policy barriers and regulatory measures hinder the breadth and depth

of international cooperation in digital service trade. In the context of digital globalization, national policy adjustments are superimposed on global governance games, and digital trade rules have become an important topic in the governance of global digital service trade, affecting many fields such as economy and society, people's well-being, sustainable development and so on. The formulation of digital trade rules is relatively lagging behind. Bilateral, plurilateral and regional trade agreements have made up for the vacancy of WTO governance rules to a certain extent, but also caused the complexity and diversity of digital service trade policy restrictions, showing a fragmented trend. Therefore, with the increasing influence of digital service trade, it is necessary to explore the impact mechanism of digital technology level and policy restrictions on the development of digital service trade.

The contributions of this study are as follows: first, according to the International Telecommunication Union ICT development index, select the digital technology that can directly promote the development of service trade to measure, and test the impact of the level of digital technology on digital service trade; Secondly, it systematically explains the impact of policy restrictions on digital service trade, and puts forward whether policy restrictions have a regulatory effect on the relationship between digital technology level and digital service trade; Third, distinguish the degree of national economic development and the scale of imports and exports, examine the heterogeneous impact of digital technology and policy restrictions on digital service trade, and verify the regulatory mechanism of policy restrictions on the relationship between the two. It not only improves the reliability of the conclusion, but also expands the policy connotation of empirical research, providing a useful decision-making reference for China to better participate in the global division of digital services.

2. Literature Review

The rapid development of digital transformation and digital trade has triggered changes in the economic and trade pattern, affected the reconstruction of the global industrial chain supply chain, and given new connotations to globalization. At the same time, the hot spot that has attracted the attention of all sectors of society has focused on digital service trade. Combined with theory and practice, there are many factors affecting digital service trade involved in the literature, and the previous methods of selecting variables may not be targeted. Therefore, this paper analyzed the impact mechanism on the import and export scale of digital service trade from the perspective of the level of digital technology and the degree of policy restrictions, so as to provide a reference for the academic community to further study digital service trade.

2.1. Digital Technology and Digital Service Trade

In the era of digital technology benefiting the whole world, the development of international trade was mainly reflected in reducing trade costs [1], promoting the digitization of the global trade pattern [2], and accelerating the transformation of traditional service industries. Enhanced Information and Communication Technology (ICT) connectivity had fundamentally changed the inefficient and nontradable nature of traditional service industries [3], promoted the deep integration of digital technology and service trade, and benefited most from the wider use of network platforms and Internet sectors, including information services and financial services [4,5]. When measuring the level of digital technology, the accounting framework of the information and communication technology development index published by the international alliance was often used to calculate the development level of ICT [6], which had a positive impact on service trade [7,8]. Yue and Zhao used the two-step System GMM method to test the factors of digital service export at the national level based on the cross-border panel data, which confirmed that the improvement of informatization level has a positive effect on the export of digital service trade [9]. Jiang and Jia used Porter's diamond model to study the mechanism of all determinants on the export of digital services [10]. The above studies had not analyzed the influence of specific determinants. The direct reason for the rise of digital trade lies

in the development of digital economy, and the fundamental reason is the deep change of production organization mode triggered by technological innovation. The deepening application of digital technology promoted the digital development of service trade, and a new trade mode of digital service trade has emerged [11]. Therefore, this study proposes research Hypothesis 1.

Hypothesis 1. *Digital technology has a positive impact on the scale of digital service trade.*

2.2. Policy Restrictions and Digital Service Trade

At present, governments are increasingly restricting global data flow and requiring data localization, which undermines the economic benefits of digital service trade. To solve this trend, we need a digital service trade governance system, which has two key elements [12]. One element is new digital trade rules, some of which exist in the WTO and others are being developed in free trade agreements. Another element is international regulatory cooperation to develop standards and mutual recognition agreements in areas such as privacy and consumer protection [13]. In this regard, OECD had created a measurement framework of Digital Services Trade Restrictive Index (DSTRI) to evaluate the specific restrictive policies of digital services trade in major countries in the world. It was worth noting that restrictive policies on digital services trade in various countries were on the increase, and China had more restrictive measures than developed countries [14], which was mainly due to the differences in regulatory models [15]. Zhao concluded that the DSTRI index of developing countries was generally higher than that of developed countries, there was a huge digital gap between countries, and it was found that the level of digital trade restrictions was negatively related to the level of economic development of a country [16]. Meng studied that DSTRI index was negatively related to the development of digital service trade, analyzed the problems of increasing barriers and lack of policy coordination faced by digital service trade, and recommended that countries further reduced digital barriers and promoted digital service trade policy negotiations under the multilateral cooperation mechanism [17]. In addition, other scholars constructed a comprehensive index of digital service trade policy restrictions through weighted statistics of multi-national policies and measures, and obtained the research result that strict data policies were negatively and significantly related to the import of data intensive services [18]. Therefore, this study proposes research Hypothesis 2.

Hypothesis 2. *Policy restrictions have a negative impact on the scale of digital service trade.*

2.3. The Regulatory Effect of Policy Restrictions

The high-level development of foreign trade was conducive to the high-quality growth of regional economy [19,20]. The vigorous development of digital trade was an important way to reduce costs, improve production efficiency, promote economic growth and business map reconstruction, and impact on economic growth from three dimensions, such as economic operation system, economic efficiency and economic innovation [21]. Scholars had less theoretical and empirical research on the impact of the development of digital service trade, so this study explored the relationship between digital service trade and digital service trade from the perspective of digital technology and restrictive policies. Zhou and Yao concluded that exporting countries' strengthening information transparency through ICT could weaken the inhibitory effect of restrictive policies on the country's digital service exports [22]. However there were high risks and challenges in the R&D and creation of digital technology, so the purpose of the policy supervision system was to control and reduce the risks in the process of scientific and technological R&D, and guide the compliant scientific research mode and direction [23]. Digital service trade depended on open cross-border data flow, but policy-making must also balance open cross-border data flow with public policy objectives, and ensure that technical standards, digital trade rules and international and domestic security review objectives were combined [24]. To a certain

extent, trade policy should actively play a regulatory role and use the visible hand to guide the invisible hand, so as to achieve long-term, sustainable and stable economic development. If the domestic digital service trade policy was highly restrictive, it mainly depended on the domestic factors to improve the level of digital technology to break through the restrictive measures and promote the development of digital service trade; If the degree of restriction was low, the level of digital technology was improved by attracting foreign investment and technology spillover effect [25], and the scale of domestic digital service trade would also be expanded. Therefore, this study proposes research Hypothesis 3.

