A Study on the Business Environment, FDI Quality, and Economic Growth in Eastern Europe

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Abstract

The economic development of various countries is inseparable from the optimization of the business environment and the continuous inflow of foreign investment. There is a mutual influence and promotion relationship between the business environment, FDI quality, and economic development. This article conducts theoretical and empirical research on the relationship between the business environment, FDI quality, and economic development in Eastern Europe, with the aim of discovering the regularity of these three factors and providing valuable policy recommendations for economic development in the region. This study suggests that there is a single economic structure in the economic development of Eastern Europe. There are significant income disparities and unstable political situations. In the early stages of economic transformation, the business environment played a significant role in promoting economic growth in Eastern Europe; In the past decade, the quality of FDI has played a more significant role in promoting economic growth in Eastern Europe. The improvement of the business environment in Eastern Europe has had a significant impact on the quality of FDI and economic growth. The business environment, FDI quality, economic growth coupling and coordination in Eastern Europe are constantly increasing. There are significant differences in the business environment, FDI quality, and economic growth indicators among Eastern European countries. The improvement of the business environment can directly promote economic growth in Eastern Europe. FDI quality is a transmission channel through which the business environment promotes economic growth in Eastern Europe.

Keywords

Business Environment, FDI Quality, Economic Growth, Eastern Europe

1. Introduction

In the 1990s, Eastern European countries embarked on a path of transformation, followed by sustained economic prosperity and growth after a transitional recession, and gradually established a market economy system. With stable economic growth, some Eastern European countries have also attracted a large amount of investment, especially in industrialized countries such as Poland, Hungary, Slovakia, and Slovenia, where a large number of multinational corporations have entered. The transformation has greatly enhanced the position of Eastern European countries in the world economy, and the eastward expansion of the European Union has brought unprecedented development opportunities to Eastern European countries. After 2001, the economic growth of Eastern European countries became rapid, and the development gap between them and Western European countries gradually narrowed. The economy became more prosperous and quickly integrated into the world economy. But after the outbreak of the 2008 financial crisis, due to the high degree of market openness of these countries to the European Union, their integration and economic convergence with the EU continued to increase, and the economic development of Eastern European countries was severely affected. Since 2010, most European countries have begun to fall into crisis. Although the economies of Eastern European countries have started to recover after the financial crisis, they are still relatively backward compared to Western European countries. At the same time, due to multiple factors such as weak global economic growth and Brexit, most Eastern European countries maintained medium to low growth rates in 2021, with some countries experiencing a slowdown in growth compared to 2020.

Due to differences in natural conditions, population size, and other factors, there are also differences in the level of economic development between countries. Different countries may be constrained by economic, technological, and other factors, making it difficult to fully leverage their own advantages. In this case, other factors are needed to stimulate. From the factors driving economic growth in Eastern Europe, investment and domestic consumption remain the main driving forces, and the introduction of foreign investment is a good stimulus factor. However, attracting foreign investment requires a prerequisite, and the entry of capital places great emphasis on whether the local area has a good business environment. A good business environment has a positive impact on economic growth, but the improvement of the business environment usually does not directly promote rapid economic growth. FDI is often needed as a transitional factor, and the quality of FDI plays a crucial role in economic growth. When the business environment of a country or region improves, it will have a significant promoting effect on attracting high-quality foreign investment. At the same time, the introduction of foreign investment is accompanied by the introduction of technology and concepts, which will further improve the local business environment and create a virtuous cycle before the two. From an international macro perspective, FDI often occurs to meet the needs of different

countries for their own factors. Enterprises from different countries spontaneously or at the national level will choose to enter different countries for foreign investment based on their own trade needs. However, countries with a high demand for foreign investment often do not have a good business environment, which is closely related to the neglect or powerlessness of some governments. Due to the fact that the impact of the business environment on the economy is not direct, it is necessary to use FDI as the most intermediate factor for joint research. This article will conduct empirical research and theoretical analysis, starting from the relationship between the business environment, FDI quality, and economic growth, to explore the mechanisms of the business environment, FDI quality, and economic growth in Eastern European countries. In response to the current global economic downturn, it will provide new ideas for Eastern European countries to improve their business environment, enhance FDI quality, and promote rapid economic development; at the same time, it also provides ideas for countries with slow economic growth, thereby promoting the improvement of regional economic level.

2. The Mechanism of the Impact of Business Environment and FDI Quality on Economic Growth

2.1. The Promoting Effect of Business Environment on Economic Growth

As a comprehensive environment that affects the activities of market entities within the region, a good business environment can significantly reduce institutional costs in the market, promote fair access to production factors by different market entities, and achieve market-oriented allocation of production factors. Optimizing the business environment is an important measure to improve total factor productivity (TFP) and promote economic development. Improving the business environment can significantly increase TFP and promote economic growth, which has been widely recognized by academia (Głodowska, 2017). In addition, Shi and Liu (2023) found that a better business environment strengthens the promoting effect of government venture capital guidance funds on high-quality economic development. In regions with better business environments, government venture capital guidance funds play a stronger role in influencing the process of high-quality economic development in terms of funding guidance, risk sharing, and political linkage effects. There are many elements that constitute a business environment. Bai and Chen (2023) summarized the experience of China's business environment construction in recent years as the basis, focusing on problem orientation and practical needs, and constructed a legal business environment evaluation system in the Chinese context. Studies have shown that the institutional environment is crucial for economic transformation and development, profoundly affecting the economic growth of underdeveloped areas (Song & Chen, 2022). In addition, the optimization of infrastructure environment can effectively promote labor mobility, gather talents,

funds and other factors, and reduce transportation, transaction and other costs, thereby promoting regional division of labor and optimizing regional industrial structure (Kalemli-Özcan et al., 2018).

A good business environment can reduce the investment and operating costs of enterprises, improve their profitability, and thus stimulate their enthusiasm for investment and operation. A good business environment can provide a stable legal and policy environment: a stable legal and policy environment can protect the legitimate rights and interests of enterprises and reduce business risks. A sound market system can provide a fair competitive environment for enterprises and enhance their competitiveness. High quality infrastructure can reduce the logistics and production costs of enterprises. A good social environment can attract talents and technology, and promote the development of enterprises.

2.2. The Promoting Effect of FDI Quality on Economic Growth

FDI, also known as foreign direct investment in Chinese, is an important way of international capital flow and has received attention from various countries. The International Monetary Fund (IMF) directly defines the concept of foreign direct investment as an investment behavior in which the capital, technology, and experience invested by the home country's investors in the host country can be used for production or operational activities, and can control a certain degree of operation, ultimately for the purpose of obtaining benefits. As the economic effects of FDI become increasingly significant, experts and scholars from various countries have begun to focus on exploring research related to the quality of FDI. Quality is relative to quantitative characteristics, although there is currently no consensus among scholars on the definition of FDI quality, and there is also no unified standard for measuring FDI quality indicators. According to scholar Kumar (2002), he proposed that the connotation of FDI quality is the positive spillover effects brought by FDI to the host country, including technology, management, revenue, and other spillovers, manifested in the positive impact of FDI on the economy and society in terms of technology, research and development, industrial structure, enterprise management, and exports.

Chinese scholar Han Gang (2007) conducted a more in-depth study on the quality of FDI. He believes that FDI quality is a comprehensive evaluation of the various effects that the host country brings to the economy and society by utilizing FDI after reaching a certain stage of economic and social development. This comprehensive overall effect is not an arbitrary accumulation of effects, but is limited by various economic and social goals of the host country during a certain period of time, Conduct a comprehensive and systematic evaluation of FDI quality. Chinese scholars have also found, based on Han Gang's research, that the positive spillover effects of FDI can be divided into potential effects and actual effects, including the quality carried by FDI itself and the quality utilized by the host country. From the perspective of FDI itself, the results show that FDI comes from different sources, investment purposes and methods, technological

levels and profitability, All will have different impacts on the economic development of the host country (Zou & Chen, 2023). Bai and Lv (2017) believes that the quality of FDI is a characteristic of foreign investment that is included in foreign investment and can meet the economic growth and international competitiveness needs of the host country. It can further bring more benefits to the host country. Li et al. (2021) and Liu and Song (2021) both constructed models to empirically examine the impact of FDI quality on the transformation of economic development patterns. They found that FDI quality has a significant promoting effect on the transformation of economic development patterns. We should fully utilize the opportunity of global economic integration, pay more attention to the improvement of FDI quality while paying attention to the expansion of FDI quantity, in order to promote the transformation and upgrading of economic development patterns.

2.3. The Promoting Effect of Business Environment on FDI Quality

The current mainstream view is that the better the business environment of the host country, the larger the scale of foreign investment that can be obtained, indicating a positive relationship between the two. Geng et al. (2023) constructed a DID model to test the heterogeneity of the impact of national level big data comprehensive pilot zones on the quantity and quality of FDI. The results show that the national level big data comprehensive experimental zone has a significant promoting effect on both the quantity and quality of FDI. Zhou et al. (2017) studied the impact of the business environment on China's direct outward investment from an investment perspective. After analyzing China's direct outward investment data from 2008 to 2013, they found that in most cases, the better the business environment of the host country, the larger the scale of China's direct investment in the host country. The study by Ji Xiangbao (2014) has shown that the biggest influencing factor for developed and developing countries to attract external investment is the country's system. Compared to developing countries, developed countries have more sound national systems and more complete systems. The administrative efficiency and regulatory mechanisms of the same host country can also affect the breadth and depth of China's outward investment. Fu Yuanhai (2011) found in his analysis of the relationship between China's current business environment and FDI that the two systems of cross-border trade and registered property rights effectively promote the growth of foreign direct investment. Cui Zhixin (2015) also confirmed through empirical analysis that the improvement of the host country's state-owned business environment can promote the inflow of FDI. Ato-Mensah and Long (2021) investigated the relationship between the business environment and foreign direct investment in the Guangdong Hong Kong Macao Greater Bay Area. The study found that shaping a good business environment in the region can attract FDI. Foreign enterprises are more sensitive to the business environment elements such as human resources, public services, government environment, and finan-

cial services in the Greater Bay Area. Therefore, it is necessary to accelerate the exploration of the integration of rules for the business environment in Guangdong Hong Kong Macao and actively play the "model role" of the free trade zone, Continuously promote the reform of "streamlining administration, delegating powers, and improving services", and shape new advantages for attracting FDI in the Guangdong Hong Kong Macao Greater Bay Area with an internationally first-class business environment.

In summary, the business environment and FDI quality are important factors affecting economic growth. A good business environment and high-quality FDI can promote enterprise investment and operation, promote technological progress and industrial upgrading, promote employment and income growth, and thus drive economic growth.

3. Analysis of the Coordinated Development of Business Environment, FDI Quality and Economic Growth in Eastern European Countries

3.1. Construction of Indicator System and Data Explanation

3.1.1. Construction of Evaluation Index System for Business Environment, FDI Quality, and Economic Growth

1) Construction of Business Environment Evaluation Index System

Based on the concept of business environment, this article selects government service environment, human resource environment, factor cost, infrastructure environment, economic environment, and technological environment as the primary evaluation indicators for the business environment in Eastern Europe (as shown in Table 1).

Government service environment: Government service environment refers to the atmosphere and conditions created by the government when providing government services to the public, enterprises, and other organizations. It includes the efficiency, efficiency, convenience, transparency, fairness, and other aspects of government services. The government service environment is an important component of the business environment. A good government service environment can provide enterprises with more convenient, efficient, and fair government services, thereby reducing institutional costs and promoting economic development. This article refers to the research results of previous scholars and establishes two secondary evaluation indicators for the government service environment: the percentage of the cost of starting a business process to the per capita GNI and the integrity index.

Human resource environment: The human resource environment refers to the comprehensive situation of a region or country in terms of human resource supply, quality, and cost. It is an important component of the business environment and has a significant impact on the production and operation activities of enterprises. This article selects three secondary evaluation indicators for human resource environment: population aged 15 - 64/Gross Domestic Product, number of students in higher education institutions, and average length of education.

Table 1. Business environment indicator system in Eastern Europe.

Primary Indicators	Secondary Indicators	Indicator Symbols
Government service Environment	The Cost of Starting a Business Process as a Percentage of Per Capita GNI	Negative Direction
	Corruption Perception Index	Forward Direction
Human Resources Environment	Population Aged 15 - 64/Gross Domestic Product	Forward Direction
	Number of Students in Higher Education Institutions	Forward Direction
	Average Length of Education	Forward Direction
Factor Cost	Compensation of Employees	Negative Direction
Infrastructure Environment	Human/Logistics Performance Index	Forward Direction
Economic Environment	The Percentage of Total Fixed Capital Formation To GDP	Forward Direction
Technological	Patent Application Acceptance Volume	Forward Direction

Factor cost: Factor cost refers to the cost of production factors consumed by enterprises in the production and operation process, including land cost, labor cost, capital cost, etc. Factor cost is an important component of enterprise operating costs and has a significant impact on the production and operation activities of enterprises. Therefore, the factor cost situation of a country is also an important component of the business environment. Based on previous research literature and the actual situation in Eastern European countries, as well as the availability of data, this article selects employee compensation as the secondary evaluation indicator of factor cost.

Infrastructure environment: Infrastructure environment refers to the comprehensive situation of a region or country in terms of transportation, communication, energy, water conservancy, environment, etc. It is an important component of the business environment. A good infrastructure environment can provide convenient, efficient, and low-cost production and operation conditions for enterprises, thereby reducing their operating costs and improving their production efficiency and competitiveness. This article selects the Human/Logistics Performance Index as the secondary evaluation indicator for infrastructure environment.

Economic environment: Economic environment refers to the comprehensive situation of a region or country in terms of economic development, economic structure, economic policies, etc. A good economic environment can provide a stable, prosperous, and developing market environment for enterprises, thereby providing favorable conditions for their development. This article selects the

percentage of total fixed capital formation to GDP as the secondary evaluation indicator of the economic environment.

Technological environment: The technological environment refers to the comprehensive situation of a region or country in terms of technological innovation, application, and talent. It is an important component of the business environment. A good technological environment can provide enterprises with more advanced technology, richer resources, and more excellent talents, thereby reducing production costs and improving production efficiency and competitiveness. This article selects the number of patent applications accepted as the secondary evaluation indicator for the technological environment.

2) Construction of FDI Quality Evaluation Index System

According to the concept of FDI quality, this article selects FDI inflow and employment in foreign investment and joint ventures as evaluation indicators for FDI quality. The growth rate of FDI inflow and the percentage of FDI inflow to GDP represent the scale of FDI, while the proportion of total employment in foreign investment and joint ventures represents the efficiency of FDI (Table 2).

3) Construction of Economic Growth Evaluation Index System

The GDP growth rate and per capita GDP growth rate are important indicators for measuring the economic growth of a country or region. GDP growth rate refers to the percentage increase in a country or region's total national economic output (GDP) relative to the same period last year during a certain period of time. The higher the GDP growth rate, the faster the economic growth of the country or region. The per capita GDP growth rate refers to the percentage increase in a country or region's total national economic output (GDP) relative to the same period last year over a certain period of time, divided by the population of that country or region. The higher the per capita GDP growth rate, the higher the per capita income of the country or region. The growth rate of exports of goods and services, the growth rate of residents' income, and the growth rate of fixed assets investment reflect the economic growth rate from the demand side. According to the concept of economic growth, this paper selects GDP growth rate, per capita GDP growth rate, export growth rate of goods and services, growth rate of residents' income, and growth rate of fixed assets investment as the evaluation indicators of economic growth (Table 3).

Table 2. FDI indicator system in Eastern Europe.

Index	Indicator symbols
The growth rate of FDI inflows in the current year	forward direction
Accumulated FDI inflow growth rate	forward direction
The percentage of FDI inflows to GDP in the current year	forward direction
The proportion of employment in foreign-funded and joint venture enterprises to the total employment	forward direction

Table 3. Economic growth indicator system for Eastern Europe.

Index	Indicator symbols
GDP growth rate	forward direction
Per capita GDP growth rate	forward direction
Growth rate of exports of goods and services	forward direction
Resident income growth rate	forward direction
Growth rate of fixed assets investment	forward direction

3.1.2. Data Sources

The data on business environment, FDI quality, and economic growth evaluation indicators are sourced from databases of the World Bank, Transparency International, UNESCO, and government websites of Eastern European countries. Please refer to Table 4 for details.

3.2. Measurement and Cluster Analysis of the Coupling Coordination Degree between Business Environment, FDI Quality, and Economic Growth

3.2.1. Data Standardization Processing

The difference in dimensions and orders of magnitude of raw data can cause computational inconvenience. In order to facilitate the comparison and weighting of indicators, it is necessary to standardize the raw data. This article adopts the range method for standardization, and its formula is:

$$A_{ij} = \frac{x_{ij} - \min(x_j)}{\max(x_j) - \min(x_j)} \tag{3.1}$$

In the formula, A_{ij} represents the standardized indicator value, x_{ij} represents the jth observation value of the first indicator, and $\max(x_j)$ and $\min(x_j)$ are the maximum and minimum values of the jth indicator data, respectively. Since the selected indicators in this article are all positive indicators, the original data in this article are processed using standardized calculation formulas for positive indicators. Due to the possibility of a standardized range value of 0, in order to ensure the significance of the standardized data, this article ultimately adopts the standardized formula as follows:

$$A_{ij} = 0.001 + \frac{x_{ij} - \min(x_j)}{\max(x_j) - \min(x_j)} \tag{3.2}$$

3.2.2. Determination of Indicator Weight

Before determining the business environment, FDI quality, economic growth index, and comprehensive coordination, appropriate methods should be adopted to determine the weights of the indicator layer. There are many methods for determining indicator weights, and the commonly used ones are subjective weighting and objective weighting. The commonly used subjective

Table 4. Source of evaluation indicator data.

Secondary indicators	Data sources
The cost of starting a business process as a percentage of per capita GNI	world bank database
Corruption Perception Index	Transparent International Database
Population aged 15 - 64/Gross Domestic Product	world bank database
Number of students in higher education institutions	UNESCO Database
Average length of education	UNESCO Database
compensation of employees	world bank database
People Flow Performance Index	world bank database
The percentage of total fixed capital formation to GDP	world bank database
Patent application acceptance volume (residents + non hierarchical)	world bank database
The growth rate of FDI inflows in the current year	Government websites of Eastern European countries
Accumulated FDI inflow growth rate	Government websites of Eastern European countries
FDI inflows as a percentage of GDP	Government websites of Eastern European countries
The proportion of employment in foreign-funded and joint venture enterprises	Government websites of Eastern European countries
GDP growth rate	world bank database
Per capita GDP growth rate	world bank database
Growth rate of exports of goods and services	world bank database
Resident income growth rate	world bank database
Growth rate of fixed assets investment	world bank database

weighting methods include expert scoring, Analytic Hierarchy Process (AHP), and Delphi method; The commonly used objective weighting methods include entropy weighting, information entropy, and principal component analysis.

The information entropy method determines the weight of each indicator based on its degree of dispersion, and has the characteristics of strong objectivity, high reliability, and simple operation. Therefore, this article uses the information entropy method to determine the weights of various indicators. The smaller the information entropy value, the greater the degree of dispersion of the indicator, the greater the role of the indicator in comprehensive evaluation, and

the greater its weight. The specific calculation steps are as follows:

1) Calculate the proportion value of the j-th indicator in the i-th year:

$$A_{ij} = \frac{x_{ij}}{\sum_{i=1}^{n} x_{ij}}, i = 1, 2, 3, \cdots, n, \; j = 1, 2, 3, \cdots, m \tag{3.3}$$

2) Calculate the information entropy of the j-th indicator:

$$e_j = -K \sum_{i=1}^{n} P_{ij} \ln\left(P_{ij}\right) \tag{3.4}$$

In the formula, e_j is the information entropy value of the j-th indicator, K is a constant $\dfrac{1}{\ln(n)}$, $e_j > 0$.

3) Calculate the information entropy redundancy of the second indicator:

$$d_j = 1 - e_j \tag{3.5}$$

4) Calculate the weight of the jth indicator:

$$w_j = \frac{d_j}{\sum_{i=1}^{m} d_j} \quad (1 \le m) \tag{3.6}$$

In the formula, m represents the number of research subjects.

5) Calculate the comprehensive index of three major systems: business environment, FDI quality, and economic growth using linear weighting method. The specific calculation formula is as follows:

$$U_{i=1,2,3} = \sum_{j=1}^{n} w_j A_{ij} \tag{3.7}$$

U_1, U_2, U_3 They are the comprehensive index of business environment, FDI quality, and economic growth.

3.2.3. Coupling Degree Evaluation Method

"Coupling" refers to the phenomenon of interaction and influence between several elements or systems. Coupling degree reflects the degree of interaction between several elements or systems, and can only measure the degree of interaction between systems, without any advantages or disadvantages. The coupling degree formula is as follows:

$$C_n = \left\{ \frac{U_1 \times U_2 \times U_3 \cdots \times U_n}{\mathrm{II}\left(U_i \times U_j\right)} \right\}^{\frac{1}{n}} \tag{3.8}$$

In mathematical expressions, this article defines C_n as the coupling coefficient between multiple elements or systems, and the value range of this coefficient is limited to the closed interval [0, 1]. When the value of C_n approaches 1, it means that there is a strong synergistic effect and high coupling between the considered systems; conversely, if the value of C_n approaches 0, it indicates that the coupling degree between these systems is relatively low, even approaching a state of no correlation. Additionally, U_i and U_j represent the comprehensive evaluation indices of multiple systems numbered from 1 to m, respectively.

$$U_i\left(i = 1, 2, \cdots, m\right); \; U_j\left(j = 1, 2, \cdots, m\right).$$

The coupling degree of business environment, FDI quality, and economic growth refers to the degree to which they interact with each other through their respective coupling elements, and its magnitude reflects the degree of coordinated development among the three. Based on the actual situation of regional business environment, FDI quality, and economic growth and development, and referring to the research results of existing scholars, the internal coupling function of business environment FDI quality economic growth is defined as:

$$C = \left\{ \frac{U_1 \times U_2 \times U_3}{\left(\left(U_1 + U_2 + U_3 \right)^3 \right)} \right\}^{\frac{1}{3}} \qquad (3.9)$$

In the formula, C is the coupling degree, $1 \leq C \leq 1.73$, U_1 is the Business Environment Index, U_2 is the FDI quality index, U_3 is the economic growth index. When U_1, U_2, and U_3 are equal, the coupling degree C reaches its maximum value of 1.73, indicating that a beneficial resonant coupling has been achieved among the systems, and the coordination within the systems has reached an optimal state; On the contrary, when the development level of any one of the three is much higher or lower than that of the other two, the C value approaches the minimum value of 1, and the system is in an unrelated state with the lowest internal coordination.

The formula for the internal coupling between business environment and FDI quality is:

$$C_{p-e} = \sqrt{\frac{U_1 \times U_2}{\left(U_1 + U_2 \right)^2}} \qquad (3.10)$$

The formula for the internal coupling between business environment and economic growth is:

$$C_{p-i} = \sqrt{\frac{U_1 \times U_3}{\left(U_1 + U_3 \right)^2}} \qquad (3.11)$$

The formula for the internal coupling between FDI quality and economic growth is:

$$C_{e-i} = \sqrt{\frac{U_2 \times U_3}{\left(U_2 + U_3 \right)^2}} \qquad (3.12)$$

3.2.4. Evaluation Method for Coupling Coordination Degree

Coupling degree can reflect the degree of interaction between systems, but cannot measure the synergistic effect of development between systems, while coupling co scheduling can characterize the degree of coordination between systems. Therefore, based on the coupling degree model, a coupling coordination degree model of business environment, FDI quality, and economic growth was constructed to reflect the coupling co scheduling between the three major systems of business environment, FDI quality, and economic growth. The calculation formula is:

$$D = \sqrt{C \times T} \ , \quad T = \alpha U_1 + \beta U_2 + \gamma U_3 \tag{3.13}$$

In the formula, D represents coupled co scheduling, with $0 \leq D \leq 1$. The larger the D value, the better the coordination between systems, while the smaller the D value, the worse the coordination between systems; T represents the coordinated development degree of business environment, FDI quality, and economic growth, characterizing the overall synergistic effect of the three major systems; α, β, γ For undetermined coefficients, considering that the three major systems of business environment, FDI quality, and economic growth are equally important, this article will include α, β, γ All are assigned a value of 1/3.

The formula for calculating the degree of coordinated development between business environment and FDI quality is:

$$T_{(R-E)} = \frac{1}{2}U_1 + \frac{1}{2}U_2 \tag{3.14}$$

The formula for calculating the degree of coordinated development between business environment and economic growth is:

$$T_{(R-L)} = \frac{1}{2}U_1 + \frac{1}{2}U_3 \tag{3.15}$$

The formula for calculating the degree of coordinated development between FDI quality and economic growth is:

$$T_{(E-L)} = \frac{1}{2}U_2 + \frac{1}{2}U_3 \tag{3.16}$$

3.2.5. Classification Criteria for Coupling Coordination Types

In order to further reflect the coupled and coordinated development status of business environment, FDI quality, and economic growth in Eastern European countries, the mean segmentation function was used to standardize the classification of D levels (Table 5).

Table 5. Classification of coupling coordination types of business environment, FDI quality, and economic growth.

D Value Range	Coordinated development type	Coordination interval
0 - 0.09	Extreme imbalance	
0.1 - 0.19	Severe imbalance	Dysfunction and decline type
0.2 - 0.29	Moderate imbalance	
0.3 - 0.39	Mild dysregulation	
0.4 - 0.49	Near Dysfunction	Low degree coordination type
0.5 - 0.59	Barely coordinate	
0.6 - 0.69	Primary coordination	Moderate coordination type
0.7 - 0.79	Intermediate coordination	
0.8 - 0.89	Good coordination	Highly coordinated
0.9	High quality coordination	

3.3. Evaluation of Business Environment, FDI Quality, Economic Growth and Development, and Coupling Coordination in Eastern Europe

3.3.1. The Business Environment, FDI Quality, and Time Evolution Characteristics of Economic Growth and Development in Eastern Europe

Based on the standardized values of the original data of the established comprehensive evaluation index system for business environment, FDI quality, and economic growth in Eastern Europe, and the indicator weights determined by the entropy method, formula (3.8) is used to calculate the comprehensive index for business environment, FDI quality, and economic growth in Eastern Europe from 2001 to 2022 (see Figure 1). As shown in Figure 1, the business environment, FDI quality, and economic growth index in Eastern Europe showed an upward trend from 2001 to 2022, but the growth trajectories of the three showed different characteristics in different periods. The FDI quality index increased from 0.0013 in 2001 to 0.2642 in 2022, with the most significant increase reaching 0.2619; The Business Environment Index increased from 0.0202 in 2001 to 0.2201 in 2022, with a growth rate of 0.1999, ranking second in terms of growth rate; The economic growth index increased from 0.0076 in 2001 to 0.1987 in 2022, an increase of 0.1911, with the lowest growth rate. The growth rate shows a characteristic of FDI quality level > business environment level > economic growth level.

From a temporal perspective, the ranking of the three indices showed a business environment > FDI quality > economic growth from 2001 to 2008; From 2009 to 2022, it gradually evolved into a trend of FDI quality > business environment > economic growth. From this, it can be considered that the economic
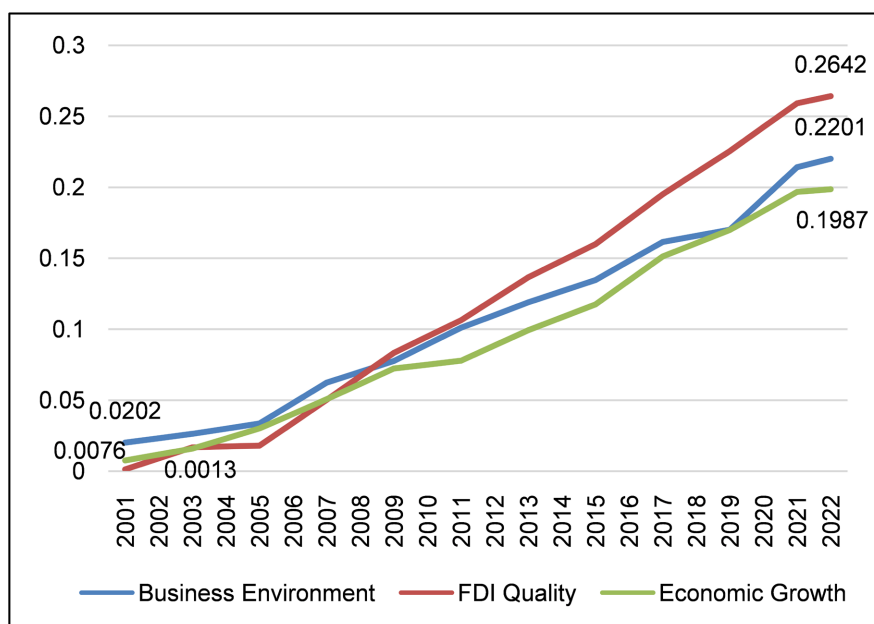

Figure 1. Trends in business environment, FDI quality, and economic growth.

growth in Eastern Europe is a process of gradual evolution from a business environment oriented model to an FDI quality oriented model. Prior to 2008, the economic growth in Eastern Europe was mainly driven by the gradual improvement of the business environment. Before the 1990s, most Eastern European countries implemented a planned economic system. After the 1990s, it began to transition to a market economy system. In the initial stage of establishing a market economy, countries faced a shortage of funds and urgently needed to introduce foreign investment to develop their own economies. However, there are still many imprints of planned economic management in the economic management systems and government management concepts of Eastern European countries, which is obviously not conducive to attracting foreign investment and promoting economic development. Therefore, from the 1990s to the early 21st century, Eastern European countries have been striving to improve their business environment, attracting foreign investment by improving their market economy management systems and legal environment. Therefore, the economic growth during this period was mainly driven by the improvement of the business environment.

From 2009 to 2022, there was a trend of FDI quality > business environment > economic growth. During this period, due to the significant improvement in the business environment of various countries in Eastern Europe, the scale of foreign investment attracted also increased, and the role of foreign investment in the economic development of Eastern European countries became increasingly significant. Therefore, during this period, the quality of FDI had a more significant promoting effect on the economic growth of Eastern European countries.

From Figure 1, it can be seen that the gap between the FDI quality index and the business environment index is gradually widening. This does not mean that the business environment is becoming less and less important. On the contrary, Eastern European countries need to further improve their business environment and create a better business environment for the development of domestic and foreign enterprises, in order to promote the sustainable development of the economies of Central European countries.

3.3.2. Overall Evaluation of Urbanization Coupling and Coordinated Scheduling in Eastern Europe

In order to gain a more comprehensive understanding of the differences in the coupling coordination degree of business environment, FDI quality, and economic growth in Eastern Europe, a coupling coordination degree model was used to calculate the coupling degree (C) and coupling coordination scheduling (D) based on the business environment, FDI quality, and economic growth level index.

The coupling degree (C) is mainly used to characterize the magnitude of the interaction and correlation between the business environment, FDI quality, and economic growth. As shown in Table 6, from 2001 to 2022, the coupling degree of the business environment, FDI quality, and economic growth in Eastern Eu-

rope has been continuously increasing, and the development trend is good. The coupling degree increased from 1.3241 in 2001 to 1.591 in 2022, approaching the maximum value of 1.73, indicating a stronger interaction and correlation between the business environment, FDI quality, and economic growth. This also reflects that the business environment, FDI quality, and economic growth are increasingly tending towards a benign resonance coupling development over time.

Coupling co scheduling (D) is used to measure the overall synergistic effect between the business environment, FDI quality, and economic growth. As shown in Table 6, the coupling coordination degree of business environment, FDI quality, and economic growth in Eastern Europe has shown an increasing trend year by year, from 0.129 in 2001 to 0.7856 in 2022, evolving from a imbalanced recession type in 2001 to a moderately coordinated type in 2022. It is worth noting that during the period of 2001-2022, the business environment, FDI quality, and economic growth in Eastern Europe have not yet achieved two types of development: good coordinated development and high-quality coordinated development, nor have there been years in which the three have reached a high level of coordination.

From the perspective of business environment, FDI quality, and coordinated development types and intervals of economic growth coupling, from 2001 to 2022, the coupling coordination degree of the three in Eastern Europe can be roughly divided into three stages: imbalanced decline, excessive coordination, and moderate coordination:

1) From 2001 to 2012, the coupling coordination degrees of the three were all less than 0.5. At this stage, the coupling coordination between the business environment, FDI quality, and economic growth in the Eastern European region has significantly improved, mainly manifested in changes in coupling types. The severe imbalance type in 2001 has gradually developed into moderate and mild imbalance types, and reached the best development type at this stage—the near imbalance type in 2012. Overall, it is in the stage of imbalance recession. The main reason for this is that at this stage, the comprehensive development level of the business environment, FDI quality, and economic growth in the Eastern European region are all at a low level, resulting in a low degree of coupling coordination.

2) From 2013 to 2015, the coupling coordination degrees of business environment, FDI quality, and economic growth were 0.5574, 0.5803, and 0.5931, respectively, all greater than 0.5 but less than 0.6. During this stage, the coupling types of the three were all barely coordinated, and the overall situation was in the excessive coordination stage. This indicates that during the period of 2013-2015, the synergistic effects of the three major systems of business environment, FDI quality, and economic growth in Eastern Europe continued to strengthen, gradually transitioning towards coordinated development.

3) From 2016 to 2022, the coupling coordination degree of the three is greater

than 0.6 but less than 0.8. During this stage, the coupling type of business environment, FDI quality, and economic growth in Eastern Europe has evolved from a primary type in 2016 to an intermediate coordination type in 2022, and is overall in a moderate coordination stage (Table 6). This further illustrates the improvement in the quality of economic development in the Eastern European region during this period, but there is still a certain gap from the highly coordinated stage. In future economic development, more attention should be paid to the coordinated development of the three subsystems of business environment, FDI quality, and economic growth.

Table 6. Business environment, FDI quality, economic growth, and coupled coordination in Eastern Europe.

Time	U_1	U_1	U_1	C	D	Coupling type	Coordination category
2001	0.0202	0.0013	0.0076	1.3241	0.1290	Severe imbalance	
2002	0.0232	0.0090	0.0117	1.4218	0.1721		
2003	0.0263	0.0168	0.0159	1.5195	0.2153	Moderate imbalance	
2004	0.0299	0.0174	0.0230	1.5262	0.2365		Dysfunction and decline type
2005	0.0336	0.0180	0.0301	1.5329	0.2577	Moderate imbalance	
2006	0.0480	0.0341	0.0404	1.5448	0.2840		
2007	0.0624	0.0502	0.0507	1.5567	0.3703	Mild dysregulation	
2008	0.0700	0.0668	0.0615	1.5696	0.3830		
2009	0.0776	0.0834	0.0723	1.5826	0.4557	Near Dysfunction	
2010	0.0894	0.0949	0.0751	1.5756	0.4755		
2011	0.1011	0.1064	0.0778	1.5686	0.4954	Near Dysfunction	
2012	0.1100	0.1215	0.0886	1.5735	0.4964		Low degree coordination type
2013	0.1190	0.1366	0.0993	1.5784	0.5574	Barely coordinate	
2014	0.1268	0.1483	0.1084	1.5806	0.5803		
2015	0.1347	0.1599	0.1175	1.5829	0.5931	Barely coordinate	
2016	0.1481	0.1775	0.1344	1.5856	0.6378		
2017	0.1615	0.1951	0.1513	1.5883	0.6725	Primary coordination	
2018	0.1658	0.2103	0.1606	1.5923	0.6938		
2019	0.1701	0.2255	0.1699	1.5963	0.7152		Moderate coordination type
2020	0.1922	0.2424	0.1833	1.5917	0.7436	Intermediate coordination	
2021	0.2142	0.2592	0.1968	1.5872	0.7720		
2022	0.2201	0.2642	0.1987	0.1590	0.7856		

3.4. Cluster Analysis of Business Environment, FDI Quality, and Economic Growth in Eastern Europe

Cluster analysis is the process of dividing data objects into multiple classes, so that objects in the same class are similar while objects in different classes are different. The purpose of cluster analysis is to discover hidden structures or patterns in data. This article uses cluster analysis to discover the patterns of business environment, FDI quality, and economic growth in Eastern European countries. There are many methods for cluster analysis, including K-means clustering, hierarchical clustering, and density clustering.

This article uses the sub environmental indicators of business mentioned earlier as a measure of similarity, and uses SPSS statistical analysis software to cluster the business environment data of Eastern European countries using k-means clustering method. By conducting clustering analysis year by year, we can see the specific changes in the clustering situation of each country each year. Therefore, this article conducts clustering analysis on the business environment of Eastern European countries year by year based on the data from the last five years, namely from 2018 to 2022. This article found through multiple experiments that when the total sample of each year is divided into three categories, the characteristics of each category are most obvious and have a good explanatory power for each category. Therefore, this article divides the business environment of 21 Eastern European countries into three categories. The clustering results of the data from the past five years are shown in Table.

From Table 7, it can be seen that there has been no change in the clustering results of the first, second, and third categories of business environments in the five years. The distribution of the three types of business environment countries in Eastern Europe is shown in Table 8.

The business environment of the first group of six countries is higher than that of other Eastern European countries in terms of government service environment, human resource environment, factor cost, infrastructure environment, economic environment, and technological environment as a whole, and the business environment is at a relatively high level; The business environment level of the seven Eastern European countries in the second category is at a moderate level; The third category of eight Eastern European countries has a relatively low level of business environment, and there is considerable room for improvement. These countries should do more to optimize their business environment and promote their own economic development.

Using the same method, we can obtain the FDI quality clustering results and economic growth clustering results of Eastern European countries. Table 9 shows the clustering results of FDI quality in Eastern European countries.

Table 10 shows the specific distribution of three types of FDI quality in Eastern European countries.

Table 11 shows the clustering results of economic growth in Eastern European countries.

Table 7. Clustering results of business environment in Eastern European countries from 2018 to 2022.

Country	2022 cluster	2021 cluster	2020 cluster	2019 cluster	2018 cluster
Albania	1	1	1	1	1
Bulgaria	2	2	2	2	2
Bosnia and Herzegovina	2	2	2	2	2
Belarus	3	3	3	3	3
The Czech Republic	1	1	1	1	1
Estonia	1	1	1	1	1
Georgia	2	2	2	2	2
Croatia	2	2	2	2	2
Hungary	3	3	3	3	3
Lithuania	2	2	2	2	2
Latvia	2	2	2	2	2
Moldova	1	1	1	1	1
North Macedonia	3	3	3	3	3
Montenegro	3	3	3	3	3
Poland	1	1	1	1	1
Romania	1	1	1	1	1
Russian Federation	3	3	3	3	3
Serbia	2	2	2	2	2
Slovakia	3	3	3	3	3
Slovenia	3	3	3	3	3
Ukraine	3	3	3	3	3

Table 8. Specific distribution of three types of business environments in Eastern Europe.

Category	Business environment	Country	Number
First kind	high	Albania, Czech Republic, Estonia, Moldova, Poland Romania	6
Second kind	centre	Bulgaria, Bosnia and Herzegovina, Georgia, Croatia, Lithuania Serbia, Latvia	7
Third kind	low	Belarus, Hungary, North Macedonia, Montenegro, Russia, Slovakia, Slovenia, Ukraine	8

Table 9. FDI quality cluster results of Eastern European countries from 2018 to 2022.

Country	2022 cluster	2021 cluster	2020 cluster	2019 cluster	2018 cluster
Albania	1	1	1	1	1
Bulgaria	2	2	2	2	2
Bosnia and Herzegovina	2	2	2	2	2
Belarus	3	3	3	3	3
The Czech Republic	1	1	1	1	1
Estonia	2	2	2	2	2
Georgia	2	2	2	2	2
Croatia	2	2	2	2	2
Hungary	3	3	3	3	3
Lithuania	3	3	3	3	3
Latvia	2	2	2	2	2
Moldova	2	2	2	2	2
North Macedonia	3	3	3	3	3
Montenegro	2	2	2	2	2
Poland	1	1	1	1	1
Romania	1	1	1	1	1
Russian federation	3	3	3	3	3
Serbia	2	2	2	2	2
Slovakia	2	2	2	2	2
Slovenia	3	3	3	3	3
Ukraine	3	3	3	3	3

Table 10. Specific distribution of three types of FDI quality in Eastern Europe.

Category	Business environment	Country	Number
First kind	high	Albania, Czech Republic, Poland, Romania	4
Second kind	centre	Bulgaria, Bosnia and Herzegovina, Estonia, Moldova, Georgia, Croatia, Serbia, Latvia, Montenegro, Slovakia	10
Third kind	low	Belarus, Hungary, Lithuania, North Macedonia Russia, Slovenia, Ukraine	7

Table 11. Economic growth cluster results of Eastern European countries from 2018 to 2022.

| Country	2022 cluster	2021 cluster	2020 cluster	2019 cluster	2018 cluster
Albania	1	1	1	1	1
Bulgaria	2	2	2	2	2
Bosnia and Herzegovina	2	2	2	2	2
Belarus	3	3	3	3	3
The Czech Republic	2	2	2	2	2
Estonia	1	1	1	1	1
Georgia	1	1	1	1	1
Croatia	3	3	3	3	3
Hungary	3	3	3	3	3
Lithuania	1	1	1	1	1
Latvia	2	2	2	2	2
Moldova	1	1	1	1	1
North Macedonia	3	3	3	3	3
Montenegro	3	3	3	3	3
Poland	1	1	1	1	1
Romania	1	1	1	1	1
Russian federation	2	2	2	2	2
Serbia	1	1	1	1	1
Slovakia	2	2	2	2	2
Slovenia	3	3	3	3	3
Ukraine	3	3	3	3	3

Table 12 shows the specific distribution of three types of economic growth in Eastern European countries.

In order to observe the interaction between the business environment, FDI quality, and economic growth in Eastern European countries, this article categorizes and analyzes the country clustering of these three factors, as shown in Figure 2.

From Table 12 and Figure 2, except for the FDI quality cluster in Bosnia and Herzegovina, the economic growth cluster in Czech Republic, the FDI quality cluster in Estonia, the economic growth cluster in Georgia, the economic growth cluster in Croatia, the business environment cluster in Lithuania, the economic

Table 12. Specific distribution of three types of economic growth in Eastern Europe.

Category	Business environment	Country	Number
First kind	high	Albania, Georgia, Estonia, Lithuania Moldova, Poland, Romania, Serbia	8
Second kind	centre	Bulgaria, Bosnia and Herzegovina, Czech Republic, Latvia Russia, Slovakia	6
Third kind	low	Belarus, Croatia, Hungary, North Macedonia, Montenegro Slovenia, Ukraine	7
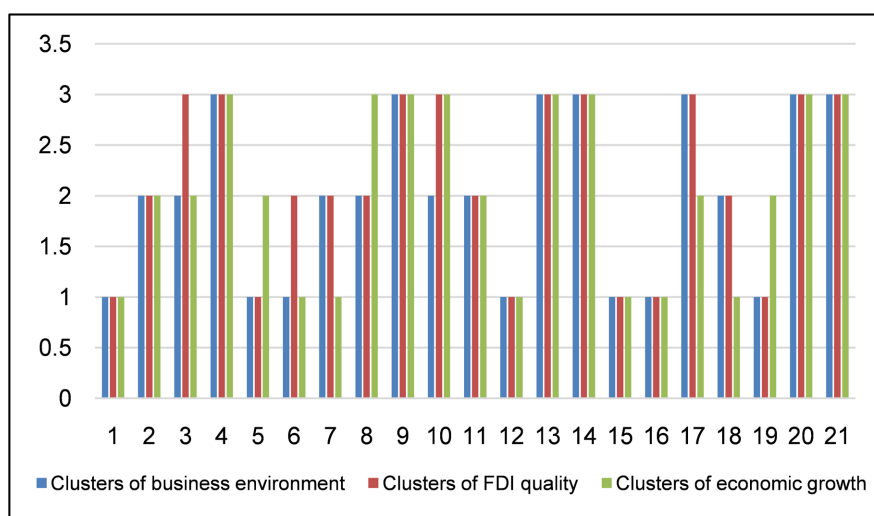
Figure 2. Specific distribution of business environment, FDI quality, and economic growth clustering in Eastern European countries.

growth cluster in Russia, and the economic growth cluster in Slovenia, which are different from the other two clusters in the country, the three clusters in the other 13 countries are the same, indicating the business environment. There is a certain interactive relationship between FDI quality and economic growth.

4. An Empirical Study on the Impact of Business Environment and FDI Quality on Economic Growth in Eastern European Countries

4.1. Model Building

4.1.1. Empirical Models and Variable Definitions

This article adopts a panel data analysis method to analyze the interaction relationship between the business environment, FDI quality, and economic growth in Eastern European countries. To this end, the following analysis model is established:

$$AGDP_{it} = C_1 + \alpha_1 \times SCORE_{it} + \beta_{i1} \times X_{it} + \varepsilon_{it} \tag{1}$$

Among them, $AGDP_{it}$ is the dependent variable representing the economic development level of different countries at different times, expressed as per capita GDP. $SCORE_{it}$ is an explanatory variable that represents the level of business environment in different countries at different times, represented by a comprehensive index of business environment. X_{it} is the control variable set in this article, including; Indicators such as the proportion of national population to the total population of Eastern Europe, the proportion of total investment to GDP, government income to GDP, and unemployment rate.

To further understand the impact mechanism of the business environment on economic growth, this article adopts a mediation effect model to explore the transmission channel role of FDI quality in this mechanism, which mainly includes two steps in testing the transmission channel.

Step 1: Build a model (2) to test whether improving the business environment will promote FDI quality

$$FDI_{it} = C_2 + \alpha_2 \times SCORE_{it} + \beta_{i2} \times X_{it} + \varepsilon_{it} \tag{2}$$

Among α_2 measures the promoting effect of the business environment on the quality of FDI.

Step 2: Build a model (3) to test whether the quality of FDI is one of the transmission channels for promoting economic growth in the business environment.

$$AGDP_{it} = C_3 + \alpha_3 \times SCORE_{it} + \alpha_4 \times FDI_{it} + \beta_{i3} \times X_{it} + \varepsilon_{it} \tag{3}$$

Among them, FDI_{it} I represents FD quality, and this article mainly selects two dimensions for characterization, namely FDI-Size and FDI efficiency FDI-Eff Combining the results from model (2) α_2 measures the impact of "business environment → FDI quality", while α_4 measures the impact of "FDI quality → economic growth", therefore $\alpha_2 \times \alpha_4$. It can characterize the indirect effect of the business environment on promoting economic growth, that is, the mediating transmission effect of FDI quality in the promotion of economic growth by the business environment; Additionally, α_3 measures the direct effects of the business environment. Due to the numerous mechanisms and channels through which the business environment affects economic growth, this article will α_3 is defined as the direct effects of other business environments and all indirect effects except for FDI quality. Therefore, it is predicted that α_2, α_3, α_4 is positive, and the mediating effect of FDI quality is $\alpha_2 \times \alpha_4$. The direct and other indirect effects are α_3 That is to say, the business environment can accelerate economic growth by promoting the quality of FDI.

4.1.2. Data Sources and Variable Design

According to the research design of this article, the variable data selected in this article mainly includes explanatory variables, dependent variables, mediating va-

riables, and control variables. All data in this article are from the World Bank and EPS databases. The annual comprehensive index of business environment for each country is obtained from the World Bank's business environment report, while other data is obtained from the EPS World Macroeconomic Database. This article uses panel data from 21 Eastern European countries from 2001 to 2022.

Based on Cui Xinsheng's research method, this article selects per capita GDP as the dependent variable for measuring economic development. For the other three types of variables, the specific construction is as follows:

1) Explanatory variable—Comprehensive index of business environment

As this article focuses on the impact of the business environment on economic growth, the explanatory variable for this article is the business environment variable. This article uses the comprehensive evaluation indicators of the business environment calculated from the previous chapter's business environment evaluation indicators.

2) Mediating variable—FDI quality

FDI quality is a comprehensive concept that has been studied by many scholars. Guo Juanjuan et al. used the scale of FDI to study the economic impact of FDI quality in host countries. Meng Weifu et al. divided the FDI quality indicator system into two levels: FDI scale and FDI efficiency, with FDI efficiency using indicators of foreign investment and employment in joint ventures. This article divides FDI quality indicators into FDI quality scale and FDI quality efficiency, using FDI inflow and foreign investment and joint venture employment to measure the two dimensions of FDI quality level.

3) Control variables

To reduce errors in the empirical results and make the conclusions more accurate, this article incorporates other control variables that have an impact on the empirical test. When selecting control variables, based on existing literature, such as Hu Zongyi et al., when studying the impact of FDI quality on economic growth, control variables such as the proportion of national population to the total population of Eastern Europe, per capita GDP, the proportion of dependent population to working age population, and consumer price index were added. Cui Xinsheng chose government expenditure, foreign direct investment, trade openness index, and economic development level as control variables when studying the impact of the national business environment on economic development. When studying the relationship between FDI quality and total factor productivity, Li Jian et al. added human capital, foreign direct investment, international trade, government intervention in the economy, and urbanization level as control variables. Based on the availability and completeness of data, this article selects the proportion of trade volume to GDP, government revenue to GDP, and unemployment rate as control variables for research. The descriptions and definitions of each variable are shown in Table 13.

Table 13. Variable definition and explanation.

Variable type	Variable name	Variable abbreviation	Variable description	Data source
Explanatory variables	Business environment level	SCORE	Comprehensive index of business environment	World Bank
Dependent variable	FDI Quality Scale	FDI-Size	Direct investment inflow	World Bank
	FDI quality efficiency	FDI-Eff	Employment numbers in foreign-funded and joint venture enterprises	Government websites of various countries
	Economic development level	AGDP	Per capita GDP constant price	World Bank
Control variable	Trade openness	INV	The proportion of trade volume to GDP	World Bank
	Government revenue	INC	The proportion of government revenue to GDP	World Bank
	Employment situation	UER	Unemployment rate	World Bank

4.2. Empirical Analysis

4.2.1. Descriptive Statistical Analysis of Variables

Table 14 presents the descriptive statistical results for each variable. From Table 14, it can be seen that the minimum and maximum values of each variable sample differ significantly. The minimum value of SCORE is 25.70 and the maximum value is 88.70; The minimum value of FDI Size is 1.90 and the maximum value is 312.1; The minimum value of FDI-Eff is 5.92, and the maximum value is 1729.54. At the same time, there are significant differences in the four indicators of each sample, indicating heterogeneity in the business environment and FDI quality level among the sample countries.

According to the data processing method of Hu Zongyi et al., all samples are logarithmically processed to make the data more stable. Therefore, this article will take the natural logarithm of all data.

Table 14. Descriptive statistics of variables.

Variable	Sample size	Minimum value	Maximum value	Mean value	Standard deviation
SCORE	462	24.48	84.48	55.02	12.60
FDI-Size	462	1.81	5822.45	142.79	133.70
FDI-Eff	462	5.64	1647.18	66.23	90.00
AGDP	462	483.24	28054.67	15871.41	15444.93
INV	462	3.56	74.57	23.52	8.30
INC	462	3.32	156.24	28.74	13.28
UER	462	2.37	15.27	4.69	1.79

4.2.2. The Impact of Business Environment

There are multiple different models for panel data regression. In order to facilitate observation and comparison, each model is established, and the coefficients of each model are roughly compared before further model selection. Firstly, mixed OLS methods, fixed effects, and random effects were used separately, and three different models were established using all types of variables. Due to the differences in the size and sign of coefficients in each model, the selection of the three models was tested. Due to the requirement of the mixed OLS estimation method that there is no individual effect in the model, that is, there is no individual difference in the study, the individual effects in the model are tested. According to the test results, the P-value is far less than 0.01, indicating individual effects. Therefore, a mixed OLS model is not used. In order to distinguish between fixed effects and random effects, the Hausman test was used, and the P-value was much less than 0.01. Therefore, the null hypothesis was rejected and fixed effects were used for the study.

After selecting panel data models, this article uses a fixed effects model to empirically analyze the impact of business environment on economic growth. Table 15 presents the relevant empirical results, where the model.

From the results in Table 15, it can be seen that the coefficient of the business environment is significantly positive in different models, indicating that the business environment has a positive effect on economic growth, that is, improving the level of the business environment can promote economic growth. Among other control variables, trade openness, government income, and employment are all significant. Among them, trade openness and government income have a positive impact, which is consistent with reality. In addition, unemployment rate has a negative and significant impact on economic growth, that is, the higher the unemployment rate, the greater the pressure on economic growth, showing a downward trend.

Table 15. Regression results of the impact of business environment on economic development.

	model 1	model 2	model 3	model 4
	AGDP	AGDP	AGDP	AGDP
Score	0.213***	0.161***	0.161***	0.178***
	(0.008)	(0.008)	(0.022)	(0.023)
Inv		0.081***	0.069**	0.023**
		(0.008)	(0.032)	(0.029)
Inc			0.085***	0.046**
			(0.002)	(0.003)
Uer				−0.183***
				(0.003)
Fixed effect	Yes	Yes	Yes	Yes
Observations	462	462	462	462
adjust R^2	0.273	0.381	0.384	0.523

Note: *, **, and *** respectively indicate significance at the 10%, 5%, and 1% levels, the same below.

4.2.3. The Mediating Effect Test of FDI Quality

After studying the comprehensive effects of the business environment on economic growth, the following tests the direct and indirect effects of FDI. By analyzing the impact of the business environment on FDI quality and the relationship between the business environment, FDI quality, and economic growth, we aim to verify the indirect transmission effect of FDI quality on economic growth in the business environment. Among them, Table 16 and Table 17 respectively provide two steps in the mediation test. Among them, Model 5 and Model 6 in Table 16 analyze the impact of the business environment on FDI quality; Models 7 to 10 in Table 17 show the regression results of the impact of business environment, FDI quality, and economic growth.

According to the benchmark regression results in Table 16, it can be seen that the coefficients of the business environment in each model are positive and significant, indicating a significant positive correlation between the business environment and FDI quality. Based on this result, improving the business environment is beneficial for promoting the quality of FDI. In other words, as the level of business environment improves, the inflow of FDI increases, and foreign-funded enterprises and joint ventures provide more employment opportunities, improving the quality and efficiency of FDI.

Table 16. Regression results of the impact of business environment on FDI quality.

	model 5		model 6	
	FDI-Size	FDI-Eff	FDI-Size	FDI-Eff
SCORE	0.771***	0.594***	0.532***	0.449*
	(0.057)	(0.046)	(0.066)	(0.066)
INV			0.443	0.005
			(0.112)	(0.107)
INC			0.613	0.079
			(0.133)	(0.119)
UER			−0.161**	−0.186***
			(0.073)	(0.069)
Fixed effect	Yes	Yes	Yes	Yes
Observations	462	462	462	462
adjust R^2	0.191	0.244	0.197	0.227

Table 17. Regression results of the mediating effect of business environment on economic growth.

	model 7	model 8	model 9	model 10
	AGDP	AGDP	AGDP	AGDP
SCORE	0.151***	0.186***	0.169***	0.172***
	(0.009)	(0.008)	(0.023)	(0.024)
FDI-Size	0.031***		0.032***	
	(0.005)		(0.008)	
FDI-Eff		0.036***		0.023**
		(0.006)		(0.008)
INV			0.053***	0.007
			(0.031)	(0.029)
INC			0.045*	0.072***
			(0.003)	(0.003)
UER			−0.154***	−0.173***
			(0.003)	(0.004)
Fixed effects	Yes	Yes	Yes	Yes
Mediating effect			0.012	0.006
Observations	462	462	462	462
adjustR2	0.273	0.381	0.387	0.523

Furthermore, from the results in Table 17, it can be observed that the coefficients between the business environment and FDI quality are significantly positive, indicating that FDI quality is a mediating variable. Taking Model 9 as an example, it can be calculated that when FDI quality and scale are mediating variables, the direct effect of the business environment on economic development is 0.169, and the indirect effect is $0.532 \times 0.032 = 0.017$. In other words, for every unit change in the business environment, economic growth will directly change by 0.169 units. In addition, there will be an indirect change of 0.017 units through FDI quality. When FDI quality and efficiency are mediating variables, the direct effect of the business environment on economic growth is 0.172, and the indirect effect is $0.449 \times 0.023 = 0.01$ also indicates that FDI quality is a transmission mechanism for improving the business environment and promoting economic growth, but the direct effect is still more pronounced.

4.3. Robust Testing

In order to verify the robustness of the transmission mechanism of the impact of the business environment on economic development, the endogeneity problem in the model will be addressed below. The endogeneity issue in this article is that the higher the level of economic development, the better the quality of FDI, and the better the business environment may be. Referring to Wei Boning's approach, the explanatory variable lagged by one order was used as the instrumental variable for regression, and the regression results are shown in Table 18.

Table 18. Robustness test for mediating effects.

	model 11	model 12	model 13	model 14
	FDI Size	FDI EIT	AGDP	AGDP
SCORE	0.513***	0.499***	0.154***	0.148***
	(0.063)	(0.063)	(0.009)	(0.009)
FDI-Size			0.033***	
			(0.006)	
FDI-Eff				0.029***
				(0.006)
control variable	Yes	Yes	Yes	Yes
Fixed effects	straight	straight	straight	straight
Mediating effect				
Observations	462	462	462	462
adjustR2	0.293	0.288	0.526	0.514

According to the regression results of lagged variables, with the inclusion of all control variables, the business environment coefficient, FDI quality coefficient, and economic growth coefficient in the lagged variable model are all positive and significant, and the mediating effect still exists, which is consistent with the above empirical results. Therefore, after considering endogeneity issues, the results are the same as the regression results of the previous model, and different methods have the same results, indicating the robustness of the regression model.

5. Conclusion and Policy Recommendations

5.1. Research Conclusion

Since the economic system transition of Eastern European countries in the 1990s, the economy of the Eastern European region has achieved rapid development. The economic development of Eastern Europe cannot be separated from the improvement of the business environment within Eastern European countries and the impact of foreign direct investment. This article conducts empirical research on the relationship between the business environment, FDI quality, and economic growth in Eastern Europe, and draws the following conclusions:

1) Before 2008, the business environment had a greater promoting effect on economic growth in Eastern Europe; After 2008, the quality of FDI has played a greater role in promoting economic growth in Eastern Europe. The improvement of the business environment in Eastern European countries has had a significant impact on the quality of FDI and economic development. The coupling degree indicates that during the period of 2001-2022, the business environment, FDI quality, and economic growth coupling degree in Eastern Europe show a continuous upward trend; The coupling coordination between the business environment, FDI quality, and economic growth in Eastern Europe is also showing an increasing trend year by year. Cluster analysis shows that there are significant differences in the business environment, FDI quality, and economic growth indicators among Eastern European countries, and there is a certain interaction relationship between the business environment, FDI quality, and economic growth.

2) Regression analysis shows that improving the business environment can promote economic development in Eastern Europe, and the improvement of the business environment can directly promote economic growth in the region. FDI quality is a transmission channel through which the business environment promotes economic growth in Eastern Europe.

5.2. Countermeasures and Suggestions

The business environment includes government service environment, human resource environment, factor cost, infrastructure environment, economic environment, and technological environment. Eastern European countries have experienced rapid economic development in recent years, but there are still some problems in the business environment that need to be further improved in the aforementioned areas.

In terms of government service environment, simplify administrative approval procedures. The administrative approval process in some Eastern European countries is complex and cumbersome, leading to low efficiency in business operations. Governments of various countries should reform their administrative approval systems, simplify the approval process, shorten the approval time, and create a more convenient business environment for enterprises.

In terms of human resources and environment, governments of various countries should increase investment in education and training, improve the quality of workers, and provide talent support for the development of enterprises.

In terms of factor costs, the tax burden of enterprises in Eastern European countries is generally high, which has led to an increase in various factor costs for enterprises and a heavy burden on them. Governments of various countries should reduce the tax burden on enterprises and alleviate their burden through tax reform, creating a favorable environment for enterprises to improve their profitability.

In terms of economic environment, inflation rates in some Eastern European countries have increased in recent years, which has had a certain impact on economic development. Governments of various countries should take measures to control inflation and maintain price stability. Meanwhile, some Eastern European countries have high unemployment rates, which pose a threat to social stability. Governments of various countries should take measures to promote employment and reduce unemployment rates. The financial situation of Eastern European countries is generally poor, which affects the government's ability to regulate economic development. Governments of various countries should improve their fiscal situation through fiscal reform and provide financial support for economic development. Some Eastern European countries have significant exchange rate fluctuations, which have affected foreign trade and investment. Governments of various countries should take measures to improve exchange rate stability and provide a favorable external environment for economic development.

In terms of infrastructure environment, some Eastern European countries have lagged behind in infrastructure construction such as transportation, energy, and communication, which has constrained economic development and enterprise development. Governments of various countries should increase investment in infrastructure construction, improve the level of infrastructure, and provide better guarantees for the development of enterprises.

In terms of technological environment, governments of Eastern European countries should strengthen intellectual property protection, crack down on intellectual property infringement, and create a favorable environment for enterprise innovation.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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