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FACULTY OF MANAGEMENT AND MARKETING
DEPARTMENT OF INTERNATIONAL ECONOMICS

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_____ Serhii VOITKO
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MASTER THESIS
for a master's degree according
to the educational program
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specialty 051 "Economics"

on the theme: **"Evaluation of Trade Effectiveness between China
and EU Countries"**

Completed: student of the 2nd year,
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I certify that in this master's
dissertation there are no
borrowings from the works
of other authors without
proper references

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Kyiv - 2023

НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ УКРАЇНИ
«КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ ІМЕНІ ІГОРЯ СІКОРСЬКОГО»
ФАКУЛЬТЕТ МЕНЕДЖМЕНТУ ТА МАРКЕТИНГУ
КАФЕДРА МІЖНАРОДНОЇ ЕКОНОМІКИ

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_____ Сергій ВОЙТКО
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МАГІСТЕРСЬКА ДИСЕРТАЦІЯ
на здобуття ступеня магістра
за освітньо-професійною програмою
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на тему: **"Оцінка ефективності торгівлі між Китаєм з країнами ЄС"**

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November “___” 2023

OBJECTIVE

for a master's thesis of a student

Chang Yiyun

The theme is “Evaluation of Trade Effectiveness between China and EU Countries”, scientific supervisor – associate professor of Department of International Economics, PhD , Natalia Skorobogatova, approved by the order of the University from November 09, 2023, № 5212-c.

1. The deadline for students to submit a dissertation is December 18, 2023.
2. The Objective of research is development of international trade between the European Union and China.
3. Initial data: scientific and educational literature, publications of domestic and foreign scientists, scientific articles, statistical data, economic and business media related to the activities of a set of companies, scientific research.

4. List of tasks to be developed:

- to highlight the essence and mechanism of organizing international trade;
- to systematize factors influencing the efficiency of international trade;
- to analyze methods for assessing the effectiveness of trade cooperation between countries;
- to investigate trends in the development of trade cooperation between China and EU countries;
- to analyze trade indicators between China and EU countries;
- to identify the problems of enhancing China's international cooperation and analyze the advantages and disadvantages of trade between China and Europe;
- to improve the methodology for assessing the effectiveness of international trade;
- to develop policies and prospects for improving trade cooperation between China and Europe.

5. Approximate list of graphic (illustrative) material: not less than 12 tables and not less than 4 figures.

6. Approximate list of publications: 40 publications

7. Dissertation section consultants _____

Section	Surname, initials and position consultant	Signature, date	
		task issued	task accepted

8. Date of issuance of the task: November 01 2023

Calendar plan

№	Name of stages	Term of implementation	Note
1	Selection of topics for master's theses (with supervisors) and their approval at the meeting of the department	October 20, 2023	Done
2	Issuance of the task	November 01 2023	Done
3	Development of the content (plan) of the master's dissertation	November 10, 2023	Done
4	Selection of literature on the research topic and its analysis	November 10, 2023	Done
5	Preparation of the theoretical chapter and coordination of its content with the supervisor	November 20, 2023	Done
6	General research on the chosen topic of scientific research	November 27, 2023	Done
7	Carrying out a comprehensive analysis of the practical component of scientific research	December 01, 2023	Done
8	Final completion of the second chapter of the master's thesis;	December 04, 2023	Done
9	Preparing the materials of the third chapter	December 09, 2023	Done
10	Generalization of the received scientific results, use the materials of world published data and experience for further analysis and preparation of the general conclusions;	December 11, 2023	Done
11	Registration of the master's dissertation and its submission for check to the scientific supervisor	December 12, 2023	Done
12	Elimination of the shortcomings revealed by the head and the reviewer, preparation of a report and visual materials for defense	December 14, 2023	Done
13	Checking the master's thesis for text overlaps and plagiarism	December 16, 2023	Done
14	Submission of a master's thesis for review by a reviewer	December 18, 2023	Done
15	Defense of the master's dissertation before the State Examination Commission according to the approved schedule.	December 23, 2023	

Student Chang Yiyun*Chang Yiyun*Supervisor Natalia Skorobogatova

ABSTRACT

Pages <u>90</u>	Figures <u>15</u>	Tables <u>4</u>	Annexes <u>5</u>
Research by example:	Analyzing the proportion of goods imported by the European Union from China		
The aim of the study:	Improve the scientific and methodological foundations and develop practical recommendations for assessing the effectiveness of international trade between the European Union and China.		
Objectives of the study	– to highlight the essence and mechanism of organizing international trade; – to systematize factors influencing the efficiency of international trade; – to analyze methods for assessing the effectiveness of trade cooperation between countries; – to investigate trends in the development of trade cooperation between China and EU countries; – to analyze trade indicators between China and EU countries; – to identify the problems of enhancing China's international cooperation and analyze the advantages and disadvantages of trade between China and Europe; – to improve the methodology for assessing the effectiveness of international trade; – to develop policies and prospects for improving trade cooperation between China and Europe.		
Subject of study:	Theoretical, methodological and applied aspects of assessing the effectiveness of international trade between China and the EU.		
Object of study:	Development of international trade between the European Union and China.		
Scientific novelty	The scientific novelty of this study explores from multiple perspectives whether trade between China and EU countries has practical effects and sustainability, as well as its impact on the economic development and cooperation between the two sides. This is a long-term process, and the research in this article can provide scientific basis for economic cooperation and trade policy formulation between China and EU countries, making important contributions to promoting economic and trade cooperation and free trade between the two sides.		

Keywords: Industrial chain cooperation, trade efficiency, trade barriers, trade policies, trade disputes, economic growth, assessing the effectiveness

ABSTRACT

Master's thesis of Chang Yiyun on the topic "Evaluation of Trade Effectiveness between China and EU Countries" from the specialty 051 "Economics", educational and professional program "International Economics", National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", 2023, Kyiv.

The master's thesis consists of an introduction, 3 chapters, conclusions, a list of used sources. The work is completed in the volume of 90 pages, contains 15 figures, 4 tables.

The aim of the master's thesis is to improve the scientific and methodological foundations and develop practical recommendations for assessing the effectiveness of international trade between the European Union and China.

Research methods. During the scientific research the following methods were used: generalization, systematization, dialectical and abstract-logical; when conducting an analytical study and analysis of export activity, the method of grouping, analysis and synthesis, graphical and economic-statistical was applied.

The object of research is a development of international trade between the European Union and China.

The subject of the study is the theoretical, methodological and applied aspects of assessing the effectiveness of international trade between China and the EU.

The scientific novelty of this study explores from multiple perspectives whether trade between China and EU countries has practical effects and sustainability, as well as its impact on the economic development and cooperation between the two sides. This is a long-term process, and the research in this article can provide scientific basis for economic cooperation and trade policy formulation between China and EU countries, making important contributions to promoting economic and trade cooperation and free trade between the two sides.

Keywords: Industrial chain cooperation, trade efficiency, trade barriers, trade policies, trade disputes, economic growth, assessing the effectiveness

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INTRODUCTION

Formulation of the problem. In recent years, there has been a clear increase in the mutual interest of the EU and China. It is supported by the rapid activation of economic contacts. After all, despite the cultural, and sometimes ideological and political barriers with China and the traditional orientation of economic relations towards the USA, Switzerland, Turkey and some other countries, the EU may have no choice if other strategic partners give way China in the external relations of the European Union. Today, Chinese public diplomacy also has tools such as investment, lending and financial leverage. The asymmetry between Beijing and Brussels persists, even though China has advanced into the locomotives of the global economy. This explains the growth of reciprocity on the part of Europeans. China is very discerning in its relations with the European Union: it focuses on its immediate interests and often ignores EU norms in its proposals. The European Commission has put forward new tools for trade protection and is developing the initiative of three key EU members to control foreign investments. This is not a turn towards protectionism: Europe aims for cooperation, but it needs to act more energetically towards China, which is not very responsive to its requests so far.

Analysis of recent research and publications. Many economists have dealt with issues of international trade. Among such works, the works of Huafei Q. [1], Borrell J. [2], Venger V. [3], Zakharin S.V. [4], Campbell R. [5] McConnell Dakhno I. [6], Kostenko N should be singled out, Panchyshyn S.M. [7], Mankiv Gregory N. [8], Kostenko N.[9]and many other scientists. However, the direct development of international trade relations between the European Union and China under modern conditions has not been studied enough.

The issues of trade relations between the EU and China are developing quite quickly and dynamically. Therefore, it is necessary to determine the main directions of development of these international relations.

The purpose of the study is to improve the scientific and methodological foundations and develop practical recommendations for assessing the effectiveness of international trade

between the European Union and China.

Based on the goal, the following **tasks** can be formulated:

- to highlight the essence and mechanism of organizing international trade;
- to systematize factors influencing the efficiency of international trade;
- to analyze methods for assessing the effectiveness of trade cooperation between countries;
- to investigate trends in the development of trade cooperation between China and EU countries;
- to analyze trade indicators between China and EU countries;
- to identify the problems of enhancing China's international cooperation and analyze the advantages and disadvantages of trade between China and Europe;
- to improve the methodology for assessing the effectiveness of international trade;
- to develop policies and prospects for improving trade cooperation between China and Europe.

Object of work: development of international trade between the European Union and China.

Subject of work: theoretical, methodological and applied aspects of assessing the effectiveness of international trade between China and the EU.

Research methods. In the study of theoretical aspects and the essence of the concept of international trade, the following methods were used: generalization, systematization, dialectical and abstract-logical; when conducting an analytical study and analysis of export activity, the method of grouping, analysis and synthesis, graphical and economic-statistical was applied.

Scientific novelty. The scientific novelty of this article explores from multiple perspectives whether trade between China and EU countries has practical effects and sustainability, as well as its impact on the economic development and cooperation between the two sides. This is a long-term process, and the research in this article can provide scientific basis for economic cooperation and trade policy formulation between China and EU countries, making important contributions to promoting economic and trade cooperation

and free trade between the two sides.

Practical significance of the obtained results.Evaluating the effectiveness of trade between China and EU countries can identify potential opportunities in bilateral trade and expand the scale of bilateral trade. Providing important guidance and decision-making basis for bilateral economic cooperation, bringing more export opportunities and market growth, thereby promoting economic growth, strengthening mutual trust and cooperation, and improving the transparency and stability of trade rules.

CHAPTER 1.

THEORETICAL ANALYSIS OF THE EFFECTIVE ORGANIZATION OF INTERNATIONAL TRADE

1.1. The essence and mechanisms of organizing international trade

The world market as a sphere of established economic relations based on the international division of labor is the mechanism for the implementation of global economic relations. Economic ties on the world market are manifested through the forms of international economic relations — international trade, international labor migration, international movement of capital, as well as currency and credit relations (Fig. 1.1).

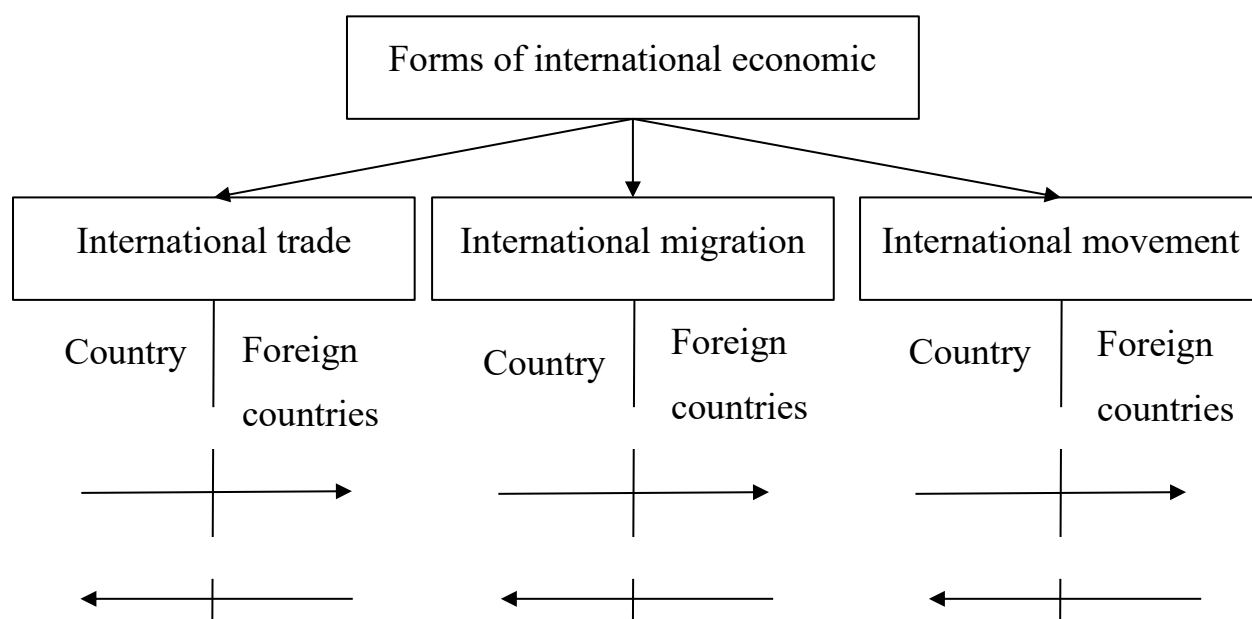


Figure 1.1 – Forms of international economic relations and their components

Source: [10]

Forms of international economic relations are closely related, influence each other, creating additional incentives for mutual development. Thus, trade creates conditions for international investment, and capital migration, in turn, stimulates trade ties and labor migration. However, the main and central link of global economic relations has always been

and is international trade. According to Jeffrey Sachs, international trade currently accounts for 80% of all international economic relations.

International trade as an exchange of goods and services is not only an external sign of the existence of the world market, but also the material basis of international economic relations, which ensures the growing integration of the world economy. It is a form of communication between producers and consumers of different countries, which arises on the basis of the development of the international division of labor. Trade development indicators between countries demonstrate their mutual economic dependence. Thus, in 1998, 23.7% of the world's gross global product was channeled into international trade channels. At the same time, the growth rates of world exports turned out to be higher than the growth of the gross domestic product indicators on average for the countries of the world.[10]

In the conditions of pre-capitalist formations, which were based on natural economy, there were only some elements of the international division of labor, which were mainly related to the peculiarities of natural conditions in individual countries. According to international trade, a small part of the products produced in the country was involved, and the exchange itself was carried out mainly between neighboring lands and was not always established. The emergence of developed forms of international division of labor is characteristic of the era of industrial capitalism. The large-scale machine industry stimulated the deepening of the differentiation of production, which, in the end, caused it to go beyond national borders and stimulated a significant expansion of international trade. At first, only the most developed countries participated in international trade, and only with the development of commodity production, an increasing number of countries began to be involved in it, which led to the emergence of the world market. Experts attribute the origin of the world market to the 16th century, when capitalism was at the manufacturing stage of development. And already at the beginning of the XIX century. the world market was characterized by fairly developed forms of trade-economic and financial-credit relations between countries.

Therefore, international trade is historically the first form of international economic relations, which is the exchange of goods and services between state-organized national economies, that is, between states.

For the national economy, participation in international trade takes the form of foreign trade.

Foreign trade (FT) is the trade of one country with others, which consists of paid exports (exports) and imports (imports) of goods and services [11]. In total, foreign trade of different countries forms international trade, which is also a complex socio-economic category. It can be considered from two positions - operational and state-political.

From an operational point of view, international trade is a process of direct exchange of goods and services between business entities of different states, states and international organizations. That is, we are talking about the movement of goods (including services, licenses, know-how, engineering, etc.), tools and mechanisms for expanding the turnover of goods, improving the structure of exports and imports, forecasting and evaluating global commodity markets, planning export opportunities and import needs, organization contract work, control over deliveries and shipments, currency and financial operations, etc. At the same time, the subject of international trade as a field of knowledge is the organization of an export-import operation, and the object, accordingly, is any export or import operation.

From a state-political point of view, international trade can be considered as a special type of social relations that arise in the global economic system in the process of and on the occasion of the exchange of goods and services between states that have their own foreign and foreign trade policies. Such relations are regulated by special international regulations: treaties, agreements, acts and other norms of international law. However, since social relations cannot but depend on the foreign and domestic policies of countries, exchange relations on the world market are largely regulated by acts and actions of a political nature.

According to the state-political approach to the interpretation of the essence of international trade, its subject is the organization of trade exchange based on national interests and global trends in the development of the world economy as a whole, and the object is trade exchange as a set of export and import operations.

If we consider international trade as a set of acts of purchase and sale of goods, then all subjects of international economic relations (IE) of different countries (individuals and legal entities, states, international organizations) can participate in this process. The goal of exchange in any case will be the satisfaction of economic interests (in the case of export — earning profit, gaining market share, etc., and in the case of import — the satisfaction of needs for necessary resources and goods), and the instruments for achieving the goal — the terms and conditions of contracts and agreements.[14]

According to the state-political approach, states may not directly participate in trade, but, defending the interests of national subjects of foreign trade activity and state interests in general, influence the content of international agreements and agreements, participate in the development of norms of international trade law, formulate their own , foreign trade policies adaptive to the situation. In this process, international trade organizations also take an active part, the goal of which is the harmonization of world trade on a non-discriminatory basis.

Thus, international trade as an exchange of goods and services between producers and consumers of different countries objectively has no restrictions, but the real volumes, structure, regional directions and dynamics of exports and imports depend on the country's political orientation, membership in military blocs or integration groups , foreign trade policy of own and host country, relations with relevant international organizations.

To a certain extent, the operational approach is a manifestation of the policy of free trade (free trading), and the state-political approach is a manifestation of protectionism. In general, the history of the development of international trade is a balancing of states between these two directions. The unequivocal, uncompromising choice of a policy of free trade or protectionism in foreign trade was characteristic of past centuries. Nowadays, these two directions are interconnected and closely intertwined, although the leading role of the principle of free trade can be clearly traced.

The basis of foreign trade policies of states has always been the concept of international trade as an attempt to theoretically understand and explain the causes of international commodity exchange, its dynamics, structure, efficiency and development

prospects. Today, five groups of concepts for the development of international trade can be distinguished:

- mercantilism (early and late);
- advantages (absolute and relative);
- production factors;
- neotechnological;
- competitiveness.

The concept of mercantilism (from the Italian mercante - trade) was the first attempt to theoretically substantiate the causes, directions, effectiveness of international trade and develop recommendations for foreign trade policy. Early mercantilism, whose ideologues were U. Stafford (England) [11], G. Scaruffi (Italy) [12], arose at the end of the 15th century. and was based on the doctrine of "money balance" — the accumulation of money as a result of the export of goods while prohibiting (or subjectively limiting) the export of money. Supporters of this concept held views according to which the state should sell as much as possible of any goods on the foreign market, and buy as little as possible. At the same time, the country should accumulate gold, which in those times was identified with the wealth of the nation.

The theory of late mercantilism (T. Main (England) [13], A. Serra (Italy) [14], A. Maucretien (France)) [15] developed from the second half of the 16th century to the middle of the 18th century. The main content of this direction is the doctrine of "active trade balance", which could be ensured by intensifying foreign trade when export revenues exceed import costs, as well as as a result of the development of intermediary trade (resale of foreign goods, provision of transport services, loans for the purpose of receiving additional income from operations on foreign markets). For this purpose, the state had to limit the import of foreign goods by increasing customs duties, as well as formulate rules for the export of domestic goods, using mainly financial methods of export promotion.

The development of international trade in the era after the Great Geographical Discoveries and the transition of leading countries to large-scale machine production led to the emergence of the theory of absolute advantages. Its author was Adam Smith, who, using

the labor theory of value, criticized mercantilism in the well-known work "An Inquiry into the Nature and Causes of the Wealth of Nations" (1776) [16]. The scientist claimed that not only the sale, but also the purchase of goods on the foreign market can be profitable for the state. In addition, an attempt was made to determine which products are profitable to export and which to import: "If some foreign country can supply us with a product at a cheaper price than we can produce it ourselves, it is much better to buy it (this product) from it for a certain share of the product of our own industrial labor, which is applied in the field where we have certain advantages." According to the principle (or model) of absolute advantage, it is advisable for a country to specialize in the production of such goods, of which it has the lowest production costs compared to other countries. A necessary condition for the application of the theory of absolute advantages is free trade.

However, A. Smith did not consider the situation in which any country has an absolute advantage in all goods. This was done by David Ricardo, who in the work "The Beginnings of Political Economy and Taxation" (1817) [17] formulated the principle of mutually beneficial trade and international specialization, which includes A. Smith's model as a special case.

D. Ricardo created a model of international trade, in which he showed that non-compliance with A. Smith's principle is not an obstacle to a mutually beneficial advantage: a country should specialize in exporting goods in the production of which it has the greatest absolute advantage (that is, absolute advantages over several goods) or the smallest absolute non-preference (i.e. absolute non-preference for any of the goods). Ricardo proves the possibility of a gain for a country with a general, less efficient production due to the import of goods, the national costs of production of which are higher compared to those goods, the export of which compensates for the payment of such imports. As in the theory of absolute advantages, the theory of comparative advantages was based on the labor theory of value, and free trade was a necessary condition for commodity exchange.

He substantiated the theory of production factors in the 1930s. Jean-Baptiste Say [18], including such factors as labor, capital and land, which together determine production costs. Swedish economists Eli Heckscher and Bertil Ohlin in the 20s and 30s of the 20th century

[19] applied this theory to explain the causes of international trade. The main provisions of their concept can be presented as follows: the most important condition for the rational exchange of goods between countries is the difference in the ratio of production factors in them (the presence of larger and more productive land resources, significant or cheaper labor resources, the functioning of a relatively larger in volume and more productive in structure capital). The country objectively focuses on the export of those goods and services for which it has relatively better production factors for specialization, and on the contrary, imports are dominated by goods and services that are relatively scarce in this country. Exports and imports under high international stability can be reduced by moving the very factors of production (labor or capital) from countries with their surplus to countries with their shortage.

Heckscher and Ohlin [20] pioneered the theory of factor endowment, which today in a concentrated form is reduced to four theorems:

- each country has comparative advantages in the production of goods, the production of which requires significant costs relative to the surplus factor (Heckscher-Ohlin theorem);
- free trade, equalizing factor rewards between countries, serves as a substitute for external mobility of production factors (P. Samuelson's theorem);
- an increase in the relative prices of goods leads to the remuneration of the factor that is effectively used in the production of the goods and reduces the real remuneration of another factor (the Stolper-Samuelson theorem);
- an increase in the supply of one of the factors of production, in the case of constancy of other variables, leads to an increase in the output of goods that are produced with the intensive use of this factor, and to a decrease in the output of other goods (Rybchinsky's theorem).

In 1954, the American economist Vasily Leontiev applied the Heckscher-Ohlin theory to the analysis of US foreign trade, namely: the calculation of the total costs of labor and capital for exports and imports.

The rapid post-war development of science-intensive, high-tech industries and, accordingly, the rapid growth of international exchange of their products led to the

emergence of a number of neo-technological theories, the characteristic feature of which is an attempt to explain the realities and prospects of international trade by dynamic comparative advantages that arise or are created, used and disappear over time. The theories and models of the neo-technical direction include: the model of knowledge-intensive specialization, the theory of the technological gap, the theory of the life cycle of the product on the world market, the model of economies of scale of production, the concept of intra-industry trade.

The model of knowledge-intensive specialization justifies the objectivity of the specialization of industrialized countries in the production and export of knowledge-intensive and technologically complex goods, while developing countries should specialize in the production and export of mainly resource-intensive goods.[10]

The theory of the technological gap explains trade between countries by the existence of differences in the levels of their technological development. That is, progressive technologies possessed by the country create unique new goods and services, which provide the country with primacy or significant advantages in the supply of goods on the relevant commodity and regional markets. The theory is substantiated by the presence of an imitation lag, which consists of a demand lag (the time required to form demand for a new product) and a response lag (the time required by the producers of the importing country to establish national production of a similar product). The difference between these two lags explains the prerequisites for international trade (export to another country is possible if the demand lag is shorter than the response lag). Implementation of technological novelties on the world market enables investment in new research and development to ensure the continuity of innovations, which, in turn, forms a stable technological advantage and the corresponding specialization of countries.

The theory of the life cycle of the product in the world market, developed by Raymond Vernon in 1966, is based on the theory of the life cycle of the product, which, in turn, was proposed in the early 60s by specialists of the Harvard Business School, led by Theodore Levitt [21]. The essence of this theory is that the same product is in different countries at different stages of its life cycle at the same time. To simplify the analysis, the number of life

cycle stages is reduced to three: new product, mature product, standard (common) product. And countries, in turn, are divided into innovator countries, follower countries, and other countries that are the last to start consuming and producing goods. The model demonstrates how, over time, the innovator country turns from the main exporter of the product into its importer, and the follower country turns from the importer into the main exporter on the world market. Over time, other countries can also transform into exporters, but already at the stage when the product is widespread and standard. The innovator country refuses to produce this product under the conditions of the already discussed theories of factor share and technological gap.

According to the model of economies of scale of production, in countries with a large domestic market, such productions should be located that ensure the growth of the economic effect when the scale of production increases. The main assumption in this model is that developed countries are endowed with factors of production in approximately the same proportions, and therefore trade between them is appropriate if they specialize in the production of goods in different industries, which allows to reduce costs due to mass production.

The model of intra-industry trade is focused on the research and explanation of such a modern trend in the development of international trade as intra-industry trade between countries. The development of the latter is in direct contradiction with the postulates of models of factor distribution, namely: countries trade goods that are produced at virtually the same intensity of factor costs, and not goods that are the result of the use of excess factors of production.

In 1961, the Swedish economist Peter Lindert put forward the hypothesis that the volume and structure of trade in manufacturing goods (namely, they are the main part of intra-industry trade) are not affected by the cost conditions of supply, but by the conditions and nature of demand, which are determined by the same or similar level of GNP per capita population in countries. In such countries, consumers have comparable consumer preferences that can be satisfied by the products of any of these countries. In addition to this basic condition, experts have identified additional factors affecting the development of

bilateral intra-industry trade: the proximity of per capita income levels and the identity of demand curves in the two countries; proximity of factor prices and production costs of differentiated products; proximity of the level of tariff and non-tariff barriers; approximately the same level of differentiation of competing products; nominal amount of transport costs.[12]

The theory of competitive advantages was developed and substantiated by the American economist Michael Porter in 1991. In this theory, a fundamentally new approach to the problems of international trade is proposed, which is based on the statement that firms, not countries, compete in the international market.[12] Therefore, according to M. Porter, it is necessary to understand how a firm creates and maintains a competitive advantage in order to find out the role of the country in this process.

The main unit of competition, according to M. Porter, is the industry as a group of competitors that produce goods or provide services and directly compete with each other. Success in both domestic and foreign markets depends on a correctly defined competitive strategy. The choice of the latter in relation to a certain industry is influenced by two main factors: the structure of the industry, that is, the features of competition, and the position held by the firm in the industry.

Features of competition in the industry depend on five factors (or forces, according to M. Porter):

- the possibility of the appearance of new competitors;
- probability of appearance or degree of influence of substitute goods;
- behavior of suppliers;
- consumer behavior;
- rivalry between existing competitors.

The value of each of these factors is determined by its main technical and economic parameters. In addition, these factors determine the profitability of the industry, because they affect the prices set by firms, their costs, capital investments, etc.

The position held by the firm in the industry is explained by the existing competitive advantage (lower costs or product differentiation) and the scale of the goal on which the

firm is oriented. Depending on the field of competition and the existing competitive advantage, firms are offered the following typical competitive strategies: leadership through cost savings; differentiation; focusing; focused differentiation.

Features of international competition:

- multi-national industries, which are characterized by a fundamental difference in the specific environment in individual countries, which does not allow to implement a single competitive strategy of the firm in the foreign market;

- global industries where there is a global competitive field and the firm can apply a unified competitive strategy.

Here the company can use:

- 1) the configuration of the activity, i.e. the location of its individual types (for example, production or sales divisions according to the level of their national taxation) in different countries;

- 2) coordination of branch activities (exchange of general information, know-how, coordination of production or trade policy) with the aim of joint cost savings within the entire firm.

A component of M. Porter's theory is the determinants of the country's competitive advantages, within which four parameters of the country are separated, which form a competitive environment for local firms and affect its success in international activities:

- parameters of production factors (availability of factors, hierarchy of factors and mechanisms and dynamics of their creation);

- the level of demand in the domestic market of the company's home country, the high parameters of which act as a supporting and insurance factor in the case of operations on the foreign market;

- availability of supplier industries or other industries that are competitive on the world market in the country;

- proximity of national models of strategy and structure of the firm to global parameters;

- the level of internal competition, which affects the company's activities in the foreign market.

In addition, the determinants of a country's competitive advantage model include factors such as government and case. The government's role can be to strengthen or weaken all four components of a country's competitive advantage. And an accident is an event that has little to do with the conditions of development in the country and which cannot be influenced by either firms or national governments (significant technological advances, sharp changes in resource prices, significant fluctuations in the state of global financial markets, political decisions of foreign governments, war, etc.).

Countries achieve success in one or another field due to the fact that the environment in these countries develops more dynamically and progressively, creating conditions for companies to create and realize their own competitive advantages in both domestic and foreign markets.

1.2. Factors influencing the efficiency of international trade

Economic factors affecting the country's foreign trade indicators include subsidies, dumping and anti-dumping investigations, technical barriers and product quality standards, quotas, customs duties, quantitative restrictions and licensing of both imports and exports, public procurement policy. Economic factors also include trade liberalization, exchange rates, openness of the economy, and macroeconomic policy.

An important factor in the formation of foreign trade was the reduction of customs duties. Although there are still significant trade restrictions in many countries, they are gradually being abolished. The liberalization of the rules governing the exchange of services, the creation of new mechanisms for the protection of intellectual property, the cancellation of quotas for textiles and ready-made clothing, etc., also have a significant impact on the foreign trade indicators of many countries. The reduction of customs duties and the elimination of quotas, as well as the liberalization of the movement of technical and human

capital, are the basis of international economic integration, and they are also derived from such factors of foreign trade as tariff and non-tariff state regulation.

The most influential type of trade restrictions is a customs duty, as a tax levied on goods when they cross the national customs border. At the same time, import duties are levied on imported goods, while export duties are imposed on exported goods. Most countries apply only import duties, while export duties are mainly applied by developing countries in relation to traditional exports in order to obtain better prices and increase revenue. On the other hand, import duties are imposed to protect certain sectors of the economy.

The duty may be imposed on the value and quantity of the goods. The ad valorem duty is set as a percentage of the value of the goods that are the subject of trade. The specific duty is established as a fixed amount of funds for the physical volume of the goods. Combined duty involves the simultaneous establishment of both ad valorem and specific duty.

Thus, with the help of a tariff, income is redistributed from consumers, who are forced to pay more, to producers of this product in the country, who can get a higher price for their product, also increasing the profitability of that factor that is considered relatively rare in the country and is used for production import-substituting products, and reducing the profitability of that factor which is in large quantities in the country and is used for the production of export goods. Such trends lead to a decrease in the overall efficiency of the economy and are the price that must be paid for the introduction of the tariff. If we divide the losses of the economy by the number of "saved" jobs, we will get the value of one "saved" job.

Very often, countries do not impose duties on the import of raw materials or components necessary for the creation of final products on the territory of this country. The main reason for this is to try to encourage local production and create jobs in the country.

In such a case, the indicator of effective protectionism, which is calculated relative to the added value created in the country, or the volume of national production, is greater than the nominal tariff rate, which is calculated relative to the value of final products. National

added value is defined as the difference between the price of the final product and the cost of imported materials and semi-finished products used to produce this product. While the nominal tariff is more important for consumers, as it determines the degree of price increase in the domestic market, the degree of effective protectionism is more important for producers, as it determines the degree of real protection of domestic production that competes with foreign ones.

Although tariffs have historically been the most influential method of trade restriction, there are many other types of trade restrictions, such as import quotas, administrative measures, and anti-dumping regulations. The importance of such non-tariff restrictions increased significantly in the post-war period. The most important type of non-tariff restrictions is a quota, which is a direct quantitative limit on the amount of goods that can be exported or imported. Let's first consider the mechanism of action of import and then export quotas.

Import quotas can be used to protect national industry, agriculture, or to balance trade and payment balances. Import quotas were most widespread in Western Europe after World War II.

Another trade restriction is the legal requirement in many countries for their own governments to buy only domestically produced goods.

Trade barriers can also arise as a result of dumping. Dumping is the export of a product at a price lower than the cost of its production, or in the case when its price inside the country is higher than the price at which this product is sold abroad.

Export subsidies are direct payments or provision of tax benefits or concessional credits to domestic exporters or potential exporters, as well as concessional loans to foreign consumers in order to stimulate domestic production. In this case, export subsidies can be considered as forms of dumping. Despite the fact that export subsidies are illegal under multilateral international agreements, a large number of countries provide them in a hidden form.

Protectionist measures may apply to industries that must compete with products produced in developing countries that have less economic and political power than developed countries to effectively counter barriers to their exports.

It is worth considering other types of trade restrictions. We will include voluntary export restrictions, technical, administrative and other types of regulation. Such trade restrictions arose as a result of the spread of trade cartels, the expansion of dumping and export subsidies. Recently, such non-tariff restrictions have become increasingly influential in restricting trade flows.

One of the important methods of non-tariff restrictions is the voluntary restriction of exports. By such measures, we will understand the situation when the importing country forces another country, its trading partner, to "voluntarily" limit the volume of exports under the pressure of applying stricter trade restrictions, if it threatens the activity of the importing country's industry. Voluntary export restrictions have been the subject of negotiations between the US, Europe and other countries, both developed and developing, since the mid-1950s. In such industries as steelmaking, textiles, electronics manufacturing, automobiles.

So-called non-customs barriers, which include licensing requirements, excessive standards for product quality, or simply unnecessary red tape during customs procedures, are becoming increasingly important in limiting imports. In some countries, domestic importers of foreign goods are required to obtain licenses. Limiting the issuance of such licenses can effectively prevent imports.

In order to increase the volume of exports, most countries currently use export subsidies, which consists in the fact that the government provides domestic manufacturers with various financial benefits to expand the export of goods abroad. These benefits mostly allow for cost reductions, as a result of which lower prices can be set, which increases the competitiveness of these firms in global markets.

International trade flows are also limited by numerous technical, sanitary, administrative and other rules and regulations. These may include safety requirements, for example for cars and electrical equipment, sanitary and hygienic standards for food and

personal use, labeling and packaging requirements that must contain information about the country of origin and the contents of the product.

Countries that have become members of the WTO are increasingly turning their attention to technical, sanitary and phytosanitary barriers to directly limit the access of imported goods. These measures allow them to effectively protect national industries from foreign competition compared to other instruments legitimate within the framework of the WTO. New members of the WTO are significantly limited in the possibility of applying traditional protection instruments, since, in accordance with the commitments accepted upon accession to the GATT/WTO, their tariff levels are almost 100% bound, quotas are prohibited, and trade principles and rules reduce or make it impossible to use other restrictions. In recent years, in the countries of Central and Eastern Europe, which have joined or intend to join the EU, a number of laws regarding the certification system have been changed for protectionist purposes. In particular, in Poland, all goods imported into the country for the first time are subject to a mandatory certification system. According to EU rules, Hungary, the Czech Republic, Slovakia, Slovenia, Poland, and the Baltic countries must require a safety certificate and a manufacturer's certificate of conformity. During the transition to higher EU standards and norms, the requirements for obtaining a quality certificate for imported goods became real barriers for imports from many countries. Hidden technical barriers are in some cases supplemented by anti-dumping and protective measures to limit imports.

One of the most important factors affecting foreign trade is the exchange rate. A change in the nominal exchange rate significantly affects the items of the balance of payments. The impact on imports is usually expressed in changes in prices in the national currency and changes in physical volumes. The extent to which the share of the product in the volume of imports will increase (when the exchange rate increases) or decrease (when it decreases) depends on the price elasticity of demand for it. Accordingly, these changes will be different for each type of imported product.

A change in the nominal exchange rate also affects the amount of revenue in the national currency received by exporters, and thus creates incentives for changing production

volumes for export. At the same time, in order for export volumes to really change, demand on the world market must change. In this regard, the impact of exchange rate changes on the value and physical volumes of exports depends on several factors: the elasticity of demand on the world market for this product, the elasticity of its supplies from other countries, and on how much the industry depends on sales in foreign markets.

If the real exchange rate is less than one, buying domestic goods is more profitable than importing similar goods. At the same time, exporting domestic goods is more profitable than selling them on the national market. A decrease in the real exchange rate makes domestic goods cheaper - which increases foreign demand for them, and residents need less imported goods. In other words, a decrease in the real exchange rate of the national currency stimulates an increase in exports.[19]

Indicators of foreign trade are significantly influenced by macroeconomic policy, both monetary and fiscal. In the short term, the impact of monetary policy can be described by the following main links. First, as a result of changes in the real money supply, interest rates change. Secondly, as a result of changes in interest rates, the exchange rate of the country changes. Thirdly, the structure of foreign trade changes under the influence of exchange rate changes.

The effectiveness of the central bank's monetary policy and its impact on exports depend on the slope of the money demand curve. In the economy, the demand for money can react differently to changes in interest rates. In some cases, the demand for money can be very sensitive to changes in interest rates, so the money demand curve is positive. In other cases, the demand for money may be weakly responsive to changes in interest rates. Therefore, the demand curve for money will be steep. The steeper the money demand curve, the greater the effect any change in the money supply will have on the equilibrium interest rate. The central bank, by changing the money supply and interest rates, affects the exchange rate. For example, an increase in the money supply under a steep money demand curve will cause interest rates to fall markedly, which will reduce demand for the domestic currency by foreign households and firms. As a result, the exchange rate of the national currency will

decrease. This will contribute to the growth of exports and the reduction of imports, which will increase net exports.

An important factor influencing the state of foreign trade is the degree of international capital mobility. In macroeconomic analysis, it is often assumed that capital moves freely between national economies, and therefore interest rates in a particular country and the world interest rate coincide. However, the reality is much more complex. In each national economy, there are a number of factors that restrain the international movement of capital, and therefore the equalization of interest rates. One of the most serious barriers preventing the movement of capital between countries is the underdevelopment of capital markets. Secondly, such a barrier is also central banks, which conduct unequal monetary policies, which cause differences in interest rates. The reason for different levels of interest rates in national economies is also the unequal degree of risk of investing in one or another country. In countries with unstable political and economic systems, borrowers have to pay higher interest rates to compensate lenders for the risk associated with providing loans. This circumstance also reduces capital mobility in these economies.

In a small open economy, the degree of capital mobility significantly affects the effectiveness of macroeconomic policy. Given the absoluteness of capital mobility and a fixed exchange rate, fiscal and monetary policies do not affect foreign trade. In conditions of floating exchange rates, a stimulating monetary policy causes an increase in exports; and the stimulating fiscal policy, increasing the exchange rate, reduces exports. As the level of international capital mobility decreases, the effectiveness of monetary policy decreases.

The activity of the country in the world economy, and at the same time its net exports, are significantly affected by the results of the economic activity of its trading partners.

An increase in the real volume of the national product in other countries enables their trading partners to increase their exports. The acceleration of economic growth in other countries increases the incomes of households and the profits of firms in these countries, which can buy more goods and services of both domestic and foreign production. Therefore, the net export of the country increases with the improvement of the business activity of its

trading partners. Conversely, a decline in the state of business activity of the country's foreign trade partners reduces its net exports.

An important factor is the state of global production of key products of national economies, in particular, energy carriers. An increase in world oil exports reduces the world oil price. Therefore, production costs in oil-importing countries decrease, which makes it possible to export goods and services at lower prices. This means an increase in net exports. At the same time, the decrease in energy prices stabilizes exchange rates, which also favorably affects the dynamics of exports of goods and services.

One conclusion is that any method of restricting trade causes a decline in the welfare of the citizens of the country that applies the restriction. However, all countries of the world in one form or another currently resort to restrictions on foreign trade, this is due to the fact that the policy of protectionism is beneficial for certain groups of the population.

New trends in the development of the multilateral system of world trade regulation in the WTO show that with the reduction of tariffs, the role of non-tariff regulation and the application of WTO-allowed market protection measures, including standards and environmental norms, is increasing, which is significantly less influenced by measures to reduce market access restrictions. Accession to the WTO does not completely eliminate the threat of anti-dumping and countervailing investigations, although it potentially improves the position of the country against which they are initiated.

1.3. Methods for assessing the effectiveness of trade cooperation between countries

International trade is a cornerstone of modern economies, facilitating the exchange of goods and services across borders and influencing various aspects of economic, social, and political life. Effectively assessing the impact and effectiveness of international trade is a complex endeavor, requiring a multifaceted approach. In this essay, we will critically

analyze the effectiveness of international trade by employing various methods and formulas, drawing upon insights from relevant literature and books on the subject.

Through partial equilibrium analysis, it is assumed that the price determination of a certain commodity in a certain market at a certain time and when its supply and demand reach equilibrium is analyzed under other conditions unchanged. In the partial equilibrium analysis of the free trade area (see Figure 1.2, 1.3), we have some assumptions: Suppose that the world consists of three countries A, B, and W, representing the rest of the world, producing only one homogeneous product X. The market is completely competitive, and both the supply and demand of A and B have price elasticity, regardless of transportation cost and exchange rate impact. Both A and B are small countries, that is, changes in supply and demand for product X in both countries do not affect world prices. In Figures 1.2 and 1.3, the horizontal axis represents the quantity of X product and the vertical axis represents the price of X product. D_a , D_b and S_a and S_b are the demand and supply curves of A and B respectively. Before the establishment of the free trade zone, the world price of product X was OP_w . The domestic price of X product in country A is $OP_a = OP_w + P_w P_a$, $P_w P_a$ is the tariff of country A, at this time the consumption and supply of country A is OM, $P_w P_a$ is prohibited tariff, which restricts the entry of X products from other countries in the world into country A. The domestic price of country B is $OP_b = OP_w + P_w P_b$, and $P_w P_b$ is the tariff of country B. At this time, the supply of country B is ON' , the consumption is ON, and country B needs to import $N'n$ of product X from the world market.

Now A and B establish a free trade area. Here we will discuss two cases: one is that the supply of country A can meet the demand of country B under OP_a price conditions (as shown in Figure 1.2); the other is that the supply of country A cannot meet the demand of country B under OP_a price conditions (as shown in Figure 1.3).

Let's say the quantity supplied by country A at OP_a price meets the quantity demanded by country B at the same price.

The trade effect of free trade area

(1) The trade effect of country B

After the establishment of the free trade zone, (see Figure 1.2b) the price of X product

in country B is OP_b initially, which is higher than the price OP_a in country A. The enterprises in country A realize this and will export X product to country B. Under the condition of market competition, this situation will inevitably lead to continuous enterprises to join the ranks of exporting X products to country B, resulting in lower prices of X products in country B. This process continues until the price of country B drops to OP_a , at which point the company in country A realizes that the price of the two countries is the same, and further exports to Country B will only cause the price of X product in country B to be lower than that of X product in Country B, which will bring losses to itself, so it will no longer increase exports to Country B. Under the OP_a price condition, the quantity demanded by country B is OL, and the country produces OL'. Since the tariff of X imported by Country B from country W is unchanged at this time, consumers in Country B prefer to consume the relatively low price of X imported from country A duty-free. At this time, country B imports L'L from country A (compare the two figures of b and a, $L'L = M'M$). Thus, the net increase in trade of country B, i.e., the creation of trade, is $L'L - N'N$; The amount of trade transfers from low-cost exporters outside the group (country W) to high-cost exporters within the group (country A), i.e., the trade transfers are $N'N$.

(2) The trade effect of country A

As shown in Figure 1.2a, country A exports M'M to country B, leaving only OM' in the country, and the domestic supply cannot meet the domestic demand OM under this price condition. Since the world can supply an unlimited amount at the P_w price, country A imports from the world to meet its own demand gap M'M. What is eventually formed in such a free trade zone is a single equilibrium price, which is equal to the domestic price of country A before the establishment of the free trade zone. The net increase in the trade of country A, that is, the trade creation is M'M. No trade diversion takes place in country A.

(Fig 1.2)

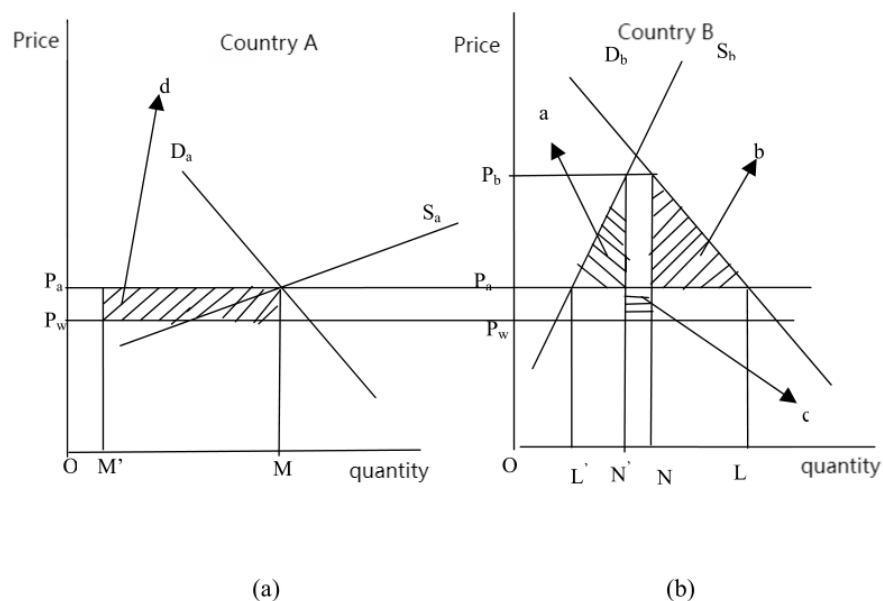


Figure 1.2- Partial equilibrium model of free trade zone

Source: [1]

Changes in welfare caused by trade effects

(1) Welfare changes in Country B

The specific welfare changes brought about by trade creation and trade diversion to country B can be represented by the three shadow areas a, b and c in Figure 1.2b. Shadow a is the result that country B imports relatively low-cost X from Country A and gives up some of its own high-cost production, so that resources are more rationally allocated and consumers benefit. Shadow b is the benefit that consumers in country B get when the price of X falls and they make more rational choices about the use of the product. Trade creation increases welfare in country B (a+b). The trade diversion in country B shifts N' of imports from low-cost country W to high-cost country A, which results in a net loss of government tariff revenue in Country B. This loss is represented by shaded c, where the trade diversion results in a welfare loss for country B. The overall welfare change for Country B is a+b-c. The final outcome of the welfare change depends on whether the trade creation of the free trade area for country B is greater than or less than the trade diversion (i.e. whether a+b is greater than or less than c). Specifically, it depends on the regional equilibrium price formed by the free trade zone. The lower the equilibrium price, the more the welfare in country B increases, and the higher the equilibrium price, the less the welfare in country B increases. .

(2) Welfare changes in Country A

As mentioned above, country A has only trade creation and no trade diversion. As can be seen from FIG. 1.2a, with the establishment of A free trade zone, the production and consumption of country A remain unchanged, as does the domestic price of product X. So consumer welfare and producer welfare are the same. As the production of commodity X was shifted from domestic production to imports from the world's low-cost country W, the government's tariff revenue increased (represented by shaded d in Figure a). Since government taxes are used for universal welfare, the welfare of country A is increased.

Suppose that after the establishment of the free trade zone, the production of country a cannot meet the demand of country B under the same price condition. °

The trade effect of free trade area

(1) The trade effect of country B

As shown in Figure 1.3, if the production of country a cannot meet the demand of country B under the same price condition, then the equilibrium price of country B will not be the same as that of country A. The free trade zone reduces the equilibrium price of country B from P_b before the free trade zone to P_b' after the free trade zone. Under the price condition of P_b' , country B produces OL' and demands OL . Due to the supply price elasticity of country A, increasing the price can increase the supply quantity. Therefore, stimulated by the price of country B being P_b' , country A provides OM' to satisfy the balance of supply and demand $L'L$ in country B, so that country B can achieve the market supply and demand balance. Thus, trade creation and trade diversion in country B are $L'L-N$ and $N'N$, respectively, as shown in Figure 1.3.

(2) The trade effect of country A

Since the world can supply in unlimited quantity under the condition of P_w price, it imports X from the world market, so that the market of country A is maintained at the P_a level. At this time, all of country A's demand OM is met by world imports. At this time, due to the rules of origin and the restrictions of high tariffs in Country B, low-priced world X products cannot use Country A as a springboard to enter country B duty-free. There are two

equilibrium prices in the region, P_b and P_a . At this time, the trade of country A is created as OM, and there is still no trade transfer.

Changes in welfare caused by trade effects

(1) Welfare changes in Country B

Under the second hypothesis, the establishment of the free trade area also brings both trade creation and trade diversion to country B, and the specific welfare changes resulting are still represented by a, b and c in Figure 1.3b. Similarly, the lower the equilibrium price formed by country B after the establishment of the free trade area, the more its welfare will increase, and the higher the equilibrium price, the less its welfare will increase. (Fig 1.3)

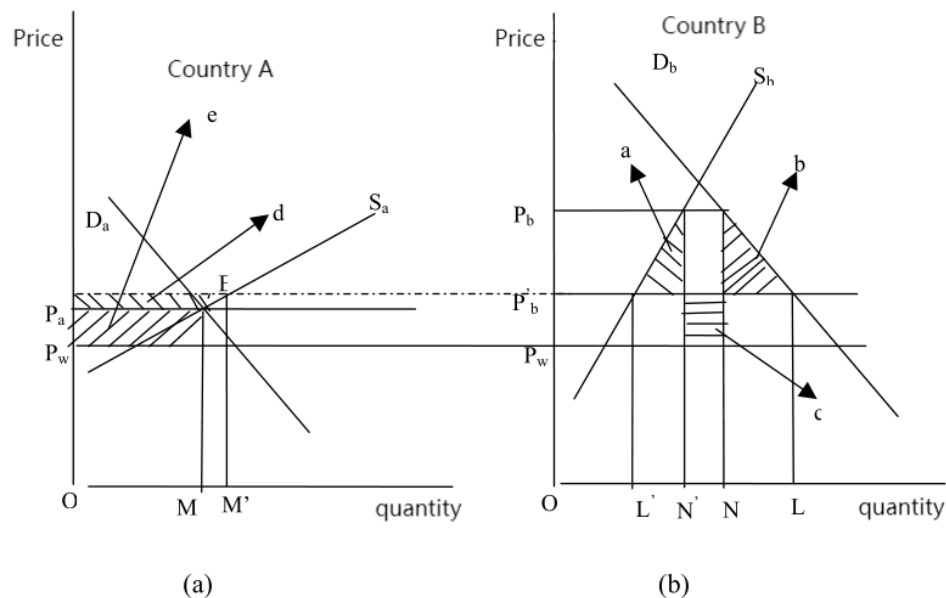


Figure 1.3 - Partial equilibrium model of free trade zone

Source: [1]

(2) Welfare changes in Country A

The welfare of the consumer in country A remains unchanged because it still consumes the same amount of products at the same price level. However, the shift from domestic production to imports from low-cost producers in the world resulted in an increase in government tariff revenue in Figure 1.3a (e); The producers in country A export to country B at a higher price than their own, increasing the producer surplus in part d of Figure 1.3a, improving welfare to d+e, and the degree of welfare improvement in country A increases correspondingly with the expansion of trade creation.

The results of the above partial equilibrium analysis tell us:

The establishment of a free trade zone will generate trade creation and increase government tariff revenue for those countries with comparative advantages in commodity production within the zone, but consumer welfare will not change. Producers can expand their export share in the market of partner countries, but due to the entry of similar products from the world, the overall market size of producers will remain unchanged or have limited expansion. For those countries that are at a comparative disadvantage in commodity production, both trade creation and trade transfer occur. Although the increase in consumer welfare is significant, producers will lose some of their original domestic market share.

Balance of Trade (BOT)

The Balance of Trade, often measured as the difference between a country's total exports and imports, is one of the most commonly used indicators to gauge the effectiveness of international trade. A positive balance of trade is often celebrated as a sign of trade effectiveness. However, as Paul Krugman and Maurice Obstfeld in "International Economics" [22] caution, an overreliance on this indicator can be misleading. A persistent surplus might indicate trade barriers or undervalued currency, while a deficit can signify increased consumption and economic growth. Thus, while BOT provides a snapshot, it cannot offer a comprehensive evaluation.

Trade-to-GDP Ratio

The trade-to-GDP ratio measures the degree of economic openness and dependence on international trade. A high ratio indicates a more open economy, which is often seen as beneficial. However, this metric does not account for the composition of trade or whether it leads to economic growth or welfare improvements. Thus, while it offers a useful perspective, it lacks the granularity required for a thorough assessment.

Revealed Comparative Advantage (RCA)

Revealed Comparative Advantage, as explained in "The Theory of International Trade" by James Melvin and James L. Norrbin, [23] helps identify a country's comparative advantage in specific industries. While this method is valuable for assessing trade competitiveness, it may not capture broader economic and societal impacts. It focuses

primarily on production patterns and does not delve into issues such as income distribution or environmental sustainability.

Terms of Trade (ToT)

The Terms of Trade index measures changes in the relative prices of exports and imports. Improvements in a country's ToT are often seen as a positive outcome of international trade. However, as Krugman and Obstfeld highlight in "International Economics," [24] this indicator does not account for the distribution of gains from trade, potentially leaving some segments of the population worse off.

Trade Balance as a Percentage of GDP

Measuring the trade balance as a percentage of GDP provides insight into the scale of trade relative to the overall economy. However, as discussed in "International Trade: Theory and Policy" by Krugman and Obstfeld, this metric does not address the underlying causes of imbalances or assess whether they contribute to sustainable economic growth.

Export Diversification Index

The Export Diversification Index quantifies a country's dependence on a single product or market. A higher index value suggests reduced vulnerability to shocks in specific sectors. However, it does not account for the quality or value-added content of exports, potentially overlooking opportunities for economic upgrading.

Welfare Effects (Consumer and Producer Surplus)

Evaluating the welfare effects of international trade, as per the formulas provided, allows us to understand the distribution of gains and losses. However, these measures are limited in scope and do not capture broader societal impacts, such as environmental sustainability, income inequality, or employment dynamics.

Growth Rate of Trade

Examining the growth rate of trade provides insights into the expansion of international trade. However, this metric alone cannot assess the quality of this growth or whether it translates into improved living standards or equitable distribution of benefits.

Economic Impact Assessments

Employing models such as Input-Output Analysis, Computable General Equilibrium (CGE) models, and Social Accounting Matrices (SAMs) [25] allows for a more comprehensive evaluation of international trade's effects. These models consider the interconnections between various economic sectors, households, and government policies. However, they are not without limitations, including data requirements and assumptions inherent in modeling.

In evaluating the effectiveness of international trade, it is evident that no single method or formula can provide a complete picture. Each of the methods discussed in this essay offers valuable insights into specific aspects of trade, but they have limitations that must be acknowledged. To comprehensively assess trade effectiveness, researchers and policymakers must consider a combination of these methods, taking into account contextual factors, policy objectives, and societal goals.

While these methods and formulas offer valuable insights into different aspects of international trade, no single measure can provide a complete evaluation of trade effectiveness. A well-rounded assessment requires a combination of these tools, tailored to specific research questions and policy objectives. Moreover, a critical perspective necessitates considering non-economic factors such as environmental sustainability, income distribution, and social well-being to comprehensively evaluate the impact of international trade. Policymakers and researchers should exercise caution when interpreting and using these indicators and consider their limitations in making informed decisions. While methods and formulas can provide quantitative insights, qualitative assessments and interdisciplinary approaches are equally important. Policymakers and researchers should aim to strike a balance between promoting trade as an engine of economic growth and ensuring that it contributes to the well-being of all segments of society while safeguarding environmental sustainability and national security.

Conclusions to Chapter 1

The thesis engages with contemporary theories such as neo-technological theories and Michael Porter's concept of competitive advantages, emphasizing the shift from nation-centric to firm-centric competition in international trade. An analytical evaluation in the thesis is conducted on the successes and limitations of the WTO and other trade frameworks like Regional Trade Agreements (RTAs) and bilateral agreements. While these entities have significantly advanced global trade by lowering barriers, they grapple with challenges like protracted decision-making processes and difficulties in adapting to evolving trade issues such as digital commerce. In conclusion, Underscores the indispensable role of ITOs in fostering global economic growth, while advocating for their evolution to surmount existing challenges and adapt to emergent trade dynamics. It highlights how the dynamic environments in various countries are instrumental in empowering firms to cultivate and exploit competitive advantages in both domestic and international arenas. This scholarly piece articulates the necessity for ITOs to strike a balance between promoting free trade and ensuring equitable outcomes for all stakeholders involved in the global trading ecosystem.

The thesis explores the influences of macroeconomic policy on foreign trade, particularly the short-term impacts of monetary policy. This includes the interplay between real money supply, interest rates, and exchange rates, and how the effectiveness of these policies depends on the slope of the money demand curve and the degree of international capital mobility.

Furthermore, the thesis examines the broader implications of global economic activities on a country's foreign trade, especially the economic activities of trading partners and global production dynamics, with a focus on key commodities like oil.

Effectiveness of international trade through various methods and formulas, drawing upon relevant literature and economic theories. It evaluates the Balance of Trade (BOT), the trade-to-GDP ratio, Revealed Comparative Advantage (RCA), Terms of Trade (ToT), trade balance as a percentage of GDP, Export Diversification Index, welfare effects, growth rate of trade, and economic impact assessments.

The Balance of Trade is analyzed as a traditional indicator of trade effectiveness. However, its overreliance is cautioned against, as it can be misleading due to factors like trade barriers or consumption patterns. The trade-to-GDP ratio is used to measure economic openness, but lacks depth in assessing trade composition and impact on growth or welfare.