Hypothesis 3. *In the process of the impact of digital technology on digital service trade, policy restrictions play a positive regulatory effect.*

3. Variable Setting and Model Construction

3.1. Model Construction

Referring to the research methods of Meng et al., Qi & Qiang and Zhou & Yao [15,26,27], this study selected variables and adopted the double fixed effect model to empirically test the impact of digital technology and policy restrictions on digital service trade, and the regulatory effect of policy restrictions on digital technology and digital service trade, the general expression of its model is as follows:

The model established according to Hypothesis 1 is:

$$LnDST_{ij} = \alpha_0 + \alpha_1 LnICT_{ij} + \alpha_2 Controls + \lambda_i + \lambda_j + \varepsilon_{ij} \quad (1)$$

The model established according to Hypothesis 2 is:

$$LnDST_{ij} = \alpha_0 + \alpha_1 DSTRI_{ij} + \alpha_2 Controls + \lambda_i + \lambda_j + \varepsilon_{ij} \quad (2)$$

The model established according to Hypothesis 3 is:

$$LnDST_{ij} = \alpha_0 + \alpha_1 LnICT_{ij} + \alpha_2 DSTRI_{ij} + \alpha_3 Controls + \lambda_i + \lambda_j + \varepsilon_{ij} \quad (3)$$

$$LnDST_{ij} = \alpha_0 + \alpha_1 LnICT_{ij} + \alpha_2 DSTRI_{ij} + \alpha_3 (ICT_{ij} x DSTRI_{ij}) + \alpha_4 Controls + \lambda_i + \lambda_j + \varepsilon_{ij} \quad (4)$$

Among them, DST_{ij} represents the total import and export volume of digital service trade of country i in year t, ICT_{ij} represents the digital technology level of country i in year t, $DSTRI_{ij}$ represents the degree of policy restrictions of country i in year t, and controls represents all control variables, λ_i and λ_j represents the fixed effect of country and year respectively, ε_{ij} is the error term.

3.2. Sample Selection

The data this study used is mainly from the WTO database, the World Bank Database and the OECD database. Considering the availability and representativeness of the data (some economies are not included in this study due to the inaccessibility of data and the low volume of digital services trade), 40 major economies are selected as samples, with the time range from 2014 to 2020, including 29 developed economies (Australia, Austria, Belgium, Canada, Czech, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, The Netherlands, New Zealand, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, USA), and 11 emerging economies (Argentina, Brazil, Chile, China, India, Indonesia, Pakistan, Poland, Russian Federation, South Africa, and Turkey). Referring to the industry classification of digital service trade by Zhao and Sarafanov [16,23], it was determined to divide the trade data into seven categories, and summarized the total import and export trade volume, which was obtained from the WTO database. The data involved in measuring the level of digital technology comes from the World Bank Database. The data of policy restrictions are from OECD database; Other control variables are from the world bank database.

3.3. Indicator Measurement

3.3.1. Explained Variable

This study takes the total import and export volume of digital service trade (DST) as the explanatory variable and calculates it by industry aggregation. Based on the fact that the statistical framework of digital service trade has not been established yet, the data related to digital service trade are scattered in various fields, and the statistical data are not accurate enough and it is difficult to obtain data. Using the digital service trade data and statistical framework provided by the United Nations Conference on Trade and development, considering that many countries lack some sub-level data, this paper makes appropriate improvements from an operational point of view, and uses the WTO database to select the scope, including Telecommunications Computing and information services, insurance and pension services, intellectual property services, financial services, personal culture and entertainment services, management consulting services The import and export data of 7 types of digital services such as engineering R&D services are summarized as the total import and export volume of digital services trade in this paper.

3.3.2. Explanatory Variables

First, the development level of digital technology, ICT technology level is selected as the proxy variable. Based on the proposal of the International Telecommunication Union (ITU), Information Development Index (IDI) is used to measure the digital development gap between or within countries. It is a reference index for the development level of information and communication technology. It empowers ICT access, ICT use and ICT skill level to obtain the level of IDI. Referring to the research of Yao and Yuan [6], this paper uses the IDI calculation method to compare the ICT Level of various countries, and selects six three-level indicators in the world bank database to allocate weights to calculate the ICT development level. The accounting framework is shown in Table 1.

Table 1. ICT Accounting Framework.

	Index	Reference Value	Index Weight	Sub-Index Weight
ICT Access	Fixed-telephone subscriptions per 100 inhabitants	60	0.5	0.4
	Mobile-cellular telephone subscriptions per 100 inhabitants	120	0.5	
ICT Use	Fixed-broadband subscriptions per 100 inhabitants	60	0.5	0.4
	Percentage of individuals using the Internet	100	0.5	
ICT Skills	Secondary gross enrolment ratio	100	0.5	0.2
	Tertiary gross enrolment ratio	100	0.5	

Note: the data are drawn according to the 2017 ITU report on measuring the information society and are from the world bank database.

Second, the degree of policy restrictions, using the Digital Services Trade Restrictive Index (DSTRI) as a proxy variable. With the help of the DSTRI index created by OECD, this paper divides the restrictions on trade in digital services into five categories and their proportion: payment system (64%), infrastructure and connectivity (62%), electronic transactions (16%), intellectual property (2%) and others (16%), and quantitatively evaluates the restrictions of different national policies on trade in digital services [28–33]. The index is between 0 and 1, close to 1, the higher the limit, and vice versa. Therefore, this paper uses the reciprocal method to normalize this index [34–39].

3.3.3. Control Variables

The control variables in this paper are from the development index database of the world bank, mainly including: the level of national economic development, measured by the natural logarithm of GDP; The scale of goods trade is measured by the natural logarithm of the total import and export volume of goods trade; Foreign direct investment is measured by the proportion of net inflow of foreign direct investment in GDP; Infrastructure, measured by the natural logarithm of secure Internet servers; Urbanization level is measured by the natural logarithm of the urban population.

