Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Trade and Finance

Master's Thesis

Trade Liberalization and Economic Growth: Investigating the Relationship Between Trade Liberalization and Economic Growth

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

Bachelor of Science Farid Ashirov, BSc

Economics and Management

Thesis title

Evaluating the relationship between trade liberalization policies and economic growth in different coun- tries or regions

Objectives of thesis

The main objective is to assess the impact of trade liberalization policies, specifically free trade agreements, on economic growth in different countries or regions. Other objectives include:

Identify specific channels and mechanisms through which trade liberalization affects economic growth. Evaluate the differential effects of trade liberalization on economic growth in different sectors or industries.

Evaluate the role of institutional factors.

Provide policy recommendations based on the findings to optimize the benefits of trade liberalization to promote sustainable and inclusive economic growth.

Methodology

The theoretical basis will be based on the study and processing of relevant literature and other sources. The practical part will be based on Panel Data Analysis. This method involves collecting data on trade liberalization, economic growth indicators, and other relevant variables across multiple countries or regions over time. It allows for examining the relationship between trade liberalization and economic growth while controlling for specific effects using techniques like fixed and random effects models.The following methods will be used: Difference-in-Differences (DID) Approach, Regression Analysis, Case Study Analysis, Synthetic Control Method.

The proposed extent of the thesis

50 – 70 pages

Keywords

Trade liberalization, Economic growth, Free trade agreements, International trade, Trade policy, Compar- ative advantage.

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GIDE, Charles; VEDITZ, C. William A. *Principles of political economy.* London: Forgotten Books, 2012. ISBN 978-1-332-80603-4.

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Declaration

I declare that I have worked on my master's thesis titled " Trade Liberalization and Economic Growth: Investigating the Relationship Between Trade Liberalization and Economic Growth" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the master's thesis, I declare that the thesis does not break any copyrights.

In Prague on date of submission _____

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Trade Liberalization and Economic Growth: Investigating the Relationship Between Trade Liberalization and Economic Growth

Abstract

This thesis investigates the relationship between trade liberalization and economic growth across ten developed economies from 1995 to 2019 using panel data analysis. The diploma thesis uses export growth as a proxy for trade liberalization and GDP per capita as a measure of economic growth. Employing fixed effects and Arellano-Bond dynamic panel estimation techniques, the research finds a significant positive impact of trade openness on GDP per capita. Inflation and unemployment have negative effects, while gross fixed capital formation shows an insignificant relationship with growth. The findings confirm a long-run equilibrium among the variables, supporting the argument that trade liberalization contributes to economic development when supported by macroeconomic stability and efficient labor markets. Thesis provides empirical evidence to guide policy decisions in advanced economies aiming to sustain long-term growth.

Keywords: Trade liberalization, Economic growth, Panel data, Export growth, Macroeconomic stability

Liberalizace obchodu a hospodářský růst: Zkoumání vztahu mezi liberalizací obchodu a hospodářským růstem

Abstrakt

Tato diplomová práce zkoumá vztah mezi liberalizací obchodu a hospodářským růstem ve deseti vyspělých ekonomikách v období let 1995 až 2019 s využitím panelové analýzy dat. Studie používá růst exportu jako ukazatel liberalizace obchodu a HDP na obyvatele jako měřítko hospodářského růstu. Pomocí metod fixních efektů a dynamické panelové regresní analýzy Arellano-Bond byly zjištěny významné pozitivní dopady otevřenosti obchodu na HDP na obyvatele. Inflace a nezaměstnanost mají negativní vliv, zatímco tvorba hrubého fixního kapitálu nevykazuje statisticky významný vztah k růstu. Výsledky potvrzují dlouhodobou rovnováhu mezi proměnnými, což podporuje argument, že liberalizace obchodu přispívá k ekonomickému rozvoji, pokud je podpořena makroekonomickou stabilitou a efektivním trhem práce. Studie poskytuje empirické důkazy pro tvorbu politik ve vyspělých zemích usilujících o udržitelný růst.

Klíčová slova: Liberalizace obchodu, Hospodářský růst, Panelová data, Růst exportu, Makroekonomická stabilita

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1 Introduction

Under the pretext of free market economy, globalisation essentially implies the integration of national economies with each other over time coupled with the elimination of barriers to the mobility of products and services, production elements and technology. The historical process's accelerating speed and scope of globalisation means that the interactions between nations develop over time and get linked. First seen with international commerce, this interconnectivity affected national trade policy and began to influence other economic factors. Liberalisation strategies have also emerged and economies have started a fast trade liberalising process with the globalisation that is experienced all throughout the world and has become unavoidable. Economically speaking, the most significant leg of the liberalisation process has been fulfilled. Many nations have been compelled to change their trade policy given the growing significance of trade liberalisation under the framework of international economy. Liberal policies have replaced the protectionist concept that was earlier embraced in international economic relations with free trade ideas; the state's use of intervention tools such tax and borrowing in a way that will not disturb the functioning of the market economy has become the main arguments of liberalisation. These rules have driven nations towards policies that give greater freedom and call less involvement in markets. Trade liberalization—a type of global integration of nations—emerges as an expression or a gauge of the degree to which nations apply free or protectionistic policies in trade interactions between countries. The elements driving the globalisation process to change and speed-up the oil crisis in the 1970s, the slowdown in productivity development, the saturation of domestic markets in industrialised nations, and the consequent increase in liberalisation are those ones. Many developing nations liberalised their international trade policies and hence adopted open economic policies in response to this change during the 1970–1980 period. For developing nations, the 1980s and especially the 1990s were a time of significant structural changes expressed in terms of economics. The high growth rates attained by developing nations adopting export-based growth strategies and the knowledge that these nations could no longer maintain their import-substitution growth policies led these nations to remove the obstacles to foreign trade and capital movements during this period.

With the rise of new growth theories—endogenous growth theories—the link between trade openness and development has been clarified inside the framework of these theories

since the 1980s. Romer's (1986) and Lucas's (1988) endogenous growth theories contend that by producing rising returns in the production process, elements including R&D, physical capital, and human capital help to drive economic growth. These ideas also suggest at the same time that trade openness and growth might show a favourable link. These ideas hold that by their impact on technical advancement, trade policies can affect long-term growth.

Advocates of the concept that openness favourably influences development within the framework of endogenous growth theories contend that economies with more openness may more quickly absorb technological innovations, therefore attaining quicker growth. Based on research done between 1990 and 1992, Grossman and Helpman proposed that if investments in R&D sectors provide comparative advantages, trade might help to promote long-term development.

Research Questions:

• How does trade openness influence long-term economic growth in OECD countries?

• What role do technological development and R&D investments play in mediating the relationship between trade openness and economic growth?