The Revealed Comparative Advantage is explored for its utility in identifying a country's competitive industries. Yet, it is noted for its limitations in addressing broader economic and societal impacts. The Terms of Trade index, meanwhile, is evaluated for its role in indicating the relative price changes of exports and imports, but its inadequacy in accounting for the distribution of trade gains is highlighted.

The assessment of trade balance as a percentage of GDP offers insight into trade's scale in relation to the overall economy but does not delve into the causes of imbalances or sustainable growth contributions. The Export Diversification Index is discussed for its relevance in reducing vulnerability to sector-specific shocks, but it is recognized for not considering the qualitative aspects of exports.

Welfare effects, including consumer and producer surplus, are examined for their role in understanding the distribution of gains and losses. However, the scope of these measures is noted as limited, not capturing broader societal impacts. The growth rate of trade is considered for insights into trade expansion but is seen as insufficient in evaluating the quality of growth and its translation into improved living standards.

And also explores economic impact assessments through models such as Input-Output Analysis, Computable General Equilibrium models, and Social Accounting Matrices. These models are acknowledged for their comprehensive approach to evaluating trade effects, considering interconnections between economic sectors, households, and government policies. However, limitations related to data requirements and modeling assumptions are also recognized.

CHAPTER 2.

ANALYSIS OF THE EFFECTIVENESS OF CHINESE-EUROPEAN TRADE

2.1. Trends in the development of trade cooperation between China and the EU countries

The European Union (EU) is one of the closest economic partners of China with regard to trade and cooperation. Currently, the world is undergoing unprecedented changes, and the relationship between China and the Western world continues to undergo profound transformations, further complicated by the global COVID-19 pandemic. In this context, studying the development trends of China-EU economic and trade relations, as well as the challenges and opportunities faced in the new situation, is of great significance for further promoting and optimizing China's foreign opening-up and development.

In recent years, the economic and trade relations between China and the EU have become increasingly close, making them important cooperation partners in areas such as goods trade, services trade, and foreign direct investment. The EU has been China's largest trading partner for consecutive years, while China maintains its position as the second-largest trading partner of the EU. Analyzing Figure 2.1 reveals that China's dependence on goods trade with the EU experienced a decline period after the 2008 international financial crisis but began to show a growth trend from 2019, reaching 15.4% in the same year. Similarly, the EU's dependence on goods trade with China has gradually increased since 2015, reaching 15.8% in 2021. Since 2017, the EU's dependence on goods trade with China has consistently exceeded China's dependence on goods trade with the EU, highlighting the increasing importance of bilateral trade between China and the EU within the EU's overall trade. In 2022, China became the EU's (27 countries) largest trading partner, accounting for 16.1% of the EU's total trade volume. China also became the EU's largest source of imports, with the EU importing 383.5 billion euros from China, accounting for 22.4% of its total imports. Furthermore, China became the EU's third-largest export destination, with the EU exporting 202.5 billion euros to China, accounting for 10.5% of its total exports (Figure 2.1)

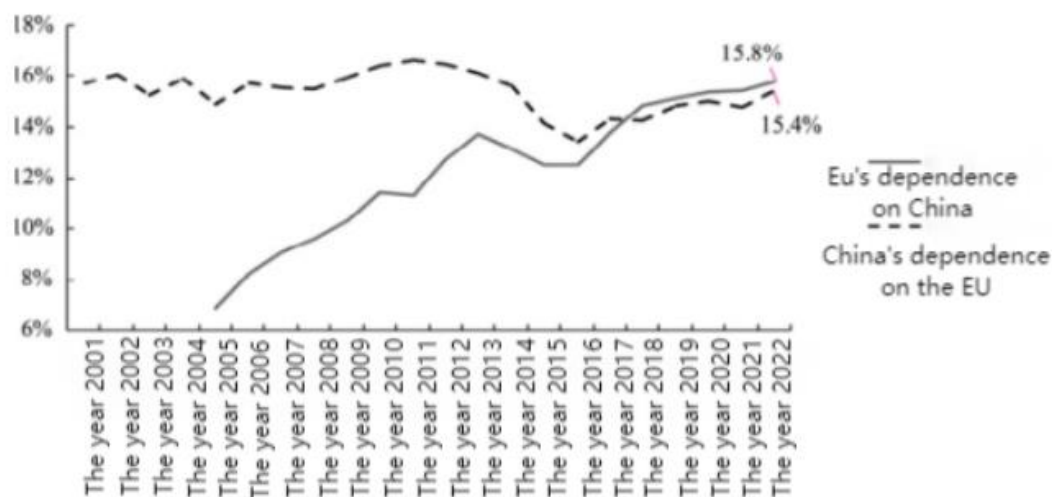


Figure 2.1 China-Eu interdependence in goods trade, 2001-2022

Source: [2]

China is an important supplier for the European Union(EU)in various product categories such as textiles,daily necessities,electrical and electronic equipment,and their components.Taking into account the Harmonized System(HS2)codes,which represent the customs goods' names and codes,we can identify product categories that meet three criteria simultaneously:being a net import for the EU,resulting in a trade deficit for the EU with China,and accounting for over 15%of the EU 's total imports from China in 2022.The computed results are presented in Table 2.1.The analysis reveals that apart from daily necessities like umbrellas,processed feathers,silk,textiles,toys,and furniture,the EU imports a significant proportion of goods from China in categories such as electrical and electronic equipment and their components,rubber and rubber products,and organic chemicals.Among these categories,the EU had the largest trade deficit with China in electrical and electronic equipment and their components from 2020 to 2022.Other product categories with substantial trade deficits include textiles,furniture,toys,clothing,organic chemicals,footwear,aluminum and its products,and rubber and rubber products.

Table 2.1 – Main products imported by the EU from China in 2020-2022

HS2(The two-digit code of the Harmonized System of Customs Commodity Names and Codes)	Product category	Proportion of imports from China (%)		
		The year 2020	The year 2021	The year 2022
66	Umbrellas, parasols, walking sticks, whips, riding whips and their parts	89.2	89.2	90.6
67	Feathers, down and their products have been processed; Artificial flowers; Human hair product	79.7	82.0	84.2
50	silk	85.1	84.0	83.7
63	Other textile products; Sets of articles; Old clothing and old textiles; Fabric scraps	41.3	42.8	78.4
95	Toys, games, sporting goods and their parts and accessories	78.0	78.3	77.3
65	Hats and parts thereof	73.3	73.0	72.0
94	Furniture; Bedding, mattresses, spring mattresses, cushions and similar filling articles; Lamps and lighting fixtures not listed; Luminous signs, luminous brand names and similar products; Mobile home	63.6	64.5	65.1
46	Straw, straw, stipa or other braided material products; Baskets and wicker braids	61.0	59.9	56.6
85	Motors, electrical equipment and their parts; Tape recorder and reproducer, equipment for recording and reproducing television images and sounds and their parts and	46.1	47.7	49.9

	accessories			
05	Other animal products	49.7	50.5	46.5
54	Chemical fiber filament	39.8	41.3	42.2
92	Musical Instruments and their parts and accessories	39.4	37.4	39.3
64	Footwear, leg warmers and similar articles and parts thereof	42.1	41.2	38.6
60	Knitted and crocheted fabrics	37.8	41.0	38.3
62	Clothing and clothing accessories not knitted or crocheted	33.8	32.3	35.3
14	Plant material for braiding; Other plant products	31.1	27.1	29.2
61	Knitted or crocheted garments and clothing accessories	30.0	28.8	28.2
57	Carpets and other floor coverings of textile materials	26.1	25.5	27.6
81	Other base metals, cermet and their products	229	26.2	26.4
40	Rubber and its products	20,4	20,4	20,9
91	Watches and clocks and their parts	16.5	17.7	198
29	Organic chemicals	18.5	186	187
76	Aluminium and its products	14.7	16.8	16.5

Source: author calculated the data from [5]

China is an important export market for the European Union(EU) in product categories such as vehicles,pharmaceuticals,optical instruments,and meat.Using HS2 classification,we can identify product categories that meet three criteria simultaneously:being a net export for the EU,resulting in a trade surplus for the EU with China,and accounting for over 5%of the EU's total exports to China in 2022.The computed results are presented in Table 2-2.

The analysis reveals that the EU exports a significant proportion of goods to China in categories such as plant-based textile fibers,meat,wood pulp,vehicles,optical products,and aircraft.Among these categories,the EU had substantial trade surpluses with China from 2020 to 2022 in product categories.Including vehicles and their parts and accessories,pharmaceuticals,meat and edible offal,aircraft and spacecraft and parts

thereof, copper and copper products, grain products, beverages and vinegar, essential oils and perfume materials, and dairy products. Vehicles and their parts and accessories remain the largest trade surplus product category for the EU with China, accounting for 25.6% of the EU's global surplus in this category in 2022.

Table 2.2 – Main EU exports to China in 2020-2022

HS2 (The two-digit code of the Harmonized System of Customs Commodity Names and Codes)	Product category	Proportion of imports from China (%)		
		The year 2020	The year 2021	The year 2022
53	Plant textile fiber; Paper yarns and woven fabrics thereof	55.9	57.0	56.0
2	Meat and edible chop suey	19.6	39.6	50.8
47	Wood pulp and other fibrous cellulose pulp; Scrap of paper and board	—	—	44.2
74	Copper and its products		30.5	32.5
43	Fur, artificial fur and products thereof	21.3	20.2	24.6
19	Products of grain, grain flour, starch or milk; cake	19.9	19.6	20.9
87	Vehicles and their parts and accessories (except railway and tram cars)	16.8	16.4	18.9
41	Rawhide (except fur) and leather	17.9	16.9	18.9
44	Wood and wood products; charcoal			18.9
90	Optical, photographic, cinematographic, metrological, laboratory, medical or surgical instruments and equipment, precision instruments and equipment; Parts and accessories of the above articles	14.1	13.9	15.9
88	Aircraft, spacecraft and their parts	16.4	14.7	13.0
04	Dairy products; Eggs; Natural honey; Other food animal products	10.8	11.9	13.0
34	Soaps, organic surfactants, detergents, lubricants, artificial waxes, preparation waxes, polishing agents, candles and similar products, molding pastes, "dental waxes" and	11.0	11.2	11.8

	dental plaster preparations			
35	Protein substance; Modified starch; Glue; enzyme	9.4	9.4	10.4
10	Grain	—	5.2	10.1
33	Essential oils and perfumes; Aromatic products and toiletries	5.4	6.6	10.0
30	Restoratives	6.3	7.0	6.9
22	Drinks, wine and vinegar	6.7	6.5	6.8
45	Cork and cork products	81	6.2	5.5

Source: author calculated the data from[13]

From 2013 to 2021, the dependency of the European Union (EU) on China's service trade exhibited a decreasing trend followed by a subsequent increase, reaching 14% in 2021. Meanwhile, the EU's dependency on China's service trade experienced a slight increase, reaching 4.7% in 2021 (see Figure 2). China's dependency on the EU's service trade is higher than the EU's dependency on China, particularly in the areas of technology and personnel flow. This trend is particularly pronounced in the field of technology. The payment of intellectual property fees in the service trade can to some extent reflect the level of technological cooperation between China and the EU. Analyzing Figure 2.2 reveals that the proportion of intellectual property fees paid by China to the EU is relatively high, showing an overall upward trend since 2015 and reaching 32.3% in 2021. Travel services encompass various aspects such as business trips, studying abroad, medical tourism, and tourism, providing a comprehensive reflection of personnel flow between the two economies. The proportion of travel services imported by China from the EU experienced a decline followed by an increase, reaching 4.7% in 2021. In 2021, the dependency of the EU on the purchase of intellectual property and travel services from China stood at 0.4% and 2.4% respectively (Figure 2.2)

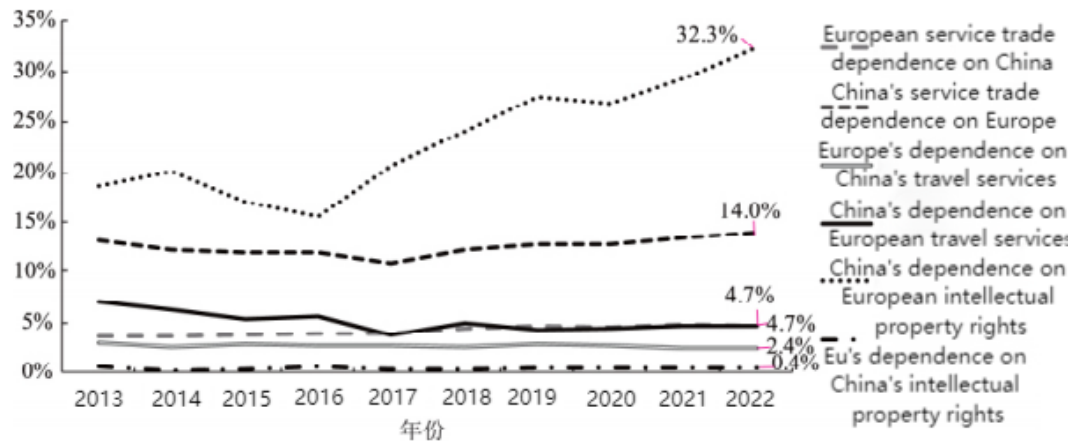


Figure 2.2 China-Eu service trade interdependence, 2013-2021

Source: [14]

The importance of China as an export market for the European Union's (EU) service trade continues to rise. The EU maintains a surplus in its service trade with China, and this surplus has been expanding since 2019. In 2021, China was the fourth largest destination country for EU service exports and a major source country for service imports. The proportion of EU service exports to China has been increasing steadily, from 2.9% in 2013 to 5% in 2021. However, the proportion of EU service imports from China has been declining since 2019. Analyzing tabel 3 reveals that among the subcategories of service trade, the EU's exports to China are dominated by intellectual property usage fees, construction services, transport services, and travel services. On the other hand, the EU's imports from China are predominantly comprised of manufacturing services and maintenance and repair services. According to data from the Chinese Ministry of Commerce, the EU has consistently been China's largest cumulative technology supplier, and China has become the EU's third largest source of tourists.

Table 2.3 – Share of EU-China services trade in EU services Trade in 2021 Unit:
millions of euros, %

Types of service trade	EU trade balance in services with China	The proportion of EU exports to China in the EU's total exports	The proportion of EU imports from China in the EU's total imports
Service trade	19713.4	5.0	3.3
Intellectual property royalties	8323.2	10.3	0.4
Travel service	68597	5.8	2.2
Communication, computer and information services	6272.5	4.3	1.6
Building service	810.9	8.2	4.4
Other business services	662.8	4.5	3.1
Financial service	525.9	1.0	0.4
Transport service	348.8	6.1	7.5
Unclassified service	290.0	4.1	0.8
Personal, cultural and recreational services	210.3	2.6	1.3
Government goods and services	- 54.0	1.8	4.4
Insurance and retirement pension services	- 190.1	2.3	3.2
Maintenance and repair services	- 502.3	2.9	6.6
Manufacturing service	- 3844.3	0.4	21.6

Source: author calculated the data from[16]

As China's sources of foreign investment diversify, its dependence on the European Union (EU) for direct investment has gradually declined, although it still accounted for 13.8% in 2020. Since 2015, China's direct investment in the EU has experienced a rapid growth period, leading to a significant increase in the EU's dependence on Chinese direct investment, reaching 0.9% in 2020 (Figure 2.3).

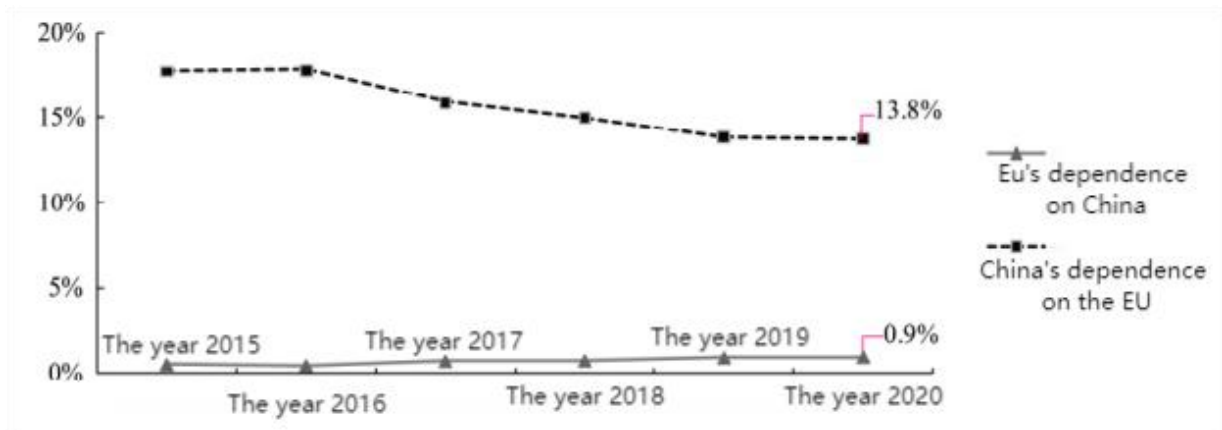


Figure 2-3 China-Eu direct investment interdependence (2015-2020)

Source: [17]

Currently, the stock of direct investment from the European Union (EU-27) to China remains significantly higher than the stock of direct investment from China to the EU, with the former being approximately 2.9 times larger than the latter in 2021. The proportion of the EU's stock of direct investment in China to its total stock of outward direct investment has been increasing and reached 2.2% in 2021. Similarly, the proportion of the EU's utilization of China's stock of direct investment to its total stock of inward direct investment is also on the rise, reaching 1% in 2021. The manufacturing sector represents the largest segment of bilateral investment between China and the EU. However, there is an asymmetry in the structure of direct investment between China and the EU, with the EU's direct investment in China's manufacturing sector being larger than its investment in the broad category of services, while China's direct investment in the EU's services sector is greater than its investment in the manufacturing sector.

China and the EU belong to a narrow circle of world centers whose policies depend not only on the balance of power in the Asia-Pacific region (APR), but also on the formation of a new world order. The global crisis of 2008-2009 expanded the prerequisites for

increasing the weight of China, and the decision of the current American administration to withdraw from the Trans-Pacific Partnership initiative and from the Paris climate agreement additionally creates favorable conditions for the further consolidation of China's leading positions on the world map and in Europe in particular.

The weak recovery of world trade after the global financial crisis, the first steps of the new US Administration, the new interpretation of globalization and the attempt of the Chinese leadership to lead and determine its course also led to the emergence of both new challenges and new opportunities for multifaceted interaction between the PRC and the states of Central and Eastern Europe (CEE). It is now widely recognized that the People's Republic of China and the CEE have enormous potential for further development of cooperation in various fields.

The PRC continues to take steps in the direction of creating the conditions for its projected long-term growth and development on the way to transforming China into a global heavyweight. This aspiration can have significant success, since official Beijing has the available financial, industrial, intellectual, human resources, which, in the conditions of the post-financial world crisis and the decline in the growth rate of the world economy, creates opportunities and provides freedom of maneuver in the existing conditions.

It should be noted that pragmatism, independence from external influences and the priority of national interests have been a prominent feature of Chinese diplomacy for many decades. Along with the intensification of China's foreign policy activities at the global level, the intensification of its participation in various regional forums can be traced. Currently, China is actively moving from the bilateral level of interaction to multilateral and existing mechanisms of interaction of a regional and global focus (SCO, BRICS, the China-EU Forum, China's cooperation with the countries of Central and Eastern Europe in the "16+1" format, the expected format of interaction " China plus the countries of Northern Europe" ("5+1"), interregional forum "Europe-Asia Meetings" (ASEM) etc.). This is a characteristic feature of Chinese diplomacy in various regions of the world and aims to provide China with de facto leadership on a global scale. There is a high probability that all these formats

in the near future will be interpreted not as an independent process, but, above all, as a mechanism incorporated into the global Chinese strategy of the "Belt and Road".

However, it should be noted that China is better at working with individual countries than with organizations as part of its global initiative.

Considering the fact that the sphere of China's economic interests is expanding, the number of established partnership relations of the PRC with new countries is actively increasing, cooperation with traditional partners is deepening, the multilateral format of interstate relations is being improved - all this allows China to realize its own interests within specific regions.[28]

Over the past six years, since the creation of the "16+1" cooperation format, the PRC has paid considerable attention to the Central and Eastern Europe (CEE) region, turning into a geopolitically important actor for it. At the same time, cooperation between China and the CEE countries is an important component of a rather large and effective mechanism of cooperation between the PRC and the EU.

The strategic goals of the People's Republic of China in this region are as follows. First, China considers the CEE countries as a platform for entering the markets of wealthier Western European countries. Secondly, by rapprochement with the countries of the region, China seeks to lobby its interests at the EU level and determine the agenda of cooperation between the PRC and the EU.

Despite the fact that the military and political leadership of the People's Republic of China strongly advocates a united Europe, it simultaneously allows the emergence of a "multipolar Europe" as a solution for the EU to overcome its own internal economic crisis and restore its European status. However, there is confidence in Beijing that the scenario of disintegration or any form of disintegration of the EU is not in favor of the Chinese state.

As part of the development of cooperation between the People's Republic of China and its partner countries, the political leadership of China holds various meetings in which significant attention is paid to plans for the implementation of joint projects in the context of the "Belt and Road" initiative. In particular, Beijing held a large-scale image event for the development of high-level international cooperation on May 14-15, 2017, with the

participation of the heads of state and government of 29 countries located along the New Silk Road (NSR). The organizational scale and financial costs were commensurate with the G20 Summit, which the PRC held in Hangzhou in September 2016. However, for representatives of many countries (delegations were sent by 100 states, including the Ukrainian government delegation), the trip to the forum was, rather, the first real chance to get acquainted with the vision of the Chinese leadership and plans for the implementation of a new global project.[29]

In 2012, China and the CEE countries adopted a joint decision (on the initiative of the Chinese side) to launch the "16+1" format of cooperation, which was outlined and presented in the speech of the head of the Chinese government "12 measures of China to promote friendly cooperation with the CEE countries" . The motives of the leaders of the CEE countries were also and remain purely pragmatic and mostly determined by the economic interests of the countries.[30]

It should be noted that Beijing formed a pool of Central and Eastern European countries that are involved in the "16+1" format at its own discretion and based on its own interpretation of the region. The following are involved in the "16+1" format: Albania, Bosnia and Herzegovina, Bulgaria, Estonia, Latvia, Lithuania, Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, Hungary, Croatia, Montenegro, the Czech Republic and China. The Chinese vision of the CEE region includes 11 countries - "young" EU members and 5 Balkan states that aspire to become them or have received the status of candidates for EU membership.

This format of interaction was formed after the international financial crisis of 2008, at the most critical moment for the CEE economies. This decision was also a consequence of Beijing's awareness of the importance of the CEE countries as a component of a united Europe.

The volume of trade between China and the CEE countries reached 58.7 billion dollars. USA, at the same time, the constant tendency to increase in turnover was maintained. Among the countries of the region, the greatest attention from the side of Chinese investors in recent years has been paid to six CEE countries, the share of which is 95% of investments

in this region: Hungary (approx. 33% of the total in the CEE region), Poland (approx. 20%), the Czech Republic (approx. 14%), Romania (approx. 11%), Bulgaria (approx. 10%), Slovakia (7%). In 2016, the total volume of investments of the People's Republic of China in CEE reached 8 billion dollars. USA. Their investments were mainly directed to mechanical engineering, the chemical industry, telecommunications, household electrical engineering, the development of new energy sources, trade, finance and agriculture.

Thus, China is persistently developing the "16+1" format and forming a specific development program. Beijing will continue to use the "16+1" format to deepen its political and economic presence in the CEE.

2.2. Analysis of the performance of trade between China and the EU countries

Due to the deep integration into economic globalization, the European Union (EU) faced disruptions in the global supply chain caused by the COVID-19 pandemic. The EU experienced supply shortages and even interruptions in critical intermediate products due to excessive reliance on external sources. Following the supply chain crisis triggered by the COVID-19 pandemic, the EU has placed emphasis on enhancing the resilience of industrial and supply chains. This includes: first, expanding industrial production capacity within the EU to increase the autonomy of the industrial and supply chains; second, strengthening the ability of enterprises to respond to supply chain risks, thereby improving the resilience of the EU's common market supply chain; and third, ensuring the EU's leading position in digitalization and green transformation, reshaping global industrial and supply chains. From this perspective, it is evident that the fundamental objective of the EU's implementation of green industrial policies aligns with its recent emphasis on "supply chain resiliency" and "risk reduction. "Through a series of mandatory industrial policy measures, the EU aims to shape a safer, more sustainable, and risk-controlled supply chain system. Particularly in the field of green industries, as major global economies have successively proposed policy initiatives to boost domestic green industries, the urgency of implementing green industrial

policies within the EU has further increased. Through the "Green Pact Industry Plan" and sector-specific stimulation policies, the EU aims to enhance the resilience and localization of the green industrial and supply chains, thereby reducing dependence on foreign sources while strengthening its international competitive advantage in green industries and reducing reliance on low-carbon technology products. Furthermore, the Ukraine crisis has made the European Union more cautious in dealing with the risks associated with green energy supply chains. On one hand, the crisis has triggered an energy crisis in Europe, with energy and electricity prices soaring in 2022, resulting in increased manufacturing costs and significant pressure on domestic industries, including potential production cuts, shutdowns, or even relocation. On the other hand, the crisis has prompted the EU to reflect on its excessive dependence on fossil energy from Russia, and this reflection has to some extent extended to the field of China-EU green energy cooperation. In May 2022, the European Council on Foreign Relations and the Rhodium Group jointly released a policy report titled "Break the Circuit: Safeguarding Europe's Green Energy Supply Chain." The report warned that the EU "may overly rely on China" in the green economy sector. It called for a swift reassessment of Europe's green energy supply chain, taking measures to reduce reliance on China to ensure the security of Europe's green energy supply chain, enhance the competitiveness of European domestic businesses, and secure long-term global competitive advantages, thereby mitigating risks associated with China.

In fact, the EU's dependence on China's green industries and products is more prominent. In 2022, the total value of EU imports of low-carbon technology products was \$201.9 billion, of which the total value of imports from China was \$37 billion, accounting for 18.3% of the total value of EU imports. As shown in Table 2.4, in the EU's top 20 import values, the total import value of about 137.1 billion US dollars of subdivided low-carbon technology products (that is, the EU's highest degree of external dependence of low-carbon technology products), photovoltaic inverters, wind power blades, lead-acid battery parts, transformer parts, compression heat pumps on China's dependence of more than 20%. In particular, the European Union's highest dependence on photovoltaic inverters, the import value of more than 27.5 billion US dollars in 2022, of which the import value from China is

more than 11 billion US dollars, the dependence of more than 40%.

Table 2.4 – The top 20 low-carbon technology products by EU import value in 2022 and their dependence on China

Sort	Encoding	Product name	Import value (US \$100 million)	Value of imports from China (USD billion)	Dependence on China
1	850440	Photovoltaic inverter	275.4	110.3	40.06%
2	853710	Programmable controller	215.4	28.9	13.42%
3	847989	Steering gear and gyrostabilizer for ships	95.8	10.0	10.40%
4	850300	Battery module	85.0	16.7	19.63%
5	842139	Gas filtration and purification machines and devices	73.6	3.6	4.92%
6	392010	Battery separator made of vinyl polymer	67.2	1.6	2.35%
7	903180	Optical fiber communication and optical fiber performance tester	55.1	4.9	8.89%
8	847990	Marine steering gear and gyro stabilizer parts	54.2	5.4	9.97%
9	841199	Parts for turboshaft engines	47.3	3.6	7.57%
10	903289	Automatic Protection system (ATP) vehicle equipment	45.8	5.3	11.64%

11	848340	Roller screw drive	44.9	6.4	14.15%
12	841290	Wind turbine blade	38.9	10.2	26.30%
13	842199	Parts for filtration and purification devices	37.5	4.6	12.38%
14	902790	The microtome	37.4	1.8	4.90%
15	850790	Lead-acid battery parts	35.5	10.0	28.11%
16	841950	Heat exchanger	34.0	3.9	11.43%
17	850490	Transformer parts	33.9	9.1	26.79%
18	842129	Purifying filter press	31.7	0.9	2.70%
19	902750	Optical ray instruments and devices	31.6	2.1	6.69%
20	841861	Compression heat pump	31.0	7.1	22.83%

Source: author calculated the data from[21]

The EU in the "green agreement industry plan" forced to limit the proportion of industry "localization", in the new energy vehicles, batteries, solar energy, wind energy industry chain localization development process, this will undoubtedly reduce its related low-carbon technology products import demand. As a "large exporter" to Europe, China's export space for EU related low-carbon technology products may continue to shrink. The "Green Deal Industrial Plan" emphasizes the policy tendency of industrial competition, which is highly consistent with the logic of the EU's "European Green New Deal" and "Next Generation EU" recovery fund to "accelerate the development of green industries and reduce dependence on China", and under the guidance of the strategy of "de-risking" China, do green trade protectionism. In addition, while cybersecurity issues are not unique to the green industry and energy sector, the extensive interconnectivity inherent in green infrastructure means that cybersecurity is still seen by Europe as a secondary risk to green industry cooperation with China. In the current atmosphere, the EU's doubts about China's green industry cooperation may persist for a long time and hinder China-Eu cooperation to a large

extent. In the long run, with the further development of the EU's green industry and the creation of superior green technologies and industrial chain independence in the field of green economy, the demand for cooperation with China in relevant technologies and business models will also decrease accordingly, further reducing the space for practical cooperation between China and the EU in the field of green economy.

"Promoting industry through legislation" has increasingly become a new means of strategic competition for major economies in the world. Whether it is "re-industrialization" in the United States or "supply chain resilience" in the European Union, legislation to support the development of key industries is the main entry point. In recent years, the EU has focused on promoting "strategic autonomy" and defending "economic sovereignty", frequently solidifying the development of key industries in the form of laws, and has passed policy legislation such as the European Chip Act, the European Green New Deal, and the Green Deal Industrial Plan, giving member states mandatory obligations in order to achieve top-level strategic design and unified allocation of resources in key industries across Europe. Europe and the United States and other economies through legislation to support the development of green industries, provide incentives (including subsidies and preferential procurement) and inhibition measures (formulate relevant regulations, standards, set trade barriers) to siphon the global green industry chain to the Western developed countries.

The competition between China and Europe on the international market share of low-carbon technology products is essentially caused by the strong and weak advantages of the international competitiveness of green industries of both sides. From an objective point of view, some low-carbon technology products of the EU are still internationally competitive, which has a certain differentiation effect on the international market share of China's related products. Benefiting from a strong industrial base and early attention to the development of green economy, the EU has a certain first-mover advantage in the field of green industry. Related low-carbon technology products occupy a high share of the international market and always maintain a trade surplus in international trade. As shown in Figure 2.4, in terms of export trade reflecting the ability to explore overseas markets, from 1998 to 2022, the total export value of EU low-carbon technology products increased from US \$72.6 billion to US

\$249.2 billion, while China's total export value increased from US \$4.1 billion to US \$150.8 billion, reflecting the fact that the international market share of EU low-carbon technology products is higher than that of China; In terms of import trade reflecting external dependence, from 1998 to 2022, the total import value of low-carbon technology products in the EU increased from 58.5 billion US dollars to 201.9 billion US dollars, while the total import value of China increased from 9.8 billion US dollars to 82.9 billion US dollars, indicating that the EU is still an important demand side for low-carbon technology products in the world, and the degree of external dependence is high. From the perspective of trade balance, from 1998 to 2022, the EU has always been in a trade surplus of low-carbon technology products, and reached a peak of \$82.1 billion in 2014, and then continued to weaken. By 2022, the EU's trade surplus in low-carbon technology products fell to \$47.2 billion. From the perspective of China's low-carbon technology products, although the development of China's green industry is relatively lagging behind, after years of efforts, China's low-carbon technology products achieved a trade surplus for the first time in 2014, and the surplus has continued to rise in recent years, reflecting the objective fact that the international competitiveness of China's green industry has continued to improve. Through the horizontal comparison of the trade balance of low-carbon technology products between China and Europe, it is not difficult to find that 2014 is a turning point in the evolution of the green industry competition pattern between China and Europe. Since 2014, the international competitiveness of green industries in China and Europe has shown an evolving trend of "rising in China and declining in the EU". China's trade surplus in low-carbon technology products surpassed that of the European Union for the first time in 2021, further raising concerns about weak competition from China in the EU's promising green industries.(Figure 2.4)

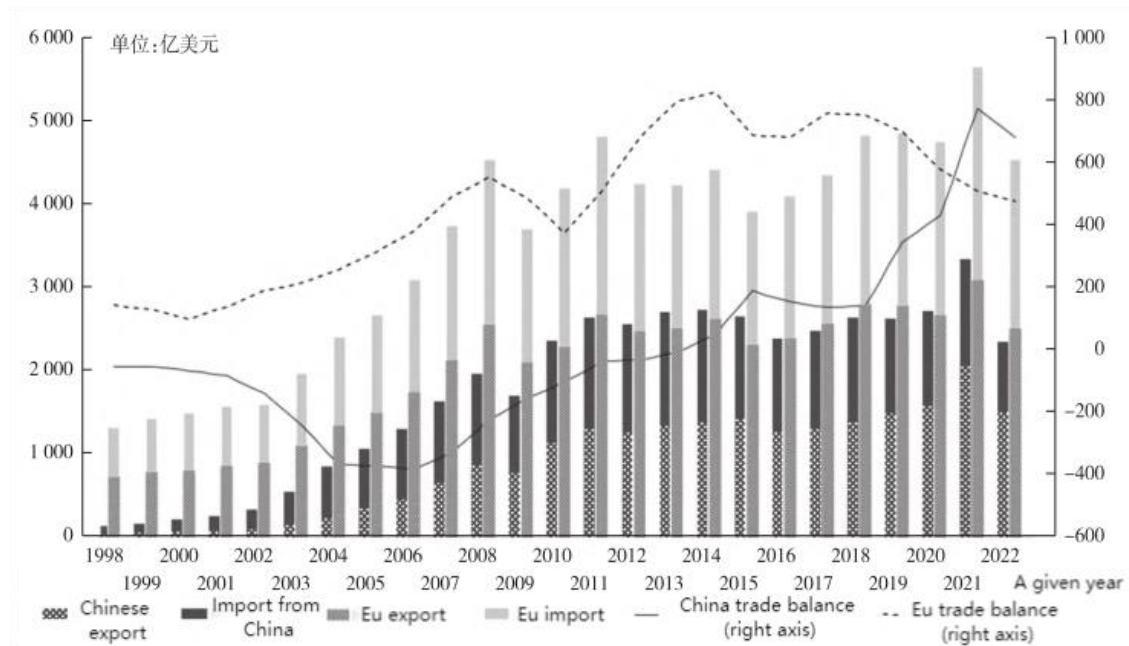


Figure 2.4 - China-Eu foreign trade of low-carbon technology products, 1998-2022

Source: [24]

Green industry has the characteristics of material intensive industry, high demand for raw materials represented by rare minerals, also known as "the key raw materials relied on by green transformation". With the rapid development of renewable energy and new energy vehicles, some "small minerals" represented by mineral raw materials such as lithium and cobalt are becoming key "large minerals". Taking the electric vehicle industry as an example, the International Energy Agency predicts that from 2021 to 2040, the global electric vehicle industry's demand for power batteries will increase by about 40 times, and the demand for lithium, cobalt, nickel and graphite will increase by 42 times, 21 times, 19 times and 25 times, respectively. China is the world's largest producer of mineral resources, the largest consumer of mineral raw materials, the largest importer of mineral products, mineral resources exploitation accounts for about 12% of the world, although the natural reserves and mining capacity of mineral raw materials are not concentrated in China, but with the advantages of refining and processing, China's mineral products (refined finished products) supply occupies a global monopoly position, especially lithium, nickel, cobalt, manganese. The supply of key minerals needed for power batteries such as graphite ranks first in the world. In 2022, the EU analyzed the output pattern and share of global refined minerals, and

believed that among the raw materials listed in the EU's "key raw materials" list, the main producer of 20 key raw materials is China, for example, China accounts for 100% of global dysprosium refining production. In addition, China is not only the largest producer of cobalt and nickel, but also has been investing heavily in cobalt and nickel mines in countries such as the Democratic Republic of the Congo and Indonesia, triggering ongoing concerns about the EU's over-dependence on China in key mineral products. The EU lacks mineral resources and refining capacity, and has a clear congenital disadvantage in the development of key raw materials needed for green industries.

But at the same time, the rising competitiveness of green industries in China and Europe cannot completely cover up the huge objective need for cooperation between the two sides. The close connection of the global green industry chain and China's huge cost advantage in many green industries mean that the EU still needs to rely on China's raw materials, intermediate products and final products to develop its own green industry, so as to improve its economy in green transformation and green product manufacturing. The EU has high exposure to green product imports from China and the demand for green products from China since the Ukraine crisis. The huge growth of the company and the industry level for cost and efficiency of the strong pursuit. In view of China's huge production capacity and technological advantages, the EU in the green field to promote the "alternative China" program, the negative effect of rising costs will be difficult to bear, as the Dutch trade Minister Liye Schreinemacher (Liesje Schreinemacher) said, "Europe's green transformation without China's participation will be difficult to succeed." At the same time, in order to improve its own production capacity, the EU is also actively attracting Chinese enterprises to invest in Europe, such as Hungary, France, Germany are open to green field investment in China's electric vehicles, batteries and other industries, and have signed important projects in recent years. French Finance Minister Bruno Le Maire has said that France should welcome Chinese renewable energy technology companies to invest in France like China welcomed Airbus, so as to enhance the strength and technical level of France's green industry, and release a positive signal of welcoming Chinese companies to invest in France's green industry during his visit to China in July 2023.

The European Union and China are two powerful trading partners with the largest economies in the world. China is currently the second trading partner of the EU after the USA.

The EU intends to deepen trade and economic relations with China, but at the same time seeks more reliable trade guarantees with China regarding the observance of fair and transparent trade rules and the fulfillment of bilateral obligations under the WTO.

At the 16th EU-China summit, negotiations on a comprehensive Investment Agreement between the European Union and China were continued. The agreement envisages the gradual liberalization of investment and the removal of restrictions for investors on each other's market. This will provide a simpler and safer legal framework for investors on both sides, providing robust protection for investors and their investments.[31]

In turn, China has planned reforms in the economic and financial sectors to strengthen trade and economic cooperation with the EU. The most important aspects of these reforms: social insurance should be strengthened, as well as dividends of state-owned enterprises, smaller and medium-sized banks will receive permits, and government control over the exchange rate of the Chinese currency - the yuan - should be loosened more quickly. Many industries will be opened to foreign private capital. The aforementioned reforms planned by China have greatly interested European partners.

Both sides expressed readiness to exchange experience in carrying out reforms. In particular, this applies to such areas as urbanization, cooperation on environmental protection, regional development, management systems, etc.

2.3. Problems of intensifying international cooperation between China and the EU

In 2020, China took first place in the list of the most important trade partners of the European Union, overtaking the United States of America. Last year, the volume of foreign

trade turnover of the EU with the People's Republic of China amounted to 586 billion euros, reported on Monday, February 15, the European statistical agency Eurostat in Luxembourg.

Despite the difficulties associated with the pandemic, the indicators of trade between the EU and China increased again in 2020. At the same time, the volume of European exports to China increased by 2.2 percent to 202.5 billion euros, and imports from the PRC - by 5.6 percent to 383.5 billion euros, Eurostat calculated.

In recent years, there has been a noticeable strengthening of trade and investment ties with the EU. For example, in recent years, the EU's trade with China grew by 8.9% annually, while the EU's trade with the rest of the world (including the PRC) increased by 4.7% annually.

At the same time, it is not only about the volume of supplies of Chinese goods, which are constantly growing, on the European markets, which could only testify to the aggravation of the economic rivalry between the Old World and China. For Germany and other countries, the EU with the competitive and favorable economic presence of a significant Chinese market in the context of the crisis in the euro zone has become the largest of the saving directions for the reorientation of its own exports. As a result of the high economic dynamics in Germany and several other EU members, the entire economy of the European Union is kept afloat. As a result, China became the first to retain EU trade partners in 2020. In 2011, China accounted for 8.7% of EU merchandise exports and 17.1% of merchandise imports, as well as 4.3% of exports and 3.7% of services imports. In recent years, a colossal decline in China has been observed - in 2000, for example, it accounted for only 3% of EU merchandise exports and 7.5% of merchandise imports (in 2007, 5.8% and 16.1%, respectively).

At the same time, China has a stable positive balance in trade with all EU members, except Germany [2]. Even greater destruction occurred in the conditions of the global crisis in the field of mutual cross-border investments. In essence, the one-way street of the transfer of manufacturing capacity from the EU to China has turned into a counter-flow of capital investment. However, so far investment flows from European countries dominate several times. In addition, in both directions, direct investments – the most stable type of cross-

border capital investments – ensure the transfer of technologies mainly only from the European Union to China. Some Chinese direct investors in the EU demonstrate not so much exploitation of their existing assets as motives for adding new assets. also, you can give the profit of the Swedish Volvo Cars for 1.5 billion dollars. in 2010, which was carried out by the Chinese Geely Holding Group [7].

Numerous publications by European experts representing various analytical centers are even greater. Most of the works show that the announced strategic partnership between the EU and China is of a strategic nature.

Let us define groups of main problems in relations between the EU and China. They include: [32]

1. Access to markets European companies and politicians have long been frustrated by limited access to markets in China. Many sectors were either open to foreign companies or were only accessible through joint ventures with local partners.

2. Chinese competition. The operating environment for companies in China is not the only problem for the EU. Governments are also concerned about the impact of China's economic activity in Europe and the growth of competition from Chinese firms, often on a basis that many politicians and business representatives consider unfair [8].

3. Formation of the EU's policy towards China. The EU's external economic relations are largely regulated at the level of the union, which requires the approval of different countries with different interests, perceptions of threats and assessment of the urgency of the problem. This contributed to the fact that there is still no comprehensive EU strategy towards China. No coalition or member state insisted on a more confrontational line. Basically, all member states pursue, as they believe, a pragmatic policy towards China, considering it as a competitor and partner.

4. EU policy towards China. As EU policy towards China is determined by economic interests, especially in the field of trade and investment, some member states play a more prominent role in this process than others. The EU and, in particular, Germany continue to see potential benefits from China's economic growth.

5. The pursuit of strategic autonomy. The combination of a mercantilist approach to China, including attempts to obtain small concessions in market access from it, and a focus on protecting the integrity and strength of the single market is partly due to the geopolitical assessment made by European leaders.

6. Toolkit for China. In accordance with its considerations regarding access to markets and competition, the European Union has developed a set of economic policy instruments in recent years, mainly of a defensive nature. A prominent place among these measures is the system of verification of direct foreign investments, which began to function at the end of 2020. Many small measures in the EU toolkit are supposed to partially protect the single market from distortions caused by China's economic model. However, in most cases their impact is likely to be limited. In the European Union, there are deep disagreements regarding the direction of its industrial policy [6].

According to the level of economic development, China ranks second in the world ranking. shows the dynamics of changes in China's GDP during 1980-2018: only from 1994 the economy began to grow rapidly and as of 2018 it reached its historical maximum of \$13,457.27 billion. USA.(Fig. 2.4 – 2.7)

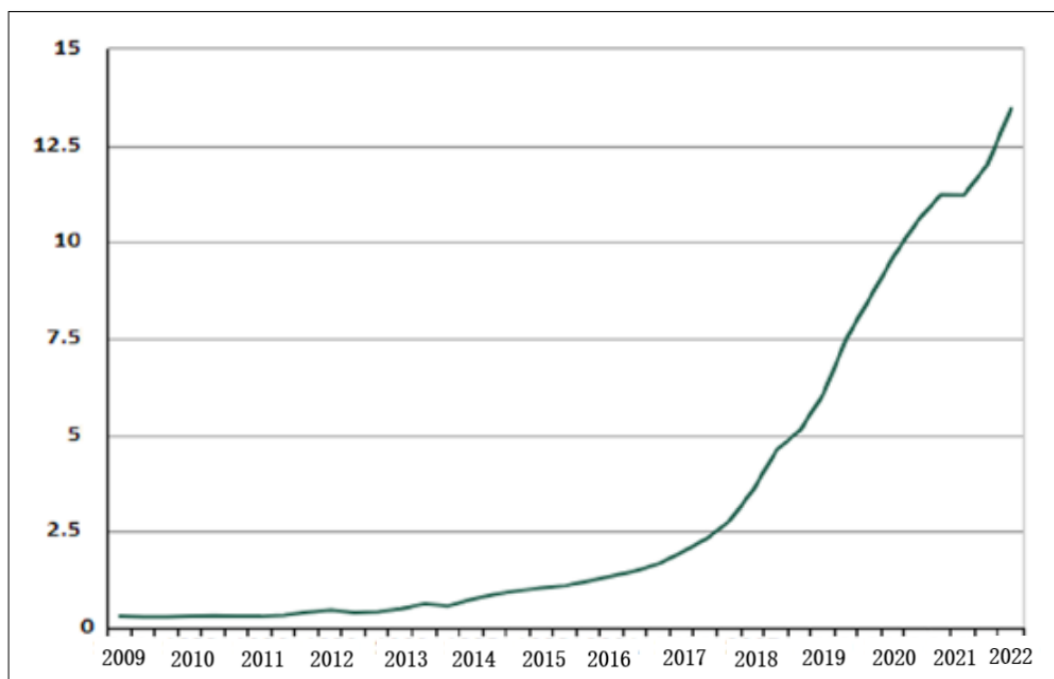


Figure 2.4. Dynamic analysis of China's GDP from 2009 to 2022

Source: [19]

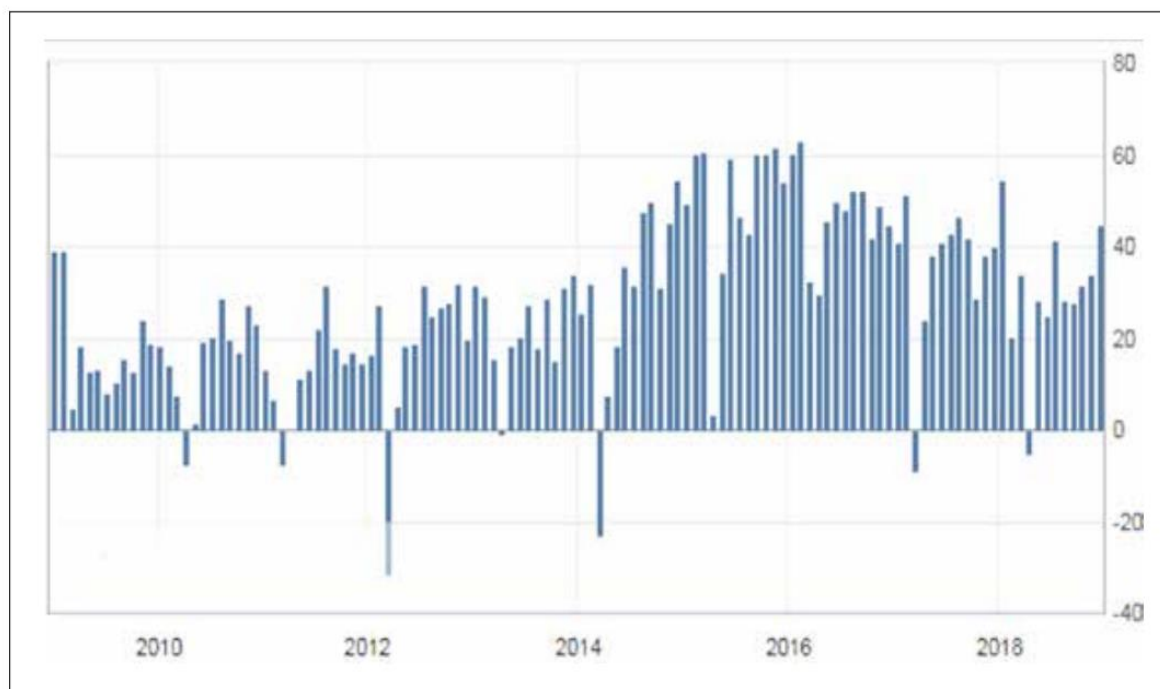


Figure 2.5 - The dynamics of China's trade balance from January 2009 to December 2018

Source: [31]

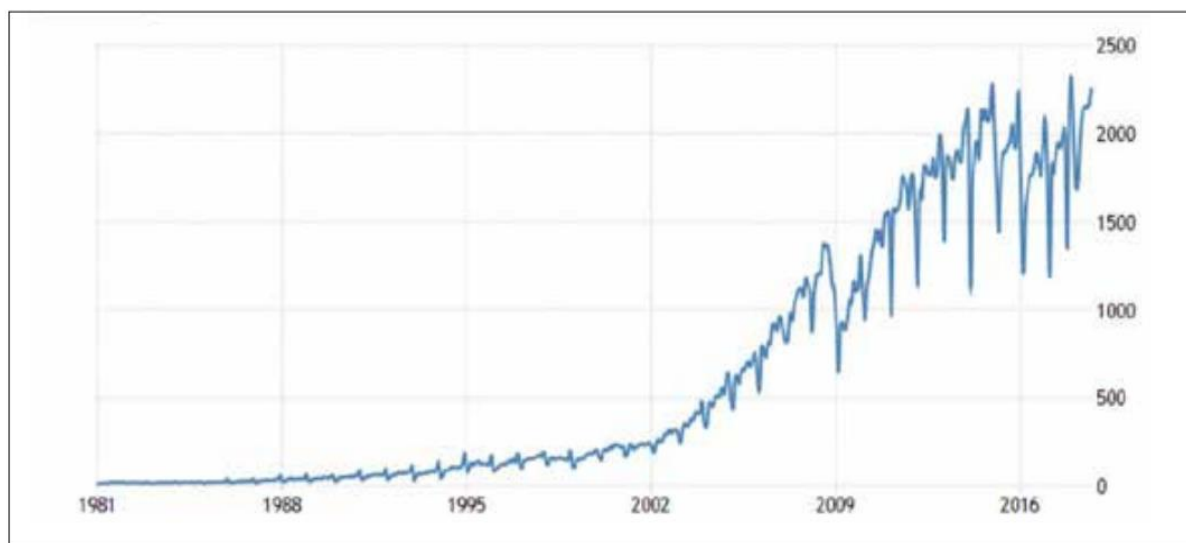


Figure 2.6 - China's Exports of goods and Services, 1980-October 2018

Source: [3]

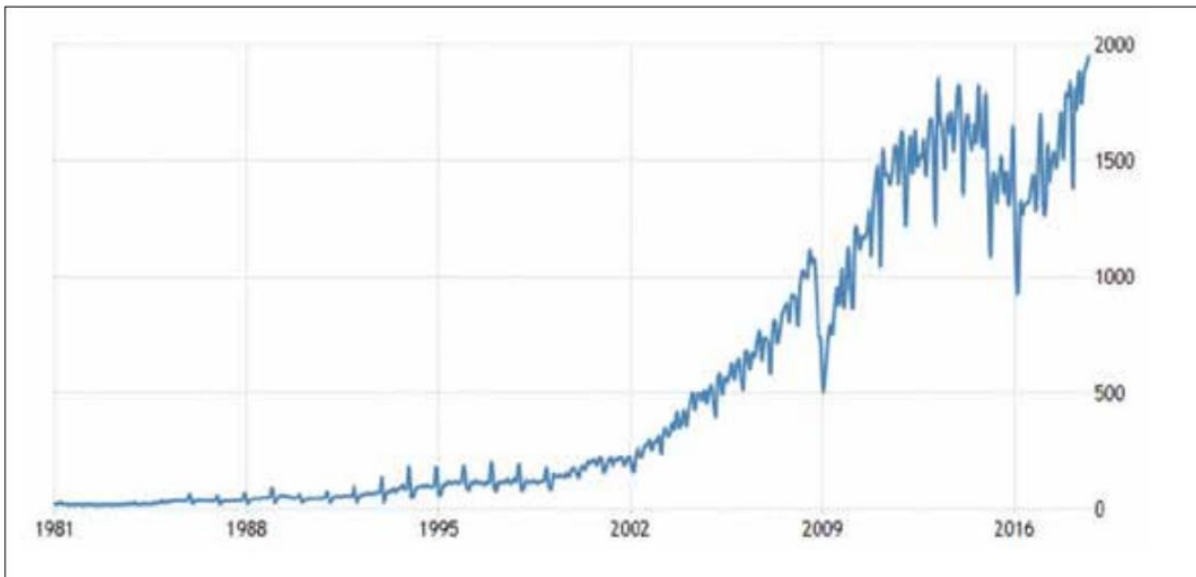


Figure 2.7- China's Imports of goods and Services, October 2018

Source: [33]

According to the National Bureau of Statistics of China, during 2009-2022, the average rate of economic growth was 9.5%, which significantly exceeded the world rate of 2.9%, as well as the rates of the world's largest countries.

It was China that became the main driver of global economic growth.

Among the main reasons for the prosperity of the PRC, the following can be distinguished:[34]

- 1) Export-oriented industrial policy.
- 2) A gradualist approach to reforms.
- 3) Stability and stability of the political system.
- 4) Technology in exchange for the market, which involved ceding part of the domestic market to multinational corporations in exchange for the transfer of foreign technology to China.
- 5) Undervalued yuan exchange rate.
- 6) Cheap labor force.

However, the most important factor in China's prosperity was the successful implementation of foreign trade policy, which not only radically affected the foreign economic position of modern China, but also became an important factor in its rapid internal

economic transformations and reforms within the country itself.

China's import of goods and services for October 1980-2018, in turn, increased greatly, reaching 2,561,707 million dollars in 2018. USA (Fig. 2.4). Compared to 2017, its growth reached 15.8% . According to WTO statistics, in the first three quarters of 2018, the contribution of this growth was 16.8% of global import growth.[33,p.55]

In 2020, China topped the list of the most important trading partners of the European Union.

The volume of foreign trade turnover of the EU with China last year amounted to 586 billion euros.

Despite the problems associated with the coronavirus pandemic, the indicators of trade between the EU and China have increased. At the same time, the volume of European exports to China increased by 2.2%, to 202.5 billion euros, imports from the PRC - by 5.6%, to 383.5 billion euros.

The rapid development of China's foreign trade not only had a stimulating effect on the streamlining of the economic structure, technical progress, and the escalation of production levels, but China's export of products brought benefits to the importing countries, since Chinese-made goods are cheap, and contributed to the stabilization of the economy of these countries. Some countries even managed to get out of stagnation thanks to this.

In recent years, bilateral relations between the EU and China have deteriorated and become more tense. The issue of human rights, the ambiguous position of Beijing regarding Russian aggression against Ukraine, the discrimination of European business in its market - this is a very short list of problems that worry the EU.

Traditionally, trade has been the main driver of the development of European-Chinese relations, but recently the trend towards their politicization has become evident.

The European Union, which professes liberal democratic values and attaches great importance to the issue of human rights, last year agreed to impose sanctions on China for systematic violations. In particular, this concerned the genocide of Uyghurs and representatives of other ethnic and religious minorities in the Xinjiang Uyghur Autonomous Region, as well as in Tibet.

China retaliated with sanctions, and the European Parliament delayed the ratification of the bilateral investment agreement, which was the result of years of negotiations between China and the EU.[22]

Such deterioration of relations contributed to Sinoskepticism among European political elites.

Here, the biggest concern of the EU is the asymmetric trade balance with China: last year it was the largest supplier of goods to the European market.

The EU now accounts for just over 15% of China's foreign trade. The European Union is also one of the key sources of foreign direct investment in the Middle East.[13]

However, China is wary of expanding European direct investment access to the country.

The PRC, for its part, actively enjoys much freer access to the EU market, especially in the countries of Central and Eastern Europe.

Another important feature of economic relations between the EU and China is China's reluctance to make concessions to European partners in the field of protection of workers' rights.

Under such conditions, the EU states are almost unanimously in favor of protecting the European market from growing volumes of cheap and low-quality exports from the PRC.

For this reason, the Europeans not only imposed anti-dumping duties on certain types of Chinese products, but also refused to grant the PRC the status of a market economy within the framework of the WTO.

At the same time, the EU is still ready for interaction and cooperation, given China's decisive role in solving global problems.

The European approach to China is multi-layered. Celestial is a "partner for cooperation in various policy areas".

Beijing is also a "negotiation partner" with which it is necessary to find a balance of interests, for example in the fight against climate change.

At the same time, it is an "economic competitor seeking technological leadership" and a "systemic rival promoting alternative models of governance" (a struggle between democracy and authoritarianism).

China is more interested than the EU in intensifying bilateral political contacts.

Instead, EU policy towards China is dominated by value orientations in the political dimension and pragmatic economic interest.

For the European Union, one of the most important tasks in the Chinese direction is the harmonization of trade and economic relations, the protection of intellectual property rights, the opening of Chinese markets and the banking sector for European goods and investments.

Favorable for Beijing is the fact that the EU's policy towards China, despite the existing bilateral differences, is based mainly on attempts at interaction rather than isolation.

At the same time, Brussels has an urgent request to strengthen subjectivity in world politics and implement "strategic autonomy". In this context, the European Union is interested in cooperation with China in matters where it can be beneficial and relevant for Brussels.

The scope of Sino-European cooperation has gradually increased since the agreement of the Strategic Agenda in 2013. However, this does not necessarily entail a post-liberal partnership governance, which would involve broadening the content of governance practices that regulate and manage various aspects of citizens' lives, and do so by circumventing liberal concerns of good governance, the rule of law and human rights.

The Strategic Agenda document has the potential to regulate every aspect of citizens' lives, indirectly governing how they produce and work (e.g. agriculture, industry), learn (science, technology, innovation, education and youth), consume (energy, transport) and behave socially (environmental protection, social progress). This division into different policy areas indicates how the public authorities divide the socio-political sphere of governance into smaller thematic categories in order to manage them more easily and efficiently.

Similarly, the relationship between the EU and China can be considered a form of cross-regional network governance based on expert technologies that are interconnected with the effective governance of China's population.[36]

To deepen exchanges on human rights at the bilateral and international levels based on equality and mutual respect. Strengthening human rights dialogue through constructive discussion of jointly agreed key priority areas.

Such a general and declarative wording allows both Brussels and Beijing to agree to cooperation.

Conclusions to chapter 2

The relationship between the European Union (EU) and China should be based on mutual benefit, where both sides can reap equal benefits from the development of this relationship. It was believed that through strengthening ties with other countries worldwide, China would gradually move towards a market economy and a rule of law system. However, reality has proven this assumption to be incorrect. On the contrary, China has also underestimated the EU. Even during challenging times for the EU, China has found it difficult to bypass the complex regulatory framework that interconnects European countries. Nevertheless, the Chinese government continues to perceive Europe as merely a collection of sovereign states, which have been brought together under a regional organization, the EU. Perhaps this is why China overestimates its influence in Europe. Today, trade between the EU and China is rapidly growing. Understanding the trends in this trade development will enable us to identify the direction of international logistics flow and actively engage in international trade. China is becoming an active trading partner for countries around the world. The EU and China should strive for a balanced and fair trade relationship, promoting open markets, transparency, and fair competition. Both sides should respect each other's rules and regulations, ensuring a level playing field for businesses. Additionally, it is crucial to address issues related to intellectual property rights, market access, and state subsidies.

By doing so, the EU and China can foster an environment conducive to mutual growth and prosperity. Moreover, it is essential to recognize that the EU is not a monolithic entity but a union of diverse countries with their own unique characteristics and interests. China should engage with each member state individually and understand their specific needs and concerns. This approach will enable better cooperation and deeper understanding between the EU and China. In conclusion, the EU-China relationship should be based on mutual benefit and equality. Both sides must acknowledge and respect each other's complexities, rules, and interests. By fostering a balanced and fair trade relationship, the EU and China can create a conducive environment for economic growth and cooperation, ultimately benefiting both parties.

CHAPTER 3.

WAYS TO IMPROVE THE EFFICIENCY OF TRADE COOPERATION BETWEEN CHINA AND EUROPE

3.1. Analysis of the advantages and disadvantages of trade between China and Europe

Major opportunities for deepening China-EU cooperation can be described in this way.

First, the convergence of ideas between China and Europe is increasing, not decreasing. In recent years, China has become more confident in its own path, theory, system and culture, and has increasingly expressed China's propositions and proposed China's proposals in the international arena. As the global political and economic situation has undergone profound changes and China has entered a new stage of development, the values shared by China and the EU have increased rather than decreased. For example, China's proposals on building a new type of international relations featuring win-win cooperation, building a community with a shared future for mankind, improving global governance, promoting trade and investment liberalization and facilitation, and actively addressing climate change have the same or similar features with many of the EU's proposals. The new development concepts advocated by China, such as innovation, coordination, green development, openness and sharing, coincide with the concepts embodied in Europe's economic and social transformation. In particular, at a time when protectionism and unilateralism are on the rise, economic globalization is facing headwinds, and the COVID-19 pandemic is posing huge challenges to human society, China and the EU have basically the same position on upholding open development, upholding the multilateral trading system of the World Trade Organization (WTO), and upholding cooperation in fighting the pandemic.

Second, the complementarity between China and Europe is increasing, not decreasing. In fact, with China's economic and social development, although the competition between China and the EU has increased in some areas, the complementarity between China and the EU has become more obvious on the whole, and this complementarity has undergone major

structural changes compared with the past. In the past, China's low factor costs and strong processing and manufacturing capacity have complemented and effectively combined with the EU's capital, technology and market. In the future, the complementarity between China's high-quality goods and the EU market will remain strong. At the same time, China's super-large market and growing outbound investment capacity will complement the EU's high-quality goods and services and investment-friendly business environment, and provide new development opportunities for the EU's economic recovery and sound development.

Third, the space for China-EU cooperation in the new round of scientific and technological revolution and industrial transformation has increased, not decreased. At present, a new round of scientific and technological revolution and industrial transformation led by a new generation of artificial intelligence, including scientific and technological breakthroughs in physics, information, biology and other fields, is booming, and is bringing immeasurable effects and impacts to human society. In particular, "5G+ a new generation of artificial intelligence" has penetrated into various industries and fields on a large scale, promoting the emergence of new products, new industries, new forms of business, and new models. In this round of scientific and technological revolution and industrial transformation, China and the EU are in the first tier together, and there is broad room for cooperation. First, China's ultra-large market provides a huge "incubator" for the transformation of scientific and technological innovation achievements and large-scale production, which is highly attractive to Europe. The EU-China Strategic Outlook issued by the EU emphasizes that China's growing domestic market and economic scale provide important opportunities for the EU, and the EU and China are strategic markets for each other. Second, China has strong competitiveness in 5G, information network technology and other fields, and the scientific and technological cooperation between Europe and China is complementary, rather than unilateral "science and technology export".

Major challenges to deepening China-Eu economic and trade cooperation

Firstly, there are some political disagreements regarding the rules for further cooperation between China and EU countries. This could have a negative impact on economic issues, including international trade.

Second, the desire of national governments to implement protectionist policies contributes to the risk of the development of international trade. In an effort to protect its own manufacturer at the legislative level, the volume of purchases from other countries is reduced, which also affects the volume of international trade.

Third, the world economy remains weak. In the absence of a large-scale breakthrough in the fourth industrial Revolution, affected by population, capital, technology and other factors, the potential growth rate of the global economy will continue to be weak in the next few years or even longer, resulting in weak growth of the world economy. From the perspective of population, the global population growth continues to slow down and aging presents an irreversible trend, which will restrict the growth of the working-age population, thereby reducing the potential growth rate of the global economy. Take developed economies as an example, the absolute number of working-age population began to decline after 2010, with the continuation of this trend, will face a more severe labor supply situation. From the perspective of capital, the global investment rate will increase very slowly in the coming period, which will significantly restrict the potential growth rate. From the perspective of technology, scientific and technological innovation, including e-commerce, mobile payment, sharing economy, virtual reality, etc., still belongs to the deepening application of information technology, mainly focusing on the demand side of the business form and model innovation, its significant role is to reduce the transaction cost of supply and demand docking, improve the convenience of consumption. Scientific and technological innovations that can have a wide penetration and even subversive impact on the supply side industries, including a new generation of artificial intelligence, new material technology, etc., are less likely to be promoted and applied on a large scale in the next few years. Historical experience shows that periods of global economic weakness are often periods of intense competition for resources, and various conflicts and conflicts are prone to occur, which will bring more uncertainties to the deepening of China-Eu economic and trade cooperation.

3.2. Improved methodology for assessing the effectiveness of international trade

The most important element and starting point of the study of the success of the functioning of subjects of foreign economic activity is the understanding of the essence of their foreign trade interests, as well as the directions of their implementation. The effectiveness of the international activities of any state in the world is determined by a number of various factors, including the level of socio-economic and socio-political development, the geographical location of the country, its national-historical traditions, ensuring sovereignty and security, economic and resource potential.

In the conditions of economic globalization, the role of foreign trade interests is gaining more and more importance. That is why, despite the huge number of classifications of interests, from the point of view of carrying out effective activities and presence on international markets, foreign economic interests are undoubtedly one of the most prioritized.[25]

Since foreign trade is one of the most developed forms of international cooperation, national economic interests in the field of foreign trade are becoming increasingly important, because world trade is developing at a much higher rate than the world GDP is increasing.

Normalized index of revealed comparative advantage, NRCA. It is used to calculate China's comparative advantages in commodity group trade. That is, the index shows the ratio of the share of a commodity group in Ukrainian exports to the EU to the share of this commodity group in the total export supplies of trade partners to the EU. If the index is greater than zero for a certain product group, then China has a clear comparative advantage in the production and export of such a product group.

$$NRCA_k^U = \frac{RCA_k^U - 1}{RCA_k^U + 1} \quad (3.1)$$

$$RCA_k^U = \frac{X_k^U / X^U}{X_k / X} \quad (3.2)$$

where RCA_k^U – index of revealed comparative advantages in exporting a commodity group K,

X_k^U – the volume of exports from China to the EU of product group K,

X_U – the volume of total exports from China to the EU,

X_k – the volume of aggregate exports of trade partners to the EU of commodity group K,

X – the total volume of exports to the EU.

Herfindahl-Hirschman index, HHI. It is used to calculate the level of export concentration - commodity or geographical. HHI is also an inverse indicator of export diversification. In particular, in order to determine the level of commodity concentration of exports, the HHI is calculated as the sum of the squares of the shares of each commodity in total exports, with a higher value of the index indicating more concentrated exports:

$$HHI = \sum_{i=1}^N S_i^2 \quad (3.3)$$

where S_i – the share of product i in exports to EU countries or other countries.

Despite the negative impact of the COVID-19 pandemic on output and employment in the PRC in 2020, China's economy has demonstrated remarkable resilience alongside the health crisis. Thus, the average annual growth rate of real GDP decreased from 7 percent in 2016-2018 to 6 percent in 2019 and to 2.3 percent in 2020. The pandemic has negatively affected almost all sectors of the Chinese economy, with the exception of the financial services and information technology sectors. Since mid-2020, China's economy has begun to recover. This was mainly facilitated by state investments and international trade. As a result of the normalization of economic activity, GDP growth is expected to return to 6 percent in 2021.

Due to the COVID-19 pandemic, exports decreased in the first half of 2020, but then increased significantly, reaching the highest value during the entire review period (about US\$2.6 trillion in value terms in 2020), thanks to China being able to first to resume

production processes after the first wave of global lockdowns and maintain its leading role in the supply of medical equipment and electronics required for remote work. The export structure is dominated by such a group of goods as machines and electrical equipment (more than 44 percent), the share of which continues to grow. The United States of America and the European Union remain the main destinations for exports of goods from China. More than 44 percent of China's total exports go to Asian markets.[26]

The volumes of goods imports increased significantly in 2016-2018, but decreased in 2019-2020. The structure of China's imports is also dominated by machinery and electrical equipment (about 35 percent of the total volume), followed by mineral products (about 25 percent). The European Union remains the largest importer of goods, while the share of goods imported into China from the United States decreased from 9 percent in 2015 to 6.6 percent in 2020. The share of imports from Asian countries fluctuated around 47 percent in 2016-2019 and increased to 49 percent in 2020.

The current international situation in world trade contributes to the achievement of the goals of China's trade policy, which are the conclusion of free trade agreements and the promotion of norms and standards of China's products. China is a leader in global trade in products and services. At the same time, it is one of the most trade-dependent economies.(Fig. 3.2)

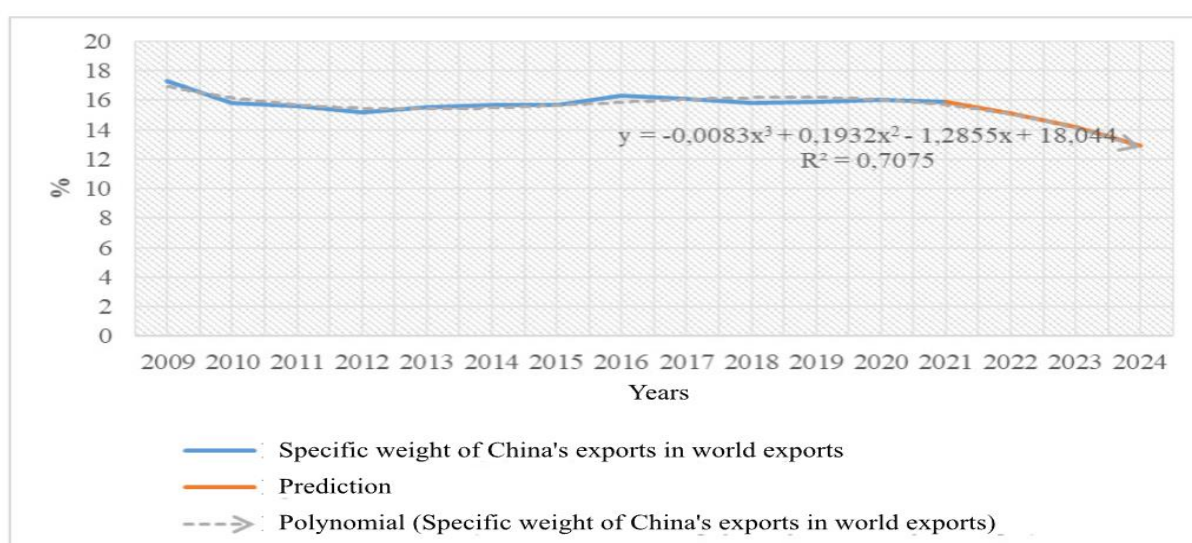


Figure 3.2 - China's share of world exports, 2009-2024

Source: [38]

3.3. Policy proposals and prospects for improving trade cooperation between China and Europe

At a time when the world has not undergone major changes in a century, China and the EU, as two major forces, two major markets and two major civilizations in the world, need to deepen economic and trade cooperation for win-win cooperation, stabilize the world economy, promote the sound development of economic globalization and jointly make greater contribution to the international community. It is suggested to take "stability and development" as the main line to push China-EU economic and trade relations to a higher level.

1. "Deepen the stock and increase the increment", and strengthen China-Eu economic and trade cooperation with a focus on green and digital fields.

Follow up and analyze the changes in the industrial and supply chains between China and the EU during and after the COVID-19 epidemic, and make timely responses to stabilize the chain and reduce the negative impact on the Chinese and European economies. We will open wider to the outside world at a high level, promote opening-up in the financial services industry and other sectors, continue to improve the business environment, and attract more foreign companies from Europe and other places to invest in China. Promote the deepening of existing cooperation in trade, investment, science and technology, finance and other areas. Strengthen China-Eu cooperation in green economy such as energy conservation, environmental protection, energy transformation, resource recycling and green technology innovation. We should combine the advantages of European industries and other industrial bases with those of China in the field of information and communication, explore cooperation in digitization and digital industrialization of traditional industries, strengthen cooperation in the innovation and application of key digital technologies, expand cooperation in public services and other areas of digital society, and forge digital partners. China and the EU should diversify their cooperation in technology and other fields through various forms such as greenfield investment, equity participation, cooperation between research institutions and exchanges of researchers. Actively promote the signing and

implementation of the China-Eu Investment Agreement to further tap the potential of China-EU investment cooperation.

2. "Strengthen bilateral and do a good job multilaterally" and expand China-EU cooperation in third-party markets

While the bilateral economic and trade relations are growing steadily, China and the EU should improve industrial and supply chain cooperation in economies in the Asia-Pacific and other regions. We will implement the Regional Comprehensive Economic Partnership (RCEP) and accelerate the formation of a network of high-standard free trade zones based on neighboring countries, radiating the Belt and Road Initiative, and facing the world. Focusing on the African market and taking into account the development aspirations of African countries, China and the EU should give full play to their respective comparative advantages to carry out third-party market cooperation in energy, infrastructure, agriculture, health, manufacturing, finance and insurance. We should explore cooperation in emerging areas such as the digital economy and jointly provide digital assistance such as technology, equipment and services to less developed countries so that all countries can share the dividends of the digital era. We should improve existing cooperation models and improve communication and coordination mechanisms. Through the establishment of cooperation funds, optimizing project investment and financing and other ways to achieve diversification of capital sources, sharing risks and sharing benefits.

3. "Build consensus, resolve differences" and jointly build an open world economy.

The EU has always been a supporter of multilateralism, and its consensus with China on building an open and shared world economy clearly outweighs differences. He suggested that China and the EU continue to jointly safeguard multilateral rules and free trade, and strengthen cooperation in global economic governance such as WTO reform. Deepen cooperation in climate change, biodiversity and other fields, forge a green partnership, and constructively participate in the global multilateral cooperation process to address climate change and protect global biodiversity. Jointly promote the formulation of international rules for digital and cyberspace, promote the establishment of a democratic and transparent global Internet governance system, and promote the sound development of global digital

economy governance.

The rapid development of the People's Republic of China (PRC) as a new global power is gradually turning into one of the leading trends in the modern development of the world economy. As a result of the redistribution of the international balance of power with the participation of the People's Republic of China, the existing integration blocks are being modified, and additional opportunities for creating new configurations of international partnership are emerging. In this context, the efforts of the EU authorities to deepen EU-Chinese economic relations are a timely and adequate response to transformations in the international environment.

An integral aspect of improving trade and economic relations between the EU and the People's Republic of China is the investment partnership. The main steps of the European authorities to improve the state's investment climate should be: overcoming corruption in all its manifestations, carrying out a real judicial reform, fighting against raiding attacks on companies, eliminating oligopolies and monopolies in certain markets of goods and services, liberalizing the process of opening small and medium-sized businesses, easing of tax pressure. There are also more global factors improving the investment situation: stabilization of the economic and political situation, the end of the war in Ukraine. Financial and other assistance from the government to foreign investors plays an important role.

At the same time, it is necessary to simplify the process of issuing a European visa to citizens of the PRC, which will allow deepening cooperation in the field of tourism, humanitarian and business exchanges, and science.

Since the global economy is permeated with fierce competition for attracting investment, the EU needs to create an attractive investment climate. Chinese investors consider the European tax system one of the main difficulties, so the situation should be transparent and predictable in terms of legal protection of investments.[32]

China's own resources are not enough to ensure domestic demand for food, which is why the agricultural sector, processing of agricultural products (organic plastic), food production (sunflower oil, flour, sugar, gluten) have great prospects for joint production. The EU can "respond" to this cooperation in large volumes. In addition, the favorable econ

omic position of the EU minimizes the cost and time of delivery of goods to European countries.

In recent years, China has made significant progress in the field of grain cultivation and livestock development. The EU in symbiosis with the People's Republic of China can make a significant contribution to ensuring world food security. For its part, Beijing has the ability to provide the necessary volumes of food imports from the EU at a strategic level. In addition, China plans to double its consumption of meat, grain and soy by 2040, so the EU needs to take this into account and use it to develop its economy.

In addition, projects in the field of construction of plants for the production of plant protection products and fertilizers, which the EU currently imports, the use of new technologies to increase the yield and productivity of livestock and poultry farming, and the development of the logistics chain are recognized as priorities.

Mechanical engineering and high technologies can be considered another promising direction, because Ukrainians achieve a high level of training for these industries and are considered one of the best qualified personnel in the world.

Today, the EU does not fully use its full potential in attracting Chinese investments. This is hindered by the existence of only the mechanism of state guarantees and the insufficient pace of the real algorithm of actions. To bring investment cooperation to a qualitatively new level, new forms of cooperation are needed: the use of direct investment by Chinese companies, partial provision of state guarantees, the creation of a joint investment fund on parity terms, agreement on medium- and long-term cooperation plans between the states in the form of production cooperation. A productive solution for countries can be the creation of joint industrial parks and technological development zones for the manufacture of high-precision products in the EU with the participation of Chinese capital investments, which is envisaged by the Chinese geo-economic program "One Belt - One Road".[31]

For the economy of the People's Republic of China, a typical model is industrial parks (and industrial cities), which make up 30% of the entire economy. Close cooperation with China, which has the necessary technology, experience and management model, can bring

fruitful results for the EU. Along with technologies and investments, specialists will be involved, and therefore our business can "learn" and in the future apply the acquired knowledge in other areas.

The priority directions of cooperation in the field of science and technology are energy efficiency, aircraft and shipbuilding, rational use of nature, aerospace, information and communication technologies, training of young scientists (exchange and internship programs for graduate students and young scientists). In particular, the Program for Cooperation in the Space Industry for 2016-2020 envisages the implementation of 71 prospective cooperation projects between the EU and China. The main purpose of the projects is to establish cooperation in remote sensing of the Earth and the creation of rocket and space technology, taking into account the implementation of the PRC lunar program and the mission to explore the planets of the solar system.

In addition, it is worth paying more attention to the creation of new materials, environmental protection and the production of medicines. In particular, in 2015, the Chinese market became the second largest pharmaceutical market in the world. The EU is one of the most important partners of the Republic of China in the field of pharmaceuticals among the countries of Central and Eastern Europe. It has a large production potential, a growing market for the consumption of medicines and the possibility of their transportation to other European countries.

Joint projects implemented by European and Chinese specialists mostly belong to the fields of high technologies, new materials, environmental protection, and drug production.^[40]

Despite the current tense financial and economic situation, the EU still remains an interesting partner for the PRC in the field of strategic cooperation and within the framework of the "Belt and Road" initiative. The EU has a number of technological and scientific production capabilities that are of interest to China in the context of the needs for the development of advanced sectors of its economy, as well as for the purpose of implementing important strategic projects in various fields.

Conclusions to chapter 3

At a time when the world is undergoing profound changes unseen in a century, deepening economic and trade cooperation between China and the EU, two major forces, two major markets and two major civilizations in the world, is of great significance to achieving win-win cooperation, stabilizing the world economy, promoting the sound development of economic globalization and making greater contribution to the international community. This chapter provides a number of approaches and policy recommendations to improve the efficiency of trade cooperation between China and Europe. First of all, it is suggested to take China-Eu economic and trade relations to a higher level under the main line of "stability and development". The focus is to deepen stock cooperation, expand incremental cooperation, prioritize green and digital fields, and reduce the negative impact of the COVID-19 epidemic and its post-epidemic period on the two economies. At the same time, we will expand opening-up at a high level, attract foreign enterprises from Europe and other places to expand investment in China, and promote the deepening of existing cooperation areas. Second, it is suggested that efforts be made to expand cooperation in third-party markets between China and the EU. We will improve industrial and supply chain cooperation between China and the EU in economies in the Asia-Pacific and other regions, and accelerate the formation of a network of high-standard free trade areas. We will focus on cooperation in the African market, and carry out third-party market cooperation in various fields in light of the development needs of African countries, especially in the fields of green economy and digital economy. Finally, it is suggested to jointly build an open world economy and strengthen multilateral cooperation between China and the EU. Uphold multilateral rules and free trade, strengthen cooperation in global economic governance, and promote progress on global agendas such as climate change and biodiversity. Jointly promote the formulation of international rules for digital and cyberspace, and promote the sound development of global Internet governance. Although the EU is defensive about China's economic policies and the two sides still disagree on trade issues, the interaction between China and the EU is strategically important

for both sides. China needs the EU as a predictable and stable economic partner, while Europe wants to stabilize its relationship with Beijing and avoid becoming a game for confrontation between China and the United States. In the future, the in-depth progress of China-Eu economic and trade cooperation may face certain challenges, but there are also many opportunities to seize. To sum up, by strengthening stock cooperation, expanding third-party market cooperation and jointly building an open world economy, the efficiency of trade cooperation between China and the EU will be improved and make greater contribution to the common development of both sides and the prosperity of the international community.

CONCLUSIONS

At the current stage, China is one of the first places in the ratings compared to other countries in terms of its economic development, the average rate of economic growth, foreign trade relations, population, and area, and thus has a significant impact on the world economy.

One of the most important reasons for globalization was the reform of foreign trade policy in 1978. Only after a decisive change in its course, namely, a reorientation towards an "open door" policy, did China's economic performance begin to show positive changes. In general, scientists distinguish two stages in the history of the development of foreign trade policy (before joining the WTO (1980-2001) and after (from 2001 to today)) during which the maximum liberalization of its foreign trade was carried out and continues to be carried out.

The EU is one of China's main foreign trade partners. It mainly exports high-tech products, clothing, textiles, shoes, furniture, engines and generators, integrated circuits, etc., and imports mechanical and electrical products, high-tech goods, crude oil, etc.

Today, China focuses its attention on the following areas of foreign trade policy:

1) Implementation of a more active import policy, simplification of trade procedures, development of new types of trade and promotion of innovative development of processing trade;

2) Encouraging foreign investments in the central and western regions of China, accelerating the release of complex pilot projects for the creation of new institutions of an open economy, promoting the reform of the foreign investment management system, promoting overseas investment cooperation;

3) Strengthening the protection of intellectual property rights;

4) Development of pilot free trade zones.

5) Supporting economic globalization and creating a new platform for international cooperation in the One Belt, One Road initiative.

6) Active participation in global economic management and opposition to

protectionism.

7) Creation of new free trade zones (FTA) and promotion of trade liberalization and investment in them.

Thus, the policy of the PRC regarding international trade is quite effective, but continues to remain in the phase of transformation, is dependent on the foreign market and despite active opposition to "protectionist" policies.

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ANNEXES

Annex A

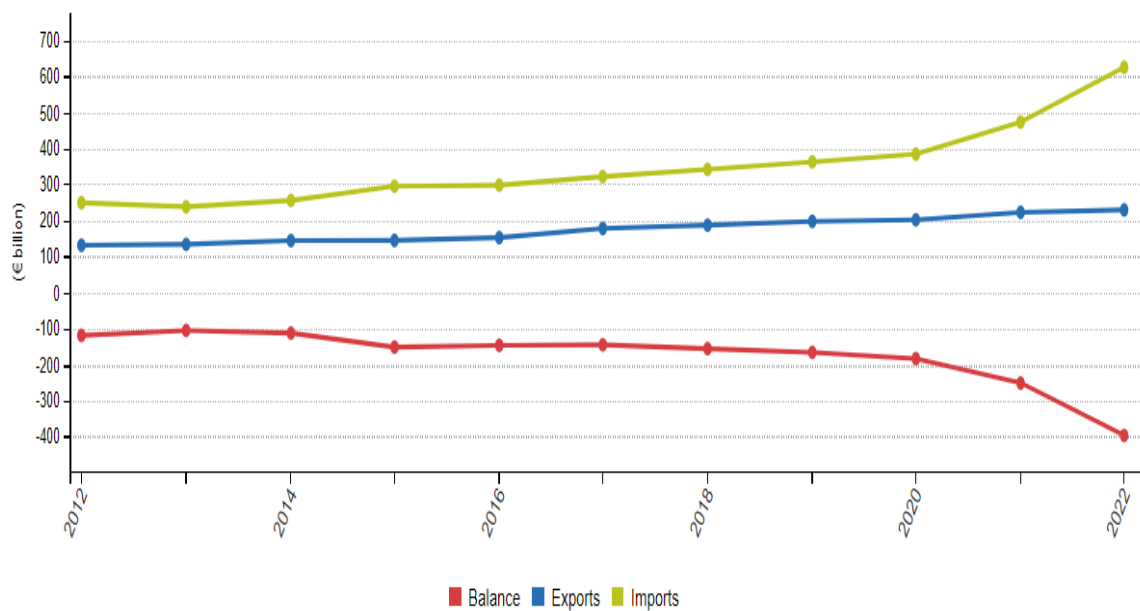


Figure A.1 - EU merchandise trade with China, 2012-2022

Source: [34]

Annex B

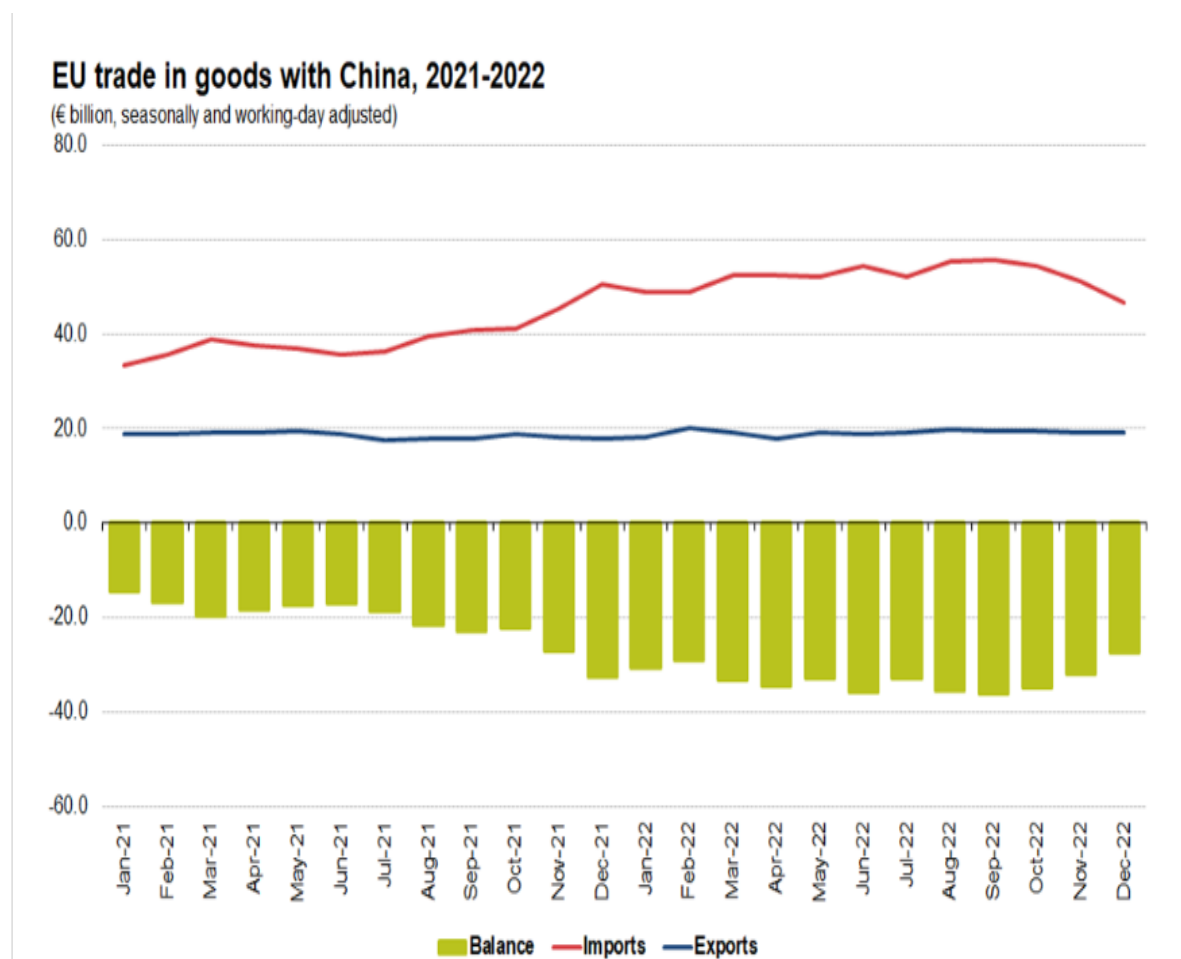


Figure B.1 - EU trade in goods with China, 2012-2022

Source: [34]

Annex C

EU trade in goods with China and other non-EU countries, 2021-2022

(Jan 2021 = 100 %, seasonally and working-day adjusted)

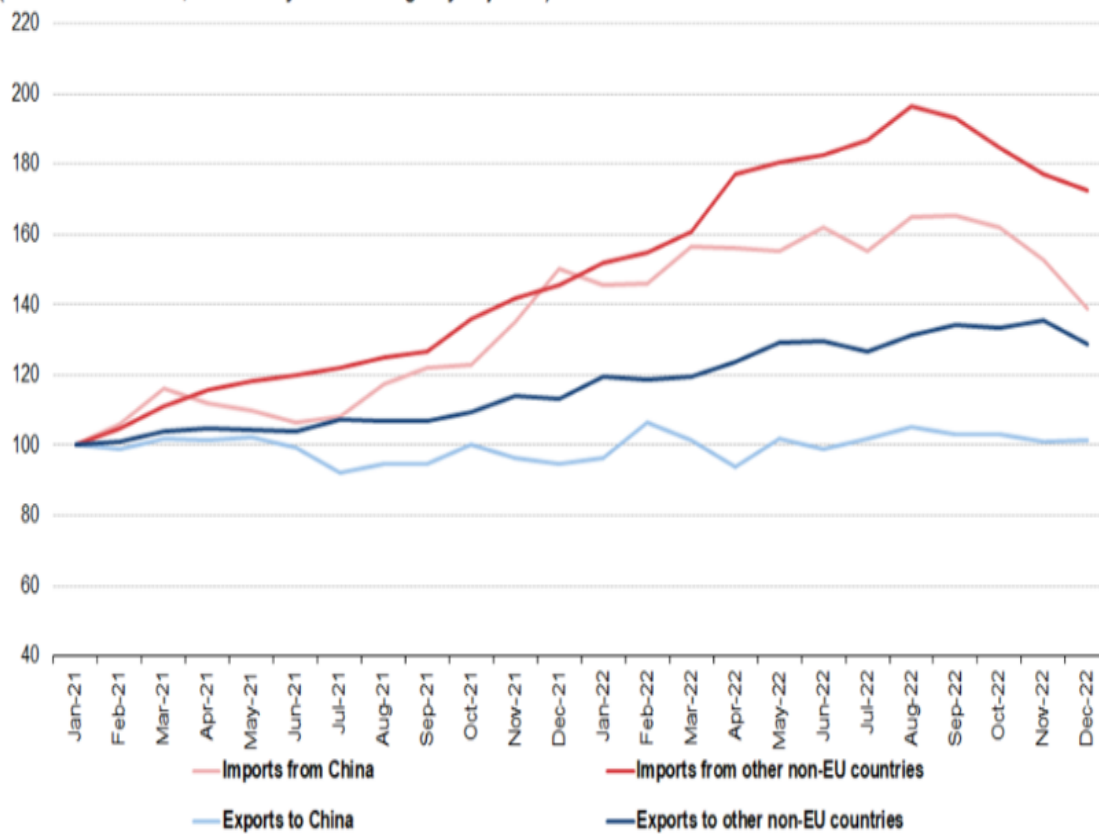


Figure C.1 - EU trade in goods with China and other non-EU, 2021-2022

Source: [17]

Annex D

Trade in goods of the EU and China, 2011-2021

(exports and imports indexed at 100 in 2011, cover ratio in %)

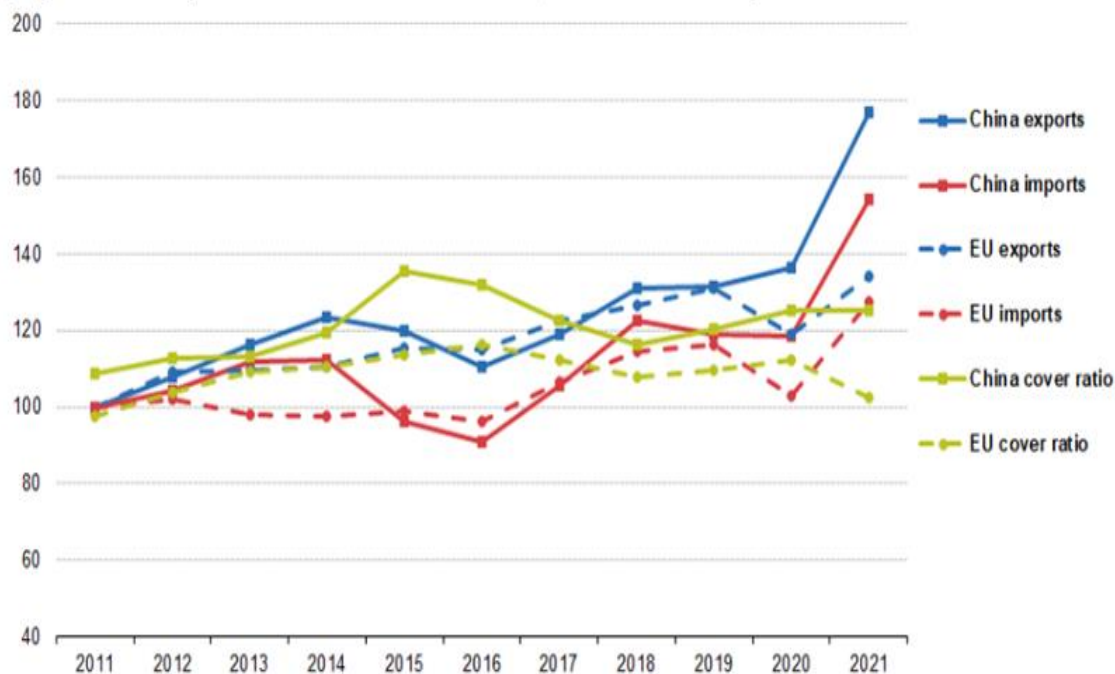


Figure D.1 - Trade in goods of the EU and China, 2011-2021

Source: [17]

Annex E

EU trade with China by product group, 2012 and 2022

(€ billion)

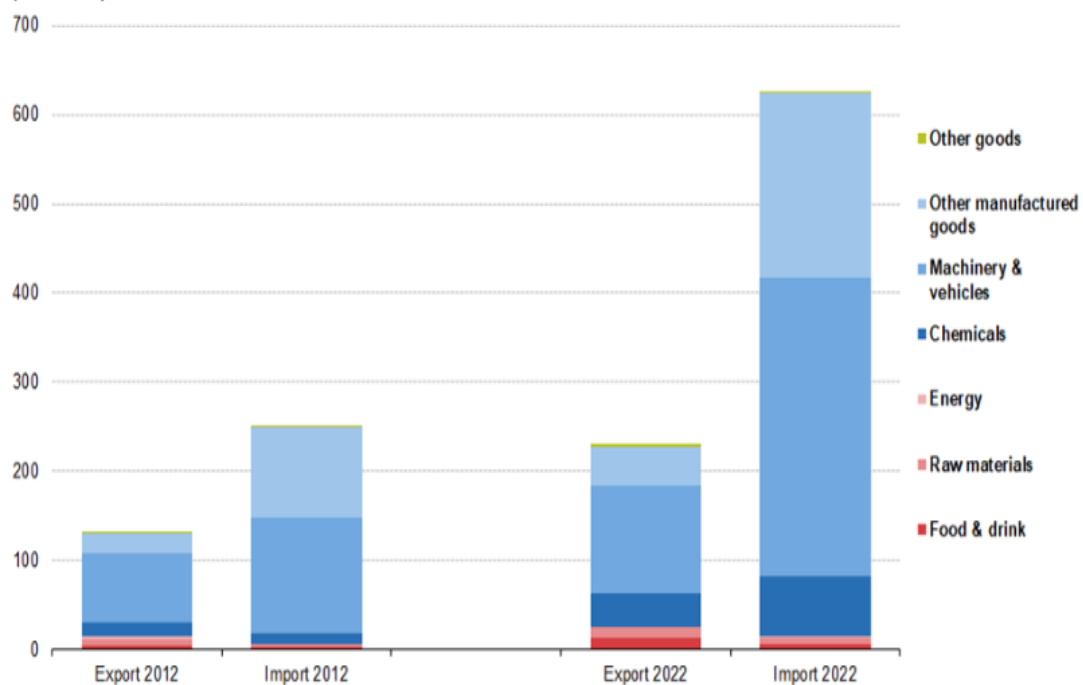


Figure E.1 -EU trade with China by product group, 2012-2022

Source: [17]