4. Empirical Results and Analysis

4.1. Descriptive Statistics

This paper obtains the following results by using the measurement software Stata 15.1. First, a descriptive statistical analysis of variables is carried out, as shown in Table 2. The overall sample size of this paper is 180, of which the standard deviation of digital trade in services (LnDST) is 2.576, indicating that there are obvious differences in digital trade in services between countries [40,41]. The average value of the digital technology level (LnICT) is 4.2533, the maximum value is 4.5184, and the minimum value is 2.9175, indicating that the international digital technology level has been greatly improved, but the gap between countries is still obvious [42–45]. The average value of policy restriction degree (DSTRI) is 9.4595, the minimum value is 2.0491, and the maximum value is 47.6191, indicating that there is a significant gap in the degree of policy restriction among countries [46,47]. The specific descriptive statistics of other variables are shown in Table 2 below.

Table 2. Descriptive Statistics.

Variable	N	Mean	Standard Deviation	Minimum	Maximum
LnDST	280	10.7938	1.4246	7.6718	13.6463
LnICT	280	4.2533	0.2958	2.9175	4.5184
DSTRI	280	9.4595	7.6224	2.0491	47.6191
LnGDP	280	27.1974	1.4036	23.5865	30.6960
LnGoods	280	26.5700	1.2186	22.9859	29.1305
FDI	280	3.5028	13.4368	−40.0811	108.4205
LnSIS	280	11.7020	1.9527	6.1717	17.6588
LnUP	280	16.7992	1.7273	12.6335	20.5802

4.2. Model Regression Based on Panel Data

4.2.1. Basic Inspection

This paper first tests Hypothesises 1 and 2. According to Table 3, the Hausmann test result of the model is that the *p* value is less than 0.01, indicating that the original hypothesis is strongly rejected, that is, the fixed effect model should be used in this model. Because there are time effects and individual differences in the data in this paper [48], the double fixed effect model is selected.

Table 3. Hausmann Test Results.

	Model (1)	Model (2)
chi2 (5)	33.88	36.94
Prob > chi2	0.0000	0.0000

The regression results of the two models are listed in Table 4. In the model (1), in order to reduce the estimation bias, the digital technology level (LnICT) is significantly positively correlated with the development of digital service trade without adding and adding control

variables, and every 1% increase in digital technology level will increase the scale of digital service trade by about 44.01%, indicating that improving digital technology level can promote the expansion of digital service trade, which is consistent with the research results of scholars [49,50], and this result supports H1. The reason is that enterprises embed digital technology into existing service products [51], so that the improvement of digital technology level can increase the availability and circulation of digital service trade [52], and accelerate the development of digital service trade [52]. In model (2), the estimated coefficient of government restriction degree (DSTRI) is −0.0057, which is significant at the level of 5%, indicating that the government restriction degree has a significant inhibitory effect on digital service trade, and H2 is verified. The reason is that the rapid development of the Internet has made it possible for service products that were previously difficult to achieve cross-border transactions [53], or the new digital service products spawned by the Internet have gradually become trading objects [54], and even open up new markets [55]. Data is the basic factor to support the development of these new digital service trade [56]. However, the digital trade barriers between countries protect the domestic related industries to a certain extent [57], and there are also strict policies and measures to regulate the cross-border flow of data [58], which will inevitably raise the trade costs of enterprises [59], make it more difficult for old products to expand to new markets or new digital service products to expand to new markets [60], and thus have a more obvious negative effect on the import and export of digital service trade, which is consistent with the research results of scholars [61,62].

Table 4. Model Regression Results.

	Model (1)		**Model (2)**	
LnICT	0.4685 * (1.87)	0.4401 * (1.91)		
DSTRI			−0.0082 ** (−2.64)	−0.0057 ** (−2.53)
LnGDP		0.4083 *** (3.15)		0.4144 *** (3.01)
LnGoods		0.4012 ** (2.57)		0.3820 ** (2.44)
FDI		−0.0007 (−1.23)		−0.0005 (−0.91)
LnSIS		−0.0129 (−0.71)		−0.0006 (−0.03)
LnUP		−0.3069 (−0.62)		−0.0872 (0.17)
Constant	8.7566 *** (8.29)	−7.6414 (−0.82)	10.8192 *** (291.44)	−12.1085 (−1.27)
Country	Y	Y	Y	Y
Year	Y	Y	Y	Y
N	280	280	280	280
R^2	0.5592	0.7122	0.5554	0.7071

Note: *t* statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

For other control variables, the regression coefficient of economic development (LnGDP) in model (1) and model (2) is significantly positive at the level of 1%, indicating that economic development has a significant positive correlation with digital service trade. Economic development can drive the development of various industries and accelerate the circulation of trade. There is a positive correlation between the two, which is in line with general logic. The regression coefficient of total imports and exports of goods (LnGoods) in model (1)

and model (2) is significantly positive at the 1% significance level, indicating that there is a significant positive relationship between total imports and exports of goods and digital service trade, which is also consistent with the basic social reality. Foreign direct investment, infrastructure and urbanization level have not yet had a significant impact on the scale of digital service trade. It may be that digital service trade is still in the early stage of high-speed development, so these factors do not play a significant role in the promotion of digital service trade [63].

4.2.2. Regulation Effect Test

As for Hypothesis 3 above, it is proposed that there may be a regulatory mechanism for further testing, and models (3) and (4) are added on the basis of model (1). As shown in Table 5, the result of Hausmann test is that the p value is 0, that is, the original hypothesis is strongly rejected, so the double fixed effect model should be selected.

Table 5. Hausmann Test Results.

	Model (1)		**Model (3)**	**Model (4)**
chi2 (5)	33.88	chi2 (6)	38.94	43.65
Prob > chi2	0.0000	Prob > chi2	0.0000	0.0000

Table 6 shows the regression results of the three models based on Hypothesis 3. In model (1), LnICT is significant at the level of 10%; In model (3), DSTRI is significant at 5% level; In model (4), LnICT × DSTRI is significant at the level of 5%, and its estimated coefficient is 0.0275, which indicates that the degree of policy restriction has a significant positive regulatory effect on the relationship between digital technology level and digital service trade, and proves that H3. At the same time, it also conforms to the theoretical expectation of Li (2019) [64]. The reason is that the development of new digital service trade driven by digital technology may touch the blank of regulatory policy [65], making the policy constantly adjust and change according to the emerging new products in the market [66], which will bring new policy barriers to international digital service trade, stimulate the enhancement of digital technology level to ensure the security of data cross-border transmission, transaction and other links [67,68], and further deepen the integration relationship with digital service trade. In conclusion, we find that restrictive policies can enhance the role of digital technology in the development of digital service trade.

Table 6. Adjustment Mechanism Test.

	Model (1)	**Model (3)**	**Model (4)**
LnICT	0.4401 * (1.91)	0.4605 ** (2.14)	0.2630 (1.25)
DSTRI		−0.0061 ** (−2.54)	−0.1230 ** (−2.18)
LnICT × DSTRI			0.0275 ** (2.10)
LnGDP	0.4083 *** (3.15)	0.3887 *** (3.20)	0.3973 *** (3.45)
LnGoods	0.4012 ** (2.57)	0.4065 *** (2.74)	0.4197 *** (3.00)
FDI	−0.0007 (−1.23)	−0.0007 (−1.22)	−0.0007 (−1.34)
LnSIS	−0.0129 (−0.71)	−0.0121 (−0.70)	−0.0138 (−0.83)

Table 6. *Cont.*

	Model (1)	Model (3)	Model (4)
LnUP	−0.3069 (−0.62)	−0.2568 (−0.55)	−0.3578 (−0.84)
Constant	−7.6414 (−0.82)	−8.1205 (−0.90)	−6.1756 (−0.76)
Country	Y	Y	Y
Year	Y	Y	Y
N	280	280	280
R^2	0.7122	0.7194	0.7285

Note: *t* statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.3. Robustness Test

In order to test the effectiveness of the empirical model, this paper tests the robustness of the Least Squares Dummy Variable Method (LSDV Method) in the basic test and further test of a total of four regression models. It can be seen from the estimation results in Table 7 that among the four regression models, the positive and negative coefficients of LnICT, DSTRI and LnICT × DSTRI indicators are consistent with the above, LnICT and LnICT × DSTRI indicators have improved significantly, that is, the level of digital technology and the degree of policy restrictions promote and inhibit digital service trade respectively, and the regulatory effect of policy restrictions is effective. Therefore, the basic test and further test have good robustness.

Table 7. LSDV Regression Estimation Results.

	Model (1)	Model (2)	Model (3)	Model (4)
LnICT	0.4401 *** (2.98)		0.4605 *** (3.15)	0.2630 (1.63)
DSTRI		−0.0057 * (−2.19)	−0.0061 ** (−2.41)	−0.1230 *** (−2.89)
LnICT × DSTRI				0.0275 *** (2.75)
LnGDP	0.4083 *** (5.22)	0.4144 ** (5.25)	0.3887 *** (4.99)	0.3973 *** (5.17)
LnGoods	0.4012 *** (3.82)	0.3820 *** (3.62)	0.4065 *** (3.91)	0.4197 *** (4.10)
FDI	−0.0007 * (−1.87)	−0.0006 (−1.46)	−0.0007 * (−1.88)	−0.0007 ** (−2.05)
LnSIS	−0.0129 (−1.01)	−0.0006 (−0.05)	−0.0121 (−0.96)	−0.0138 (−1.11)
LnUP	−0.3069 (−1.08)	0.0872 (0.33)	−0.2568 (−0.91)	−0.3578 (−1.27)
Constant	−8.1658 (−1.56)	−12.9555 ** (−2.53)	−8.7169 * (−1.68)	−6.6702 (−1.29)
Country	Y	Y	Y	Y
Year	Y	Y	Y	Y
N	280	280	280	280
R^2	0.7122	0.7071	0.7194	0.7285

Note: *t* statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.4. Heterogeneity Test

4.4.1. Heterogeneity Test Based on Country

In order to verify whether the above regression results are heterogeneous, according to the classification standards of the United Nations and the world bank, this paper divides 40 sample economies into developed and emerging economies for heterogeneity analysis, and discusses the differences in the impact of digital technology level and policy restrictions

on digital service trade in countries with different levels of development. The specific regression results are shown in Table 8. The regression results of two sub samples show that the estimated coefficient of LnICT in developed economies is 0.3598, which is significant at the level of 10%; Its estimated coefficient in emerging economies is 0.697, and it is significant at the level of 5%, indicating that compared with developed economies, improving the level of digital technology has a more obvious effect on promoting the development of digital service trade in emerging economies. In the regression of both developed and emerging economies, the estimation coefficient of another core explanatory variable DSTRI is negative, but it is not significant. The reason is that there is a big difference between developed economies and developing economies in digital service trade policies [69]. According to the OECD-DSTRI index in 2020, the digital trade restriction policies among developed countries show great differences. For example, the differences of digital service trade restriction policies among EU countries such as Germany, Italy, Britain and France are at a low level, with an average level of 0.11; The difference between the United States and European Union countries is large. The differences between the United States and Germany, France and Britain are 0.30, 0.28 and 0.24 respectively, which are significantly higher than the average level among European Union countries [70]. Further, we find that the restrictive policies of digital services trade among developing countries have a great deviation in coordination and unification. The policy differences between India and China and Brazil are 0.41 and 0.34 respectively; The difference between Brazil and China is 0.38. In testing whether policy restrictions have a regulatory effect on the heterogeneity of developed and emerging economies, the sample regression model of developed economies (4) LnICT × DSTRI estimation coefficient is not significant; In contrast, in the emerging economy model (4), the LnICT × DSTRI variable coefficient is 0.0457, which is significant at the level of 10%, indicating that restrictive policies in emerging economies are effective for digital technology to promote digital service trade, but have no significant impact on developed economies, which is consistent with the test results of existing literature [71]. The main reason is that developed economies have a highly relaxed policy environment [72], which makes the cost of acquiring digital services in this kind of countries lower. The liberalization of digital services acquisition will amplify its promotion effect on the level of digital technology, and then weaken the negative impact of restrictive policies [72]. However, in emerging economies, digital service trade is still in the primary stage of development and at a disadvantage in the international market. By implementing various restrictive policies on digital service trade, the trade cost caused by policy differences will be increased, and then the positive influence of digital technology on the development of digital service trade will be enhanced [73]. In fact, with the signing of more and more multilateral or bilateral regional trade agreements [74], the provisions of digital trade policies in regional trade agreements are also different. We find that such policy differences among and within regional economic groups highlights the necessity of cooperation between countries and regions in the field of digital trade policy.

Table 8. Heterogeneity Test: Developed and Emerging Economies.

	Developed Economies				**Emerging Economies**			
	Model (1)	**Model (2)**	**Model (3)**	**Model (4)**	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**
LnICT	0.3598 * (1.88)		0.4145 ** (2.15)	0.3202 (1.49)	0.6978 ** (1.98)		0.6635 * (1.87)	0.4563 (1.26)
DSTRI		−0.0040 (−1.46)	−0.0049 * (−1.79)	−0.0656 (−1.07)		−0.0093 (−1.07)	−0.0076 (−0.89)	−0.1919 ** (−1.97)
LnICT × DSTRI				0.0140 (0.99)				0.0457 * (1.90)

Table 8. *Cont.*

	Developed Economies				Emerging Economies			
	Model (1)	**Model (2)**	**Model (3)**	**Model (4)**	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**
LnGDP	0.3892 *** (3.40)	0.3432 *** (2.91)	0.3435 *** (2.95)	0.3131 *** (2.60)	0.3289 ** (2.11)	0.4686 *** (3.00)	0.3674 ** (2.27)	0.4059 ** (2.55)
LnGoods	0.2619 ** (1.97)	0.2925 ** (2.19)	0.2740 ** (2.07)	0.3170 ** (2.27)	0.6700 *** (2.98)	0.5441 ** (2.25)	0.6004 ** (2.52)	0.5290 ** (2.24)
FDI	−0.0005 (−1.53)	−0.0005 (−1.39)	−0.0005 (−1.55)	−0.0006 (−1.64)	0.0142 (1.25)	0.0107 (0.91)	0.0128 (1.12)	0.0108 (0.96)
LnSIS	0.0314 (1.54)	0.0318 (1.55)	0.0349 * (1.72)	0.0328 (1.61)	−0.0515 * (−1.65)	−0.0395 (−1.20)	−0.0443 (−1.37)	−0.0399 (−1.26)
LnUP	0.0527 (0.12)	0.0498 (0.11)	0.2153 (0.49)	0.2193 (0.50)	−0.066 (−0.09)	0.7331 (1.26)	−0.1187 (−0.16)	−0.6309 (−0.83)
Cons-	−10.2854 (−1.41)	−8.1284 (−1.14)	−12.2667 * (−1.68)	−12.2235 * (−1.67)	−17.8957 (−1.35)	−29.5308 ** (−2.54)	−16.1214 (−1.20)	−5.5679 (−0.39)
Country	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y
N	203	203	203	203	77	77	77	77
R^2	0.7425	0.7402	0.7475	0.7490	0.7165	0.7022	0.7206	0.7387

Note: *t* statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.4.2. Heterogeneity Test Based on Import and Export Scale

This paper further analyzes the heterogeneity according to the export and import scale of digital service trade. The specific regression results are shown in Table 9. In the export model (1), the estimated coefficient of LnICT is 0.3102, which is significant at the 10% level. In the imported model (1) its estimated coefficient is 0.5094, and a significant under 1% level, shows that digital technology of digital services trade import and export scale have a significant role in promoting, but are more significant impact on import. In a sense, this result is consistent with the conclusion of the existing empirical research on whether digital technology can become a country's trade development [75], while the research in this paper further confirms the positive effect of digital technology on the import and export of whole digital services, that is, the improvement of digital technology in a country can help to improve the level of trade facilitation and better promote the trade of digital services, and it is also the key to introduce more resources [76]. The regression coefficient of DSTRI in export model (2) is −0.0070, which is significant at 5% level, but it is not significant in import model (2), which indicates that the more restrictive a country's policy on digital service trade is, the less its digital service trade exports will be, that is, the implementation of restrictive measures on digital service trade will have a trade inhibition effect, and the export is greater than the import [77]. The estimated coefficients of LnICT × DSTRI variable in export model (4) and import model (4) are 0.0296 and 0.0274, respectively, and both are significant at the 5% level, indicating that based on model (1), model (3) and model (4), the moderating effect of policy restrictions is significant for both export and import, but the impact on export is greater. In this sense, the measurement results of this paper are not only basically consistent with the conclusions of the existing research literature [78], but also supplement the important positive impact of the regulatory role of policy restrictions on the export trade of digital services to a certain extent.

Table 9. Heterogeneity Test: Export and Import.

	Export				Import			
	Model (1)	**Model (2)**	**Model (3)**	**Model (4)**	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**
LnICT	0.3102 * (1.77)		0.3347 * (1.93)	0.1218 (0.64)	0.509 *** (3.11)		0.527 *** (3.23)	0.3301 * (1.83)
DSTRI		−0.0070 ** (−2.30)	−0.0073 ** (−2.42)	−0.133 *** (−2.63)		−0.0047 (−1.63)	−0.0053 * (−1.85)	−0.1217 ** (−2.56)
LnICT × DSTRI				0.0296 ** (2.49)				0.0274 ** (2.45)
LnGDP	0.4363 *** (4.70)	0.4315 *** (4.67)	0.4128 *** (4.47)	0.4221 *** (4.62)	0.3933 *** (4.52)	0.4059 *** (4.60)	0.3765 *** (4.33)	0.3851 *** (4.47)
LnGoods	0.3737 *** (3.00)	0.3622 *** (2.93)	0.3800 *** (3.08)	0.3943 *** (3.23)	0.3809 *** (3.27)	0.3574 *** (3.03)	0.3855 *** (3.32)	0.3987 *** (3.47)
FDI	−0.0007 (−1.51)	−0.000(−1.28)	−0.0007 (−1.53)	−0.0007 * (−1.67)	−0.0006 (−1.54)	−0.0005 (−1.12)	−0.0006 (−1.55)	−0.0007 * (−1.69)
LnSIS	−0.0049 (−0.33)	0.0043 (0.30)	−0.0041 (−0.27)	−0.0059 (−0.40)	−0.0162 (−1.14)	−0.0023 (−0.17)	−0.0155 (−1.10)	−0.0172 (−1.23)
LnUP	−0.4487 (−1.33)	−0.1388 (−0.45)	−0.388 (−1.16)	−0.4976 (−1.49)	−0.0948 (−0.30)	0.3418 (1.15)	−0.0519 (−0.16)	−0.1525 (−0.48)
Cons-	−6.0179 (−0.97)	−9.756 (−1.63)	−6.6763 (−1.08)	−4.4714 (−0.73)	−11.8497 ** (−2.03)	−17.1720 *** (−3.00)	−12.3220 ** (−2.12)	−10.2826 * (−1.77)
Country	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y
N	280	280	280	280	280	280	280	280
R^2	0.6595	0.6626	0.6681	0.6769	0.6521	0.6415	0.6572	0.6661

Note: *t* statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5. Conclusions and Recommendations

This paper puts forward three research hypotheses, and uses the double fixed effect model to empirically test the relevant data of 40 sample countries or regions after weighing and screening from 2014 to 2020, and draws a research conclusion on the impact of digital technology and policy restrictions on the development of digital service trade. First, digital technology has a significant positive impact on digital service trade. Second, policy restrictions have a significant inhibitory effect on the development of digital service trade. Third, policy restrictions have a significant positive regulatory effect on the impact relationship between digital technology and digital service trade. Fourth, in the analysis of heterogeneity, from the perspective of different economic types, the role of digital technology in promoting digital service trade in emerging economies is more obvious than that in developed economies. The impact of policy restrictions on these two groups of economies is negative, but neither is significant, which is caused by the policy differences between countries; The regulatory effect of the policy has a significant strengthening effect on the development of digital service trade in emerging economies, but it has no significant effect on developed economies, because developed economies have looser restrictive policies on digital service trade than emerging economies. From the perspective of import and export scale, digital technology imports digital services more significantly than exports; Policy restrictions have a significant impact on exports, but not on imports; The regulatory effect of policy restrictions has a greater positive impact on exports than on imports.

The above research conclusions have important policy implications. First, strengthen the construction of digital technology and ensure the connectivity of digital infrastructure. The cross-border nature, technicality, complexity and other characteristics of digital service trade make it significantly different from traditional trade activities. In addition, the global

policy restrictions on digital service trade have become stricter as a whole, and the cost of compliance has increased significantly, which to a large extent has catalyzed the innovation and rapid development of digital technology. China should vigorously promote the R&D and application of digital technology, encourage the digital transformation of traditional industries, and improve the global competitiveness of digital industries. Second, efforts should be made to reduce barriers to trade in digital services. At present, the main problem faced by policy authorities is how to achieve prudent and inclusive supervision of digital service trade while balancing the stability and efficiency of digital service trade, protecting the legitimate rights and interests of consumers, and maintaining a fair market competition environment. The trade restriction policy of digital services mainly includes three forms: the United States advocates free and open trade flow based on the competitive advantage of digital economy and trade; The EU has established a "Digital Single Market" Prudential Regulation System in the form of trade agreements and unified legislation; Due to the weak international competitiveness of digital service trade, emerging markets have formulated strong regulatory rules. The difference of digital service trade restriction policy is an implicit trade barrier, which will increase the international trade cost of enterprises; Its convergence helps to reduce the variable costs of enterprises and promote international trade and cooperation in digital service trade. Therefore, in order to reduce the compliance costs caused by trade policy differences in different countries, we should not be limited to each country acting in its own way. China should reduce its differences with its trading partners on the terms of digital service trade, eliminate specific service barriers in some fields, and provide a good and sufficient business environment institutional guarantee for the development of digital service trade. Third, actively participate in the construction of the governance system of digital service trade. With the increasing number of trade agreements signed between countries in the world, there are many and different digital trade terms, which brings serious challenges to the unification of the digital trade policy framework. In this context, China should take the initiative to join the WTO and the multilateral cooperation mechanism of bilateral, plurilateral and regional trade, negotiate on the governance system of digital service trade, strengthen international cooperation and promote policy supervision and coordination.

Last but not least, while we have improved our understanding of the impact of digital technologies and policy constraints on the sustainability of trade in digital services, the following shortcomings remain: first, this paper calculates the digital service trade of the world's major economies. The data of developed economies are relatively comprehensive and rich, while the data of developing economies are relatively lacking, which may lead to a slight bias in the analysis of the impact on digital service trade. Second, the development of trade in digital services may still be influenced by other major environmental factors. This paper failed to incorporate this into the research framework, which needs to be expanded and improved for analysis in future studies. Third, this study is not deep enough to evaluate the development of "Volume" of digital service trade only on the amount of digital service trade. In this regard, future research can improve our shortcomings in the following aspects: first, future research can try to add more sample data of developing economies to improve the accuracy of research results; Second, future research can select other methods and variables to examine the impact of digital technology and policy restrictions on digital services trade. Finally, future research can further analyze the development of the "Quality" of digital service trade, such as the technical complexity of export, international competitiveness and other aspects, which will help expand the research on the sustainable development of digital service trade.

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References

1. Tamir, A. The new distributed digital technology world trade and MNEs: Another step in the inventive process. *Eur. J. Int. Manag.* **2021**, *15*, 135–145.
2. Susan, L.; Laura, T. Globalization Is Not in Retreat: Digital Technology and the Future of Trade. *Foreig. Affair.* **2018**, *97*, 130–140.
3. Luong, T.; Nguyen, D.K. Special Issue: International Trade and Business in the Age of Digital Transformations. *Singap. Econ. Rev.* **2021**, *66*, 969–972. [CrossRef]
4. Ferracane, M.F.; Marel, E. Patterns of trade restrictiveness in online platforms: A first look. *World Econ.* **2020**, *43*, 32–59. [CrossRef]
5. Chen, C.L.; Lin, Y.C.; Chen, W.H.; Chao, C.F.; Pandia, H. Role of Government to Enhance Digital Transformation in Small Service Business. *Sustainability* **2021**, *13*, 1028. [CrossRef]
6. Yao, J.; Yuan, X. Research on the role of ICT in promoting the competitiveness of service trade. *J. Nanjing Ins. Eng. Social Sci. Ed.* **2021**, *21*, 69–76.
7. Langley, D.J. Digital Product-Service Systems: The Role of Data in the Transition to Servitization Business Models. *Sustainability* **2022**, *14*, 1303. [CrossRef]
8. Ardolino, M.; Rapaccini, M.; Saccani, N.; Gaiardelli, P.; Crespi, G.; Ruggeri, C. The role of digital technologies for the service transformation of industrial companies. *Int. J. Pro. Res.* **2018**, *56*, 2116–2132. [CrossRef]
9. Yue, Y.S.; Zhao, J.H. Research on the characteristics and influencing factors of digital service export—Analysis Based on Transnational panel data. *Shanghai Econ. Res.* **2020**, *8*, 106–118.
10. Jiang, M.; Jia, P. Does the level of digitalized service drive the global export of digital service trade? *Evid. Glob. Perspect. Tel. Inf.* **2022**, *72*, 51–53.
11. Obashi, A.; Kimura, F. New Developments in International Production Networks: Impact of Digital Technologies. *Asian Econ. J.* **2021**, *35*, 115–141. [CrossRef]
12. Chad, P.B.; Petros, C.M. Governing Digital Trade. *World Trade Rev.* **2019**, *18*, 23–48.
13. Nada, B.V.; Ana, P.; Adrijana, M. "Old Economy" Restrictions in the Digital Market for Services. *J. Int. Eur. Law Econ. Mark. Integr.* **2018**, *5*, 169–188.
14. Karl, P.S. Transborder data flows and the developing countries. *Int. Organ.* **1983**, *37*, 359–371.
15. Ferracane, M.F.; Marel, E. *Regulating Personal Data: Data Models and Digital Services Trade*; The World Bank Press: Washington, DC, USA, 2021.
16. Zhao, J. The policy trend of digital trade barriers and digital transformation—Based on the analysis of Europe and OECD digital trade restriction index. *Int. Trade* **2021**, *2*, 72–81.
17. Meng, X.; Sun, L.; Wang, H. The impact of digital service trade barriers and regulatory policy heterogeneity on digital delivery service trade. *Asia Pac. Econ.* **2020**, *6*, 42–52; 147.
18. Erik, M.; Martina, F.F. Do data policy restrictions inhibit trade in services? *Rev. World Econ.* **2021**, *157*, 727–776.
19. Ramos, F.R. Exports, imports, and economic growth in Portugal: Evidence from causality and cointegration analysis. *Econ. Mod.* **2001**, *18*, 613–623. [CrossRef]
20. Konstantakopoulou, I. New evidence on the export-led-growth hypothesis in the Southern Euro-zone countries (1960–2014). *Econ. Bullet.* **2016**, *36*, 429–439.
21. Xia, C.J. The origin, international experience and development strategy of Digital Trade. *J. Beijing Ind. Com. Univer. Soc. Sci. Ed.* **2018**, *33*, 1–10.
22. Zhou, N.L.; Yao, T.T.; Huang, N. Empirical study on the binary marginal impact of data cross-border flow barriers on digital service trade. *Int. Econ. Trade Explor.* **2022**, *38*, 4–21.
23. Sarafanov, I.; Bai, S.Q. Research on Trade Cooperation Mechanism of Digital Products from the perspective of WTO. *Int. Trade Iss.* **2018**, *2*, 149–163.
24. Martina, F.F.; Hosuk, L.M. Diverging incentives for reforming China's restrictions on digital innovations. *J. Chin. Econ. Foreign Trade Stud.* **2017**, *10*, 259–280.
25. Sun, J. From digital economy to digital trade: Connotation, characteristics, rules and influence. *Int. Econ. Trade Explor.* **2020**, *36*, 87–98.
26. Qi, J.Y.; Qiang, H.J. Cross border data flow restriction, digital service input and technological complexity of manufacturing export. *Ind. Econ. Res.* **2022**, *1*, 114–128.

27. Zhou, N.L.; Yao, T.T. Empirical study on the trade inhibition effect of restrictive measures in digital service trade. *China Soft Sci.* **2021**, *2*, 11–21.
28. Qi, J.Y.; Qiang, H.J. Does the restrictive measures of digital service trade affect the export of services? Empirical analysis based on digital service industry. *World Econ. Res.* **2021**, *9*, 37–52, 134–135.
29. Zu, W.J.; Gu, G.D.; Lei, S.H. Does Digital Transformation in Manufacturing Affect Trade Imbalances? Evidence from US-China Trade. *Sustainability* **2022**, *14*, 8381. [CrossRef]
30. Mitchell, A.D.; Mishra, N. Regulating Cross-Border Data Flows in a Data-Driven World: How WTO Law Can Contribute. *J. Int. Econ. Law* **2019**, *22*, 89–416. [CrossRef]
31. Wang, T. Comparative study on digital service trade and related policies. *Int. Trade* **2019**, *9*, 80–89.
32. Zhu, W.; Li, X.F.; Sun, B. *Digital Trade and Economic Growth from the Perspective of Digital Services*; International Conference on Social Science: Paris, France, 2021; Volume 80, p. 33.
33. Kim, J.G.; Na, S.K.; Jang, J.M.; Lee, S.H.; Lee, M. Issues of International Digital Trade and Their Policy Implications. *Korea Inst. Int. Econ. Policy* **2015**, *13*, 13–16. [CrossRef]
34. Wu, Y. The Construction and International Comparison of National Digital Competitiveness Index. *Stat. Res.* **2019**, *11*, 14–25.
35. United Nations Conference on Trade and Development (UNCTAD). International Trade in ICT Services and ICT-enabled Services. *UNCTAD Technol. Not. ICT Dev.* **2015**, *3*, 23.
36. Xu, X.; Zhang, M. Research on the Scale Measurement of China's Digital Economy: Based on the Perspective of International Comparison. *China Ind. Econ.* **2020**, *5*, 23–41.
37. Schweiger, C. Europe's Crisis of Legitimacy: Governing by Rules and Ruling by Numbers in the Eurozone. *J. Com. Mar. St.* **2022**, *60*, 1212–1213. [CrossRef]
38. Li, X.Y.; Zhou, Z.R. Research on the impact of trade and investment facilitation level on trade efficiency. *Pri. Theo. Pra.* **2020**, *8*, 140–143+179.
39. Xu, J.; Xia, J. The Development of Digital Trade from the Perspective of Global Value Chain: Strategic Positioning and China's Path. *Ref* **2020**, *5*, 58–67.
40. Amiti, M.; Konings, J. Trade liberalization, intermediate inputs and productivity. *Am. Econ. Rev.* **2017**, *97*, 1611–1638. [CrossRef]
41. Andrenelli, A.; Cadestin, C.; Backer, K.; Miroudot, S.; Rigo, D.; Ye, M. Multinational production and trade in services. *OECD Trade Pol. Pap.* **2018**, *2*, 12.
42. Ariu, A.; Breinlich, H.; Corcos, G.; Mion, G. The interconnections between services and goods trade at the firm-level. *J. Int. Econ.* **2019**, *116*, 173–188. [CrossRef]
43. Bauer, M.; Lee, H.; Marel, E.; Verschelde, B. A methodology to estimate the costs of data regulation. *Int. Econ.* **2016**, *146*, 12–39.
44. Beverelli, C.; Fiorini, M.; Hoekman, B. Services trade policy and manufacturing productivity: The role of institutions. *J. Int. Econ.* **2017**, *104*, 166–182. [CrossRef]
45. Romalis, J. Factor proportions and the structure of commodity trade. *Am. Econ. Rev.* **2004**, *91*, 67–97. [CrossRef]
46. Bourlès, R.; Cette, G.; Lopez, J.; Mairesse, J.; Nicoletti, N. Do product market regulations in upstream sectors curb productivity growth? Panel data evidence for OECD countries. *Rev. Econ. Stat.* **2013**, *95*, 1750–1768. [CrossRef]
47. Hu, G.L.; Guo, F.S. Empirical Study on the trade effect of the main controversial points of digital trade rules based on PSM-DID model. *J. Tianjin Uni. Com.* **2022**, *42*, 21–29.
48. Zhu, Z.Y.; Jiang, F. Has China's digital service trade export promoted the upgrading of global industrial structure from the perspective of resource mismatch. *Int. Bus.* **2022**, *4*, 88–104.
49. Goldberg, P.; Khandelwal, A.; Pavcnik, N.; Topalova, P. Trade liberalization and new imported inputs. *Am. Econ. Rev.* **2009**, *99*, 494–550. [CrossRef]
50. Freund, C.; Weinhold, D. The Internet and international trade in services. *Am. Econ. Rev.* **2002**, *92*, 236–240. [CrossRef]
51. Dela, C.A.; Villanueva, A.C. Factors Affecting Internet Transactions: Case of Services Industry. *J. Bus. Econ. Anal.* **2020**, *3*, 2.
52. Soo, H.O. Trade Cost in Services in the Era of Digitalization. *World Econ. Bri.* **2020**, *10*, 7.
53. Sako, M. Free trade in a digital world. *Com. ACM* **2019**, *62*, 18. [CrossRef]
54. Shen, J. Definition and evaluation of digital trade barriers: Standards, results and driving factors. *Acad. Res.* **2022**, *4*, 96–104.
55. Sun, N.X. Cptpp digital trade rules: Institutional game, normative differences and China's response. *Acad. For.* **2022**, *8*, 1–10.
56. Martina, F.F. Data flows and national security: A conceptual framework to assess restrictions on data flows under GATS security exception. *Dig. Pol. Reg. Gov.* **2019**, *21*, 44–70.
57. Tetiana, Z. Determining the impact of digitalization on the economic security of trade. *East.-Eur. J. Ent. Technol.* **2021**, *6*, 60–71.
58. Stoianenko, I.; Lubenets, A. The effect of digitalization on the activity and economic security of trade enterprises. *Young Sci.* **2019**, *1*, 516–519. [CrossRef]
59. Antoine, G. Estimating the impact of country-level policy restrictions on services trade. *Rev. Int. Econ.* **2018**, *26*, 743–767.
60. He, X.B.; Christopher, F. Policy restrictions and services performance: Evidence from 32 countries. *J. Int. Com. Econ. Pol.* **2014**, *5*, 1440003. [CrossRef]
61. Zhou, N.L.; Bao, Y.N. The impact of digital service trade barriers on the service level of manufacturing output. *Asia-Pac. Econ.* **2022**, *3*, 5–45.
62. Martina, F.F.; Janez, K.; Erik, M. Do data policy restrictions impact the productivity performance of firms and industries? *Rev. Int. Econ.* **2020**, *28*, 676–722.

63. Jin, Z.H.; Xie, W.Y. Research on the mechanism and Countermeasures of promoting the high-quality development of China's service trade by relying on the digital economy. *Pri. Mon.* **2022**, *8*, 1–15.
64. Li, H.Y. Research on cross-border trade and adjustment rules of data services. *Boo. Inf.* **2019**, *2*, 11–15.
65. Li, X.H. Overcoming the "cost disease" of digital technology and service industry. *Res. Fina. Iss.* **2022**, *8*, 1–13.
66. Cong, H.; Zhang, C.Y. Digital technology and high quality innovation of enterprises. *J. Zhongnan Uni. Econ. Law* **2022**, *4*, 29–40.
67. Dai, X.; Zhang, Y.; Liu, X.H. New logic of digital technology reconstructing global value chain and China's countermeasures. *J. S. China Nor. Uni.* **2022**, *1*, 116–129+207.
68. Zhao, X.F.; He, Z. Digital service trade barriers and value chain length. *J. Zhongnan Uni. Econ. Law* **2022**, *3*, 139–150.
69. Chen, H.Q. Integration trend in the context of international digital trade rules game based on the perspective of China, the United States and the European Union. *Int. Bus. Res.* **2022**, *43*, 85–95.
70. Shen, Y.L. Turning point of Digital Trade Development: The dispute between technology and rules-analysis report of global digital trade promotion index (2021). *World Econ. Res.* **2022**, *5*, 3–13+135.
71. Zhang, Y.B.; Ma, L.L. China's digital service trade: Value composition, division of labor evolution and determinants. *Fujian Foru.* **2022**, *1*, 33–46.
72. Liu, J. Research on the development trend of digital trade in developed economies and China's development path. *Int. Trade* **2022**, *3*, 28–36.
73. Tao, A.P.; Zhang, Z. The impact of digital economy on the development of service trade. *East China Econ. Manag.* **2022**, *36*, 1–14.
74. Wen, H.W.; Shu, S.Z.; Zheng, S.F. Analysis of global digital service trade pattern and China's trade status. *Ind. Econ. Rev.* **2021**, *1*, 50–64.
75. Chen, C.F.; Liu, H. Global digital trade development trend, constraints and China's countermeasures. *J. Theor.* **2018**, *5*, 48–55.
76. Chen, Y.; Gao, Y.N. Strategic choice of digital trade opening based on comparative analysis of the United States, Europe, China and India. *Int. Trade* **2022**, *5*, 49–55.
77. Liang, H.G.; Jiao, S.Y. Research on digital economic cooperation and regional economic governance under RCEP framework. *Int. Econ. Cooper.* **2022**, *4*, 4–13, 92.
78. Peng, Y.; Yang, B.Z.; Shen, Y.L. How RTA digital trade rules affect digital service exports from the perspective of agreement terms heterogeneity. *Int. Trade Iss.* **2021**, *4*, 110–126.