This thesis investigates the association between trade liberalization and economic growth over ten chosen nations from 1995:Q1 to 2019:Q4 utilizing a quantitative research methodology with panel data analysis. Selected depending on the Hausman test, Fixed Effects (FE) regression is used in thesis to adjust for unobserved country-specific variables. To handle any endogeneity and autocorrelation problems in the model, also the Arellano-Bond dynamic panel-data estimation is used. Important factors are GDP per capita as the dependent variable; export growth rate as the primary independent variable; inflation, unemployment, and gross fixed capital creation as control variables. The econometric technique guarantees efficient capture of both long-term and short-term dynamics of economic growth. The limitation of thesis is the timeline since the data stops in 2019Q4 because covid-19 effects are not considered in thesis.

2 Objectives and Methodology

2.1 Objectives

The primary objective of this thesis is to investigate the complex interplay between trade liberalization and economic development, with special emphasis on how increasing trade openness affects long-term economic performance in different OECD nations. The thesis will analyze data from 1995 to 2019 to see whether liberalized trade policies significantly affect GDP per capita growth. By means of this, the thesis also seeks to evaluate the mediating impact of technical advancement and R&D expenditure, seen as essential components in modern growth theory. Controlling for macroeconomic variables including inflation, unemployment, and capital formation, thesis uses panel data analysis methods including Fixed Effects regression and the Arellano-Bond dynamic panel-data estimator to identify the direct and indirect effects of trade liberalization on economic growth. The final goal is to provide evidence-based study of how free trade policies, together with innovation and physical capital investment, determine the economic pathways of industrialized nations, with implications for future trade and development policies.

2.2 Methodology

From the first quarter of 1995 to the fourth quarter of 2019, this diploma thesis investigates the link between trade liberalization and economic growth in ten chosen countries Austria, Belgium, Czechia, Denmark, France, Germany, Italy, the Netherlands, Norway, and the United States using a quantitative research approach. The main objective is to explore how export growth, viewed as a proxy for trade liberalization, influences GDP per capita, the major indicator of economic development. The study also takes into account inflation, gross fixed capital creation, and the unemployment rate as control variables that might affect economic performance in order to better understand this connection. Panel data analysis techniques are applied to capture the cross-sectional and time-series characteristics of the dataset. Panel data allows scholars to consider unobserved variation across countries and across time. The Levin, Lin, and Chu (LLC) method is applied to assess the stationarity of the variables and prevent erroneous regression. Panel datasets in which countries are thought to follow similar economic trends are suitable for this test. The study advances to estimate the econometric models if the findings show that the variables are stationary.

The link between the variables is studied using fixed and random effect models. These models can handle country-specific impacts not obviously seen and fit nicely with panel data. The Hausman test helps to decide whether model is more suitable. This test shows if the unobserved effects are connected to the independent variables. The last estimate uses the fixed effects model if it is found to be more suitable. The Are llano-Bond dynamic panel-data estimate method, nevertheless, is applied in situations where endogeneity or autocorrelation might be present. By handling possible dynamic relationships and compensating for biases caused by unobserved variables, this approach increases the correctness of the findings. The model uses export growth rate as the main independent variable and GDP per capita as the dependent one. Control variables include inflation, gross fixed capital formation, and unemployment rate. These factors are selected depending on their relevance to growth theory and their influence on economic outcomes.

3 Literature Review

3.1 Trade Liberalization Concept

3.1.1 Definition and Historical Process of Liberalization

Before the phenomenon of liberalization, it is very important to touch upon the concept of globalization in order to explain liberalization and for the development of the study. In short, the word global means world-wide or encompassing the whole world. Globalization means spreading, being accepted, and becoming globalized worldwide. In a sense, it is the coalition of the national economic, political, and cultural order with a set of transnational developments and enables each country to influence the other in terms of an ideology (Mittelman, 1997). The reflection of this interaction on the financial markets has also brought with it some advantages and disadvantages.

In order to grasp globalization, it is necessary to understand the international political economy, which includes innovations after the Cold War. The most important developments of globalization can be listed as the redesign of production, the reinterpretation of technological advances in other countries, the use of the same types of consumer goods all over the world, the spread of financial markets, the intense mobility of the population from the south and east to the west as well as within the south itself, and the widespread demands for democracy (Mittelman, 1997).

The process that occurs with the concept of globalization consists of two components. The first is related to the process of capital accumulation. The main thing here is the liberalization of capital circulation, its increase in volume, acceleration, and expansion, and the introduction of new investment instruments. This has been the main driving force of globalization, and financial markets have expanded their horizons to a great extent during the last decade. The second component of the globalization process is related to technological innovations. Here, the widespread use of computers, the acceleration of communication and information processing technologies, and their high rates of cheapening are mentioned. These developments have encompassed almost all areas of life. The fluidity of money, goods, and other factors has gained great speed with the different communication technologies in use. The almost revolutionary developments of fiber optic and satellite technologies have created a super highway of information, making the whole world closer and more impressionable than before (Lentner, 2000). The advantages offered to developed and developing countries by globalization can range from technology transfers to

productivity increases, the rise of economic and political prosperity, and even the establishment of world peace as a result of the relations between countries. On the one hand, globalization provides developing countries with wider commercial markets and greater capital inflows, while on the other hand, it allows these countries to expand their exportable or importable goods and to benefit more from technological developments. The integration of developing countries into world markets allows these countries to develop their comparative advantages and benefit more from increasing global competition by reducing transportation and communication costs, leading to division of labor and specialization in production. Division of labor and specialization in production also increases efficiency and therefore productivity. Increasing productivity allows developing countries to increase their competitive power in international markets.

It is claimed that the phenomenon of liberalization, which is the most important element of the globalization ideology, has been increasing its dominance day by day in parallel with the Neo-liberal thought. In terms of liberalization, major innovations began to be seen in economic policies towards the 1980s. While a change was observed from Keynesianism to Monetarism and Neo-Liberalism, from overt or covert guidance to market-oriented solutions, from monetary expansionism to restriction, from Mercantilism to free trade, opposing views against the growing state and the cumbersome bureaucracy became widespread during these periods. This change in the system of thought actually meant a serious criticism of the role of the state in many areas. These ideas were transformed into concrete policies by political cadres who came to power as a result of internal political changes in many countries with the idea that the free market order was no less effective or less just than statist practices in the distribution of resources. Undoubtedly, globalizing industrial and financial circles were largely behind these policies. Within the framework of the neo-liberal perspective, the citizen's position has been tried to be clarified and the citizen has begun to be perceived as an individual consumer or a respected customer of public services, and as such, as a person who has the right to demand a certain standard of service from the state.

Globalization, especially in the economic sense, has brought about significant reforms in the world of production, commercial activities, capital mobility and competitive advantage of technology, and the liberalization and integration of goods, services and factor markets. As stated before, just as it is impossible to think of a liberal who is against globalization, it can be thought that liberalization policies have gained momentum with

globalization, as it is impossible to find a globalization supporter who is against liberalism. However, when looked at as a historical process, it is seen that liberalization policies date back much further.

Liberal economic theory finds its foundations in the classical liberal Adam Smith, a pioneer in the history of classical economic thought. In 1776, Adam Smith proposed policy tools that restrict the state's role in public services and the establishment of regulatory frameworks on the grounds that they hinder the effectiveness of economic activity and management, and claimed that the state's intervention in the economy in the form of property, production, and sales of goods and services causes inefficiency in terms of economic activity and management. As a result, liberal economic theory is associated with liberal political philosophy. Friedrich August von Hayek, one of the neo-liberal economic philosophers, argued in his book The Use of Knowledge in Society (1945) that the price mechanism synchronizes and shares local and personal knowledge by enabling members of society to achieve their different and complex goals through the principle of self-organization. Hayek used the term catallaxy to describe the self-organization of voluntary cooperation. For Polanyi, the fear of totalitarianism led him to the idea of free trade in order to benefit from the tacit knowledge of society as a whole and to protect freedom. Like Hayek, Polanyi (1999) stated that such markets are not conscious inventions but are evolving habits that synchronize and share local and personal knowledge to achieve different goals among members of society through the principle of self-organization. Milton Friedman, on the other hand, rejected the use of Keynesian policies in monetary theory and stated that the role of the state in directing the economy should be significantly restricted (Blanton & Feinman, 2024).

Ayn Rand, an American philosopher, claimed in 1982 that politics is the brain of any economy. This means that if politics is lively and dynamic, the economy is lively, and if it is static, the economy is static (Drelich, 2018). As a result, the economic reality is that decisions regarding economic policy and macroeconomic policy decisions are political decisions that involve bureaucratic discussions made by the Congress or Parliament, the Cabinet (in parliamentary systems) and the Senate (in presidential systems). Political parties essentially use economic policy as the main tool to influence voters before elections. Keynesian economic philosophers have seen interventionist policies as attractive in terms of implementing fiscal and monetary policies for the purpose of stability. When it comes to human rights, no liberal thinker mentions the diversity of people, while in their economic philosophies, the same people support inequality that can cause social welfare loss and crisis.

According to Thomas Hobbes and John Locke, the state is a product of conflict, war and competition, and a social contract that provides protection and security services through the state. These thinkers were called utilitarian liberal political philosophers

because they preached freedom of writing, expression and speech, and they argued that placing some restrictions on these rights was important for the protection of social interests. Social interest is seen in detail in the philosophy of Bentham, who was a utilitarian philosopher. Bentham's philosophy has an important place in the development of welfare economics. It has been proven that excessive intervention based on socialist and state control in the economy will cause inefficiency by causing misuse and waste of resources. In this sense, while neo-liberal based non-interventionist economic policies cause recurring crises, it can be said that these experiences point to the reality of the political economic infrastructure that determines the efficiency of an economy.

In a theoretical sense, liberalization policies are based on the views of Adam Smith, David Ricardo, Hayek, Buchanan and Friedman. Smith emphasizes the importance of an international free trade environment for the benefit of consumers and the liberalization of the market. Ricardo emphasizes that each country will maximize its welfare by creating the most suitable product bundle for itself thanks to the Law of Comparative Advantage. Friedman is one of the first advocates of the idea of free movement of capital, claiming that the free movement of capital will flow to good investment areas around the world. Buchanan argues that social cuts and excessive tax pressure reduce capital gains and play a role in preventing work, savings and investment. Hayek, on the other hand, supports the idea of minimizing state interventions in economies by putting forward a system similar to the night watchman state concept of Classical Economists. Today's liberalization policies came to the fore with the failure of Keynesian practices. Keynesian economic doctrine, unlike the supply-side policies of Classical Liberalism, is more compatible with the concept of the social state within the framework of demand-side policies. Therefore, in the post-World War II period, due to the effects of the political and economic situation in the world, statist policies based on Keynesian economics and market failure ideas were widely adopted, and practices compatible with the Social State / Welfare State understanding gradually became solidified. This understanding, which had a widespread application area until the 1970s, gave way to liberal approaches based on Classical Liberalism in the 1980s, which brought supply-side policies to the forefront, due to the fact that many increasing expenditure items created a burden on the budget and could not provide a solution for the crises that occurred.

The approach put forward by Ronald McKinnon and Bernard Shaw in the 1970s and called the McKinnon-Shaw Approach constitutes the most important theoretical foundations of today's liberalization policies. This approach has been implemented by many industrialized countries since the 1980s. In their studies published in 1973, McKinnon and Shaw determined that the theory of financial liberalism was formed within the framework of the concepts of financial pressure and financial depth. They grouped economic policies implemented in a way that would include all restrictions and interventions in financial areas and in the form of making real interest rates negative under the name of financial pressure. Researchers demand that not only the pressure created on financial sectors but also the pressure environment on trade mobility and capital mobility that would contribute to the integration of financial sectors with the international economy be eliminated.

Both economists state that the most important element of financial pressure is negative real interest rates. Negative real interest rates will reduce savings. If interest rates are increased, savings will increase and growth will be achieved. This is exactly where the concept of financial depth comes into play. Such a conclusion can be reached based on the idea that high interest rates will attract savings that have not entered the financial system and will provide high profits.

In an alternative to Keynesian theory's suggestion of low interest rate policies for capital formation, McKinnon and Shaw argued that financial liberalization should be implemented and positive interest rates should be applied for economic growth and development. It was argued that financial liberalization would create positive effects on the economy by opening up to the outside world, increasing savings, and improving resource distribution, and therefore it is seen that this approach formed the basis of financial liberalization in the 1980s.

The McKinnon-Shaw Approach argues that financial restrictions are insufficient in encouraging savings and that resource distribution is negatively affected. It is thought that the liberal financial system that can be formed as a result of the removal of obstacles on financial systems will be effective in increasing the growth rate of the economy. As a result, liberalization, which started theoretically with Adam Smith, continued with Friedman and took its final form with McKinnon-Shaw, was put into practice under the leadership of international organizations from the beginning of the 1980s.

With financial liberalization, financial sectors in many countries have grown rapidly and financial markets have technically integrated with each other with the developments in

communication and computer technologies. High information - low transaction costs have allowed the transaction volume of financial systems to increase significantly and as a result, financial markets have integrated on a world scale. Entering the process of globalization and financial liberalization has brought with it some difficulties in addition to the benefits it has provided for financial markets all over the world. Financial liberalization policies require the institutional infrastructure to work soundly and effectively. Even many developed countries with sound infrastructures have been seen to experience financial crises at certain intervals.

3.1.2 Liberalization Policies

Liberalization has both economic and social aspects, and economic liberalization includes processes that include government policies that support free trade, the removal of state interventions and price controls, and the privatization or downsizing of public services. Economic liberalization has been at the center of regulatory policies implemented in developing countries since the late 1970s. Government policies have tended to be non-interventionist in terms of economic activities and to rely on market forces in terms of the distribution of resources.

The concept of financial liberalization, which in a narrow sense means the removal of interventions on deposit and loan interest rates, is a concept that in its broad sense includes elements such as the reduction or removal of restrictions separating the activities of institutions, foreign exchange controls, the reduction of obstacles to foreign institutions entering the national financial system, the permission of residents to enter foreign financial markets and the reduction of high-rate taxes on financial gains (Arestis, 2005). According to another definition, financial liberalization is shown as a result of deregulation practices in which developed countries remove or significantly reduce the controls and restrictions on banking and financial systems in order to attract international financial flows to their own countries and is expressed as the process of opening up economies to capital flows. Based on the definitions made, according to financial liberalization, interest rates are determined outside the market thanks to intervention in the economy and capital movements are expected to be restricted. Thanks to the ceiling interest rate application applied to interest rates, low interest rates will positively affect consumption expenditures. This situation, also called intertemporal change, will reduce today's savings and negatively affect investment movements. With interest rates being determined by the state rather than the market, net interest rates will fall below zero during inflationary periods and the value of the national

currency will increase. As a result, trade relations with many countries will be damaged by this situation and a decrease will occur in the country's exports. Financial liberalization denies state intervention for these reasons and argues that liberal policies are effective. An important element regarding financial liberalization is the development levels of countries. The impact of liberal developments in the financial field varies from country to country. It can be said that the financial structure of developed countries creates opportunities for liberalization policies aimed at increasing the efficiency of financial markets as a result of the transformations experienced in the international arena. In contrast to this situation, in the developing countries, the situation is not limited to the transformations and changes experienced only in finance and markets, but there is a radical change in the entire economy together with the transformations that emerge in the development strategy.

Although the implementation of liberal policies in financial areas in developed and developing countries may yield different results, countries should implement their liberal formations in both areas, not only in domestic policies or only in foreign policies. Domestic financial liberalization, which means ensuring liberalization in the financial sector within the country, is, in short, primarily the determination of nominal interest rates not by the state but through banks in order to remove interventions and restrictions that cause financial contraction within the country, and ensuring that interest rates are determined in the money market depending on the amount of supply and demand. External financial liberalization can be expressed as reducing controls on exchange rates in order to integrate with international financial markets and determining the exchange rate by market conditions. In addition, with external financial liberalization, ensuring the free movement of capital movements and equalizing factor prices in the long term is another expected result of the system. While the developing countries initially displayed an opposing attitude towards financial sector liberalization, as mentioned above, the interest rate ceilings, required reserve ratios and obstacles to capital inflow and outflow were removed after 1980 (Demirgüç-Kunt and Detragiache, 1998). Thus, financial liberalization policies implemented both within and outside the country provided countries with great freedom in the economic field and pioneered financial globalization.

3.1.3 Trade Liberalization Theories

Trade liberalization is the minimization of state interventions on trade in goods and services and the internationalization of the economy. The state can achieve the transition to

a free market economy by abandoning interventionist policies in the transition to a market economy in two ways. The first of these is price controls that include variables such as tariffs, taxes, and fees, and the second way is by removing non-tariff barriers such as license rights, quotas, and bans (Li, 2004).

In the 1970s and 1980s, the increase in fluidity in the goods and financial markets due to technological advances brought about the dominance of a market-oriented economy. As a result of the development of the market-oriented economy, economies also had to compete for superiority in competitiveness in order to move forward at the international level. The establishment of international companies, together with the support of international organizations such as the IMF, the World Bank, the OECD, and the WTO, provided progress in the liberalization process. In the 1980s, many countries began to abandon state interventionist policies in the economy. By 1990, almost all countries had chosen a market economy and integrated into the global economy. With the transition to a market economy, foreign trade was liberalized, control over the capital market was removed, and national industries were privatized (Li, 2004). The concept of trade openness is used to measure the level of trade liberalization of a country. Trade openness can be measured in many ways. The table below lists the basic methods by which trade openness is measured. The most commonly used of these methods is the measure that gives us the trade dependency ratio.

The function of trade in the economy is specialization and division of labor. Utilizing economies of scale in industry creates capital equipment through technology transfer. Therefore, one of the primary goals is for transition economies to integrate with the international economy. The integration process is a process that many economies have difficulty implementing. Countries in the Soviet planning system had a market economy consisting of a single buyer and a single seller producing industrial and intermediate goods. Moreover, many settlement areas were dependent on a single enterprise for employment prices. The countries that formed the Soviet Bloc carried out their trade among themselves through the Council for Mutual Economic Assistance (CEC). Economic activities where countries had mutual superiority among themselves were the

determinants of prices. The existence of great differences in terms of economic conditions among the member countries of the CEC and the lack of determination of what kind of economic integration and cooperation was targeted in the future prevented the development of the organization. In the 1980s, when liberalization gained momentum, the international building blocks of the New Economic Order began to be laid based on the

principle of liberalization. With the dissolution of the USSR and the transition to a free market economy being prioritized, individualism was privileged and prioritized within the framework of the rules of the free market economy and a rapid liquidation process was initiated in its social dimension. In the new order, in the liberalization efforts in the market economy, protectionist policies and state controls were ended in the industrial, commercial and financial sectors and all obstacles in the goods and services sector were removed and the liberalization process was initiated. The liberalization process in the USSR began in the early 1990s in political and economic terms. The first tasks in liberalization were the liberalization of prices and the integration of large enterprises in international trade with liberalization, and the aim was to bring the products to be exported to a level where they could compete with world prices.

According to economists who defend the principle of free trade, the welfare-increasing effects expected from international trade can only be achieved under free trade conditions to the greatest extent. The principle of free trade is the application of the thesis that the principle of individual self-interest increases the welfare of the whole society to international trade and is based on the thesis that, under certain assumptions, both parties will benefit from the free exchange of goods between countries. As a result of the competition created by free trade, each country specializes in the branches in which it can produce at the lowest cost (with the highest productivity). In return, it obtains from other countries the products that it can produce at relatively high cost (with low productivity) or the products that it cannot produce at all. Free trade theories take their source from the Classical Economic Theory, represented by Adam Smith and David Ricardo, and their neo-classical extension, the Hecscher-Ohlin model. At every stage of the theory, the basic assumption that economic efficiency will occur when countries specialize in the products they produce at the cheapest and best price, produce and sell them, has never changed, and the building blocks of the simple theory have not been moved. As for how this specialization will occur, while Smith advocates specialization based on absolute advantage, Ricardo, who further developed and generalized Smith's theses on foreign trade, brought the theory of comparative advantage. This theory proves that, under certain assumptions, as a result of the increasing division of labor and specialization in international trade, resources will be optimally distributed on a global scale, the highest productivity and the highest possible welfare will be achieved, and all countries participating in trade will benefit from this development (even if to different extents). The comparative advantage model, one of the cornerstones of the free foreign trade

theory, is based on certain assumptions, and most of these assumptions have continued to exist in the later stages of the theory, except for a few additions and changes:

• Perfect competition conditions are valid in all markets.

• It is assumed that there is only labor factor in production.

• Transportation costs are zero.

• There are no restrictions or limitations in trade.

• Production factors are mobile within the country and immobile between countries.

• There are two countries and two goods in the model.

In the comparative advantage model, what is important is not absolute but comparative costs. A country can produce all its goods more cheaply. Despite this, there is a possibility of profitable trade. Because a country may be superior in some goods compared to others. With the Theory of Comparative Advantage, which clearly reveals the benefits of international specialization and division of labor, Ricardo reached universal conclusions that free trade will increase welfare in every country and generalized the theory of free foreign trade:

Under a completely free trade system, each country will naturally allocate its capital and labor to the uses most beneficial to itself. This search for individual advantage is admirably linked to the universal interest of the whole. This individual effort, by stimulating industry, rewarding creativity and using the original powers bestowed by nature in the most effective way, provides the most efficient and economical distribution of labor, increases the general mass of production, spreads the general good, unites all the nations of the civilized world into a universal society of nations by a single bond of common interest and contact. It is this principle that determines that France and Portugal will produce wine, America and Poland will grow corn, and England will manufacture durable goods and other goods (Ricardo, 1997).

Neoclassical Economic Theory has not continued any theory it inherited from Classical Theory with as little change as the free foreign trade theory. The argument that free foreign trade increases welfare for every country participating in the exchange has continued with the same understanding in Neoclassical Theory. A very important interpretation of the Theory of Comparative Advantages in Neoclassical Theory has been made with the Factor Endowment Theory, also known as the Hecscher-Ohlin Theorem. In this theory, the relative cost differences between countries are explained by the differences in the endowment of their labor and capital factors. In other words, in this theory, comparative advantage is based

on the abundant production factor in the country. Namely, countries with more labor will produce labor-intensive goods more cheaply, and countries with more capital will produce capital-intensive goods more cheaply and will be exporters of these goods. As can be seen, in this theory, the main reason behind the different relative costs between countries is the disproportion in the distribution of production factors between countries (Zhang, 2008).

and cost differences were not explained and the impression was given that these were just a fact of life and did not need to be explained. In these respects, the Factor Endowment Theory aimed to eliminate this deficiency in the Classical Free Foreign Trade Theory and explained the differences in production costs at the international level with the differences in factor endowments. The Stolper-Samuelson Theorem also completed the Factor Endowment Theory with the proposition it brought. Accordingly, the economy as a whole may lose due to protectionism, but free trade policy leads to the abundant factor in the country, while protectionism leads to the scarce factor to gain. Stolper-Samuelson Theorem differs from Classical Foreign Trade and Heckscher-Ohlin Theorems, which claim that free trade is beneficial to all segments in the country (Lindert and Kindleberger, 1982).

Classical and Neoclassical Theories based on comparative advantages actually seek an answer to the question of why countries trade with each other, however, the models presented while seeking this answer also explain under what conditions countries will obtain optimum benefit from this trade. Optimum benefit, on the other hand, emerges as a result of an international trade specialized according to comparative advantages in terms of the most efficient use of resources both in the country and in the world. In later periods, studies were conducted to develop the Heckscher-Ohlin Theory and these attempts led to the formation of the New Factor Ratios Theory. In this theory, the starting point was the more detailed definition of production factors (especially labor) according to their qualities. The New Factor Ratios Approach does not adopt labor as a homogeneous factor, but deals with it by dividing it into subgroups. The old model could explain the international trade of primitive products that require intensive natural resources and simple labor, but it was inadequate in explaining the trade of industrial products that require more complex labor. In the new approach, the basic proposition of the Factor Endowment Theory is changed and international specialization is examined not only in terms of the labor factor but also in terms of qualified labor. Countries with abundant qualified labor will specialize in qualified labor-intensive goods, while countries with relatively abundant unqualified labor will specialize in unqualified labor-intensive goods. The New Factor Ratios Approach has been tested with

research conducted in the U.S. and has been put forward in the form also known as the Keesing Hypothesis. Accordingly, it has been determined that U.S. exports are qualified labor-intensive (Lindert and Kindleberger, 1982). The reason for this result is that U.S. workers gain high qualifications as a result of intensive education and training expenditures directed at them and are more productive and skilled than workers from other countries, and this situation can be interpreted as the human capital of the U.S. In this respect, the human capital hidden in workers should also be taken into account in the analyses as an explanatory factor for international trade.

3.1.4 The Impact of Trade Liberalization on Selected Macroeconomic Variables

Trade liberalization, which gained momentum in the 1990s, is emerging as an important area of research for the reasons and results of increasing international capital movements. The difficulties experienced especially in developing countries make the timing of trade liberalization debatable. Research on the fact that developing countries are not yet ready for such a change due to their structures has increased and trade liberalization has found a wide area of study. After trade liberalization, developed and developing countries are affected by this liberalization trend in different ways. The capital flow from developed countries to developing countries has created changes in the macroeconomic variables of the economies of the places they go. Incoming capital flows enter the country as long-term or short-term capital. For this reason, incoming capital flows are sometimes seen as the beginning of a crisis in these countries. The application of trade liberalization policies opens up markets to all kinds of influences. In other words, markets can be affected by some positive developments in the outside world, as well as by negative developments. When discussing the effects of international capital, it is seen that countries with high international capital inflows, especially in the second half of the 1990s, experienced crises one after another. Examples of these are the 1982 foreign debt crisis, the crisis that broke out in Turkey and Mexico in 1994, the Asian crisis that broke out in 1997, the Russian crisis in 1998 and the Brazilian crisis. Although all of the countries that experienced crises had different economic characteristics, the common feature of all of them was that they had achieved trade liberalization.

Developing countries need to have achieved a certain level of development in areas such as education, infrastructure, and health in order to benefit from direct foreign investments. Political instability and lack of fiscal discipline in a country reduce direct

foreign investments. In addition, solving the problem of the informal economy, reducing inflation, and reducing tax rates and interest rates encourage direct foreign investments. The continuity of investments will also bring economic development and economic growth.

Views that argue that foreign capital entering developing countries will support economic growth also support the idea that it will accelerate economic growth with some effects such as ensuring efficiency in resource provision and increasing efficiency in resource use. Views that argue the exact opposite of this view focus on two facts that weaken growth with capital inflow. The first of these is that growth will be negatively affected due to the negative relationship between volatility in capital flows and investments. In other words, high volatility in capital movements can turn the positive effects of capital inflow into negative. The second fact is that a developing country does not have the capacity to evaluate the capital coming from abroad in productive areas. They argue that growth will be negatively affected due to conditions such as infrastructure, skill and lack of policy. Studies on the contribution of capital mobility brought about by trade liberalization to economic growth do not provide clear results. In addition, studies show that different types of capital movements can have different effects. Capital movements, which became more intense after 1989 and in 1990, made it necessary to conduct studies with data from 1990 and later. Capital inflows contribute positively to the economic growth of the country, but capital outflows also have a negative impact on economic growth. When capital outflows are in question, expectations and investment decisions are negatively affected, the public becomes effective in the market with decreasing borrowing opportunities and interest rates increase. As a result of all these, investment and consumption decrease and economic contraction occurs.

If the exchange rate system in the country where capital inflows is, is a free exchange rate system, the capital inflow causes the national currency to be valuable in the exchange rate. When there is a capital inflow to a country where a fixed exchange rate system is applied, these inflows directly increase international reserves. In developing countries that apply free exchange rates, there is an abundance of short-term foreign capital. If capital inflows are used to finance investment, there is an inflow of foreign currency to the country with the trade of goods produced in the relevant sectors in the next period. In order for the continuity of capital flows to continue in developing countries, while a low exchange rate is applied within the country with interventions made in the exchange rate, the continuity of capital flows is tried to be ensured with high real interest rates. Thus, the problem of low exchange rate-high real interest rate arises. As a result, it is inevitable for the country in

question to face inflationary pressures. While the national currency loses nominal value, this loss of value lags behind inflation. As can be seen, capital inflows to developing countries cause the domestic currency to appreciate in real terms, affecting indicators such as the foreign trade balance and inflation, and thus negatively affecting many sectors of the economy. The country falls into the trap of inflation and begins to take a step back in its growth rate. The effect of capital flows on the foreign trade balance in the economy occurs through the exchange rate. The appreciation of domestic currency against foreign currencies with a low exchange rate increases imports. Net exports (Export - Import) decrease with the increase in imports. Prices of export goods increase compared to international prices, prices of imported goods become cheaper and thus domestic demand shifts to foreign goods in the face of cheaper imports. The foreign trade deficit, which is gradually increasing with speculative capital inflows, causes devaluation expectations to increase, and economic activities slow down as real investment decisions are negatively affected. The increasing demand for foreign currency causes banking sector problems. As a result of capital inflows going to non-exportable investments, a problem arises in the country's foreign exchange holding capacity. Thus, long-term or short-term capital inflows have negative effects on the foreign trade balance and the foreign trade balance tends to be negative. The effects on inflation are generally based on reasons such as monetary expansions and appreciation of the national currency. They can also come to the fore depending on fiscal policy practices. The appreciation of domestic currencies together with capital inflows to developing countries is one of the most important effects of capital inflows. It is argued that such a development has a suppressive effect on inflation in the short term. Such an effect occurs in two ways. The first is the shift of domestic demand towards imported goods along with the decrease in the prices of some imported goods included in the CPI. This decrease in domestic demand may have a reducing effect on the inflation that will occur. The second is that, with the relative cheapening of the prices of imported raw materials and investment goods, a decrease in input costs will occur and this decrease may have an effect of reducing inflation by increasing domestic supply (Kar et al. 2004: 19-20).

3.2 Economic Growth in Foreign Trade Theories

3.2.1 Pre-Classical Period in Foreign Trade

Mercantilism began to dominate foreign trade starting from the 16th century. Two significant historical developments played a role in this. First, with the geographical

discoveries, new trade routes and areas were explored, leading to the emergence of a merchant class with significant influence in society and politics. Second, connected to the first, the rise of nation-states brought about state intervention and protectionism in trade. Although protectionism has a long history, it was first systematically articulated as a doctrine by the Mercantilists. A central feature of Mercantilism is the idea of building a strong state. A strong state is a wealthy one, with its treasury filled with gold and silver. According to Mercantilists, achieving this required either possessing precious metals or

maintaining a trade surplus. They advocated for state intervention in economic life, which included measures such as establishing and strengthening overseas trading companies with extensive privileges, protecting domestic production from foreign competition through tariffs, securing the supply of imported raw materials, and, in some cases, banning the export of raw materials used by domestic manufacturers. In 17th-century French Mercantilism, the state also provided incentives to strengthen domestic production and prohibited the emigration of skilled labor. According to Mercantilism, the primary source of wealth and social surplus is foreign trade. This is because the profits of capitalist enterprises in agriculture and industry depend on their ability to sell their products regularly. For this, both domestic and foreign markets are necessary. However, the growth rate of the domestic market often falls short of the development of capitalist production. Therefore, capitalist enterprises must turn to foreign markets, even if they produce the same goods at higher costs. Securing these markets requires state support. Competition for distant markets among countries leads to conflicts of commercial interests between states, necessitating protective measures against goods from other countries (Rist & Gide, 2022). In this context, Mercantilists emphasized that importing raw materials was beneficial for the country, but exporting processed goods should be avoided. In this sense, Mercantilist policies in the 14th and 15th centuries regulated not only precious metals but also the trade of products like grain and wool. During this period, the export of agricultural and raw material products was often banned to regulate domestic industry. Mercantilists advocated for imposing tariffs on cheap processed goods from other countries while opposing the export of raw materials (Dobb, 1963). France was the first European country to implement protective tariffs. In 1567, France imposed tariffs on Lyon silks to protect and develop them against foreign competition.

The fundamental reason behind this political approach of Mercantilist thought is that commercial interests were often closely tied to state interests. Although this relationship was not unique to Mercantilism and has been valid for different political ideologies in various

historical periods, the policies implemented have evolved in response to changes in the global economic climate. Mercantilist ideas also served to strengthen the authority of monarchs and support national unity during the formation of nation-states. In this regard, Mercantilism is often referred to as the economic policy of the establishment of the nation-state.

Mercantilism relies heavily on state intervention. Mercantilists advocated for industrialization and development led by the state, endorsing the use of protectionist trade policy tools. To create a trade surplus and increase the country's gold reserves, strict state intervention in domestic and foreign trade activities was necessary. According to this doctrine, since the world's wealth is fixed, there is always a conflict of interest between trading nations. One party's gain comes at the expense of the other's loss. Mercantilists also emphasized the importance of a strong merchant navy to control international trade, develop trade with colonies, and ensure the secure inflow of precious metals like gold and silver.

After the Industrial Revolution, as steam power replaced manual labor, Mercantilism gave way to liberal economic ideas. With machines capable of mass production, production ceased to be a problem in the economy, but the need to sell goods to other countries arose. In England, this led to debates over Mercantilism's protectionist policies. Alongside these industrial developments, the publication of Adam Smith's famous work The Wealth of Nations in the second half of the 18th century rendered Mercantilism's bullionist view simplistic, and economists began to criticize it, opening Mercantilism to debate. Meanwhile, the decline of feudalism led to the establishment of nation-states. Meanwhile, the decline of feudalism led to the establishment of nation-states. The emergence of new capitalist classes increased profit motives, and technological advancements began to emerge. The Renaissance movements that started in Italy encouraged continuous change and progress in intellectual and economic life. In the early 18th century, the Physiocratic economic thought emerged in France as a reaction to Mercantilism.

Physiocracy emerged in France as a reaction to Mercantilism. Unlike Mercantilists, Physiocrats did not consider trade a productive activity, viewing it merely as the exchange of goods. According to Physiocrats, the Mercantilist emphasis on creating a trade surplus would reduce demand for agricultural products, negatively impacting national wealth. They argued that true wealth lies in the abundance of consumer goods and their sale at favorable prices. Trade, in their view, is the exchange of goods for goods, and selling without purchasing is considered blindness and even political hunger. Since trade involves

exchanging goods for goods, it cannot create value. However, they acknowledged that trade could be economically beneficial as long as it served the interests of agriculture. For this reason, they did not see the need for protectionism in foreign trade, which was central to Mercantilism. In line with their belief in the natural order, they advocated for free trade.

According to Physiocratic thought, wealth is derived solely from the land. Therefore, they opposed the ban on grain exports and the liberalization of grain imports in France. Restricting exports benefits consumers at the expense of producers, which would significantly harm agriculture. This explains why Physiocracy is considered the first school of thought to advocate for free trade.

3.2.2 Classical Foreign Trade Theory

With the Industrial Revolution, steam power replaced manual labor, and mass production replaced handlooms. Following these developments, the challenge became finding markets for the goods produced by these machines and selling them. For the produced goods to be sold, other countries needed to open their doors to foreign products. As a result, Mercantilism, with its protectionist policies, had to give way to liberal views. The goal of the liberal perspective, as explained by Adam Smith's theory of absolute advantage, was to achieve the wealth of nations. The fundamental principle here is based on the idea that shared interests create wealth.

In Mercantilism, foreign trade was presented as a zero-sum game, meaning that one country's surplus was balanced by another country's deficit. Smith (1776), however, explained foreign trade as a positive-sum game where all parties benefit. A significant portion of Smith's The Wealth of Nations was prepared as a counterattack against Mercantilism. This is because Smith believed in individualism, free trade, and the invisible hand. According to Smith, each individual can better determine their own needs than those of others. If individuals are allowed to work toward their own welfare, the society they form will experience an increase in overall welfare in the long run. Instead of state intervention, the natural order would protect freedom. From Smith's perspective, the advantage of the natural order emerges through the concept of the division of labor. In The Wealth of Nations, Smith explained this with the example of a pin factory. He noted that in a pin factory, when each worker specializes in a specific stage of production rather than producing the entire pin independently, the total production increases significantly. Smith expanded this division of labor approach to the concept of international division of labor.

While criticizing Mercantilism, Smith (1776) emphasized that any form of state intervention (e.g., creating monopolies, promoting exports, restricting imports, regulating wages) hinders natural economic growth. He argued that instead of countries adopting a self-sufficiency approach, it would be better for them to determine which goods they produce more efficiently and specialize in those areas. If a country can produce a good using fewer resources or less time compared to another country, it has an absolute advantage in that good. Adam Smith's approach was a significant step in understanding the nature of foreign trade. According to Smith, every country has an advantage in producing some good, but he did not address the scenario where one country has an advantage in both goods in a two-country, two-good economy. David Ricardo later demonstrated that even in such cases, foreign trade could be beneficial for both countries (Cho and Moon, 2000).

In his 1817 work Principles of Political Economy and Taxation, Ricardo explains the reasons for foreign trade and the gains derived from it. Ricardo's theory of comparative advantage links foreign trade to international comparative costs. The theory's assumptions—such as external balance, perfect competition, constant returns, and full employment—are open to debate. Modern foreign trade theory is an extension of Ricardo's ideas on comparative advantage (Ricardo, 1971). The focus of debate in different interpretations of comparative advantage is the source of this advantage. In other words, where does a country's comparative advantage in producing a good come from? The differences in the answers provided by Ricardo and by Heckscher and Ohlin reflect the differing approaches between schools of thought.

According to Ricardo, the pioneer of the theory, the source of comparative advantage lies in labor productivity, which stems from differences in technology used in production across countries. According to the labor theory of value, the fewer labor units used to produce one unit of a good, the lower its unit cost and price. Capital is not considered a separate factor of production but rather as accumulated labor. Ricardo and subsequent classical economists explained their theory using a two-country, two-good model. As a result of Smith's theory of absolute advantage, if one country has an absolute advantage in both goods, foreign trade would not benefit both countries, and no trade would occur. However, Ricardo demonstrated that even in such a case, foreign trade is still possible.

He argued that even if one country has an absolute advantage in both goods, as long as the internal real costs of the two countries differ, foreign trade can still benefit both countries. Ricardo's significant contribution to foreign trade theory is his determination of

the upper and lower limits for the equilibrium foreign trade price between two countries. Naturally, these limits are determined by the internal real costs of the two countries. The specific price at which the two countries agree—the equilibrium foreign trade price—is explained by Marshall's reciprocal demand curves analysis, which builds on Ricardo's work.

Despite being one of the most important theoretical contributions to economics, the theory of comparative advantage is often seriously misunderstood by various groups, including businesspeople, politicians, bureaucrats, journalists, and even economists. Given the size of the audiences these groups influence, the scale and consequences of this misunderstanding can be more realistically assessed. Perhaps the most significant misunderstanding is the view that if a country cannot produce certain goods more cheaply (more efficiently) compared to other countries, it cannot gain from free trade. This assessment is undoubtedly incorrect. By definition, according to the theory of comparative advantage, every country gains from specialization based on comparative advantage.

The misconception described above stems from the error of interpreting comparative advantage as absolute advantage. This flawed reasoning implies that a country can only benefit from free trade if it has absolute advantages, a logic that would only receive Smith's approval today. A likely reason for this widespread misunderstanding in real life is the perception that absolute advantage is a necessary and sufficient condition for competitive advantage. However, having an absolute advantage (i.e., a productivity advantage) is not a prerequisite for achieving competitive advantage. Even if a country has an absolute productivity disadvantage, it can still produce a good more cheaply than another country if the wage rate difference between the two countries is greater than the productivity difference. In other words, a country can have a competitive advantage without having an absolute advantage. Absolute advantage is not a necessary condition for competitive advantage.

3.2.3 Neoclassical Foreign Trade Theory

Neoclassical growth theory seeks to explain how economic growth changes based on the investment rate, population growth rate, and the pace of technological change. In the Harrod-Domar model, even small deviations from the equilibrium values of key variables—such as the savings rate, capital-output ratio, and labor growth rate—can lead to either rising unemployment or prolonged inflationary periods. According to Solow (1956), the primary reason for the knife-edge equilibrium and the unstable balance in the Harrod-Domar model is the assumption that there is no possibility of substitution between labor and capital. If this

assumption is removed, the knife-edge equilibrium would no longer exist (Solow, 1956). Solow aimed to show that without this assumption, the unstable conditions outside the equilibrium point would not arise.

The neoclassical growth theory or Solow growth model is insufficient to explain foreign direct investment (FDI) flows. The model's law of diminishing returns implies that FDI should flow to countries with the least capital intensity. Since the marginal productivity of capital (MPK) is higher in countries with low savings rates, and MPK varies even when marginal returns are earned, FDI should flow from developed to developing countries. However, this does not adequately explain the FDI flows between developed countries observed today. Empirical studies on whether the neoclassical model can explain FDI flows have found that it fails to do so. In his study, Zebregs tested the standard Solow model, a Solow model allowing for technological differences between countries, and another allowing for differences in production methods. The study found that none of these models could explain observed FDI flows. To address this, the model would need to incorporate endogenous technological progress and include human capital. Although the Solow model provides a stable growth framework, it has been heavily criticized for treating intentional technological progress—the sole determinant of long-term growth rates—as exogenous and dependent on chance. The first major modification to the neoclassical theory was the removal of the assumption of diminishing returns to capital, which became a cornerstone of subsequent theories (Zebregs, 1999).

Smith (1776) attempted to explain the origins of foreign trade or countries' advantages not only through qualitative differences in factor endowments but also through quantitative differences. In this context, Smith's vent-for-surplus approach, which identifies population density as a key determinant of a country's export capacity, though underdeveloped, significantly influenced two Swedish economists, Heckscher (1919) and Ohlin (1933), contributing to the development of the Factor Endowment Theory (Heckscher-Ohlin Theory). Additionally, the shortcomings observed in the Theory of Comparative Advantage played a major role in the evolution of this theory.

In general terms, the Factor Endowment Theory posits that each country exports goods that intensively use its relatively abundant (cheaper) factors of production and imports goods that require factors in which it is relatively scarce. B. Ohlin, in his 1933 work, explained this theory as follows: The primary condition for trade is that some goods can be produced more cheaply in one region than in another. The cheap goods in each region are those that use the

region's relatively cheaper factors more intensively. These cheap goods form the exports, while goods that can be produced more cheaply in other regions are imported. Thus, in each region, exports consist of goods that use the region's abundant factors intensively. In short, goods that require a large proportion of expensive factors are imported, while goods that require a large proportion of cheap factors are exported. (Ohlin, 2002).

In the Factor Endowment Theory, the focus is on the quantity of production factors a country possesses, maintaining the tradition of considering labor and capital. Within this framework, countries are classified as labor-abundant or capital-abundant, and goods are categorized as labor-intensive or capital-intensive. It is assumed that countries differ in their factor endowments and that goods differ in their factor intensities. Additionally, the theory assumes that the production function (and thus production technology) is the same across all countries, that production operates under constant returns to scale, and that demand conditions, while not identical, are similar across countries.

To demonstrate its analytical validity, the Heckscher-Ohlin model relies on transformation curves and indifference curves. Beyond the Factor Endowment Theory, the model has also given rise to the Factor Price Equalization Theorem, the Stolper-Samuelson Theorem (on income distribution), and the Rybczynski Theorem. These extensions further elaborate on the implications of factor endowments for international trade and economic outcomes (Yenokyan et al., 2014). According to the Factor Price Equalization Theorem, free trade in goods equalizes the prices of production factors in the trading countries. More explicitly, free trade and the international specialization it symbolizes raise the prices of factors that are abundant in a country and lower the prices of scarce factors, leading to the equalization of factor prices between countries. The idea of factor prices equalizing through free trade was first touched upon by Heckscher. Ohlin later expressed it as a tendency rather than absolute equality, and finally, Samuelson analytically proved that free trade leads to factor price equalization (Samuelson, 1948).

3.2.4 New Foreign Trade Theory

Over time, criticisms have been directed at classical trade theory, highlighting its shortcomings. In response, New Trade Theories have emerged, including the Skilled Labor Theory, Technology Gap Theory, Product Life Cycle Hypothesis and Preference Similarity Hypothesis etc. The Skilled Labor Theory explains the reasons for trade between industrialized countries. Among the new trade theories, it is the closest to the Heckscher-

Ohlin Theory. This similarity stems from their shared focus on production factors. While Heckscher-Ohlin assumes that production factors consist of labor and capital, with labor being homogeneous, the Skilled Labor Theory divides labor into skilled and unskilled categories. Instead of focusing on differences in labor and capital between countries, this theory emphasizes differences in the qualitative composition of the labor force.

The core argument of the theory is as follows: Countries abundant in skilled labor produce and export goods that require intensive use of skilled labor, while countries abundant in unskilled labor produce and export goods that require intensive use of unskilled labor. The explanatory variable in this theory is human capital, while the dependent variable is trade between industrialized countries, and the independent (explanatory) variable is skilled labor. In other words, the skilled labor factor determines trade between industrialized countries. Since there are differences in skilled labor across countries, trade patterns are shaped by these differences.

According to the theory, a significant portion of trade between industrialized countries is driven by differences in skilled labor. Countries rich in specific types of skilled labor specialize in producing goods that require intensive use of that factor and export those goods.

The theory also suggests that factor endowments do not determine trade rather, the existence of trade leads countries to shape their factor endowments according to the demands of trade. The increasing trend of global trade focusing on manufactured goods, and even the trade of similar goods between countries, can be explained by differences in skilled labor endowments. This is because the factor intensity of traded goods varies across countries. For example, a country that previously imported capital-intensive goods may, due to high prices, substitute labor with capital and eventually start producing capital-intensive goods itself. This process changes the country's factor endowments.

In the context of the Skilled Labor Theory, investments in human capital—such as improving labor quality, equipping labor with capital, and planning human resources and education—can enrich countries in terms of skilled labor. This advantage can then be reflected in international trade.

In summary, the Skilled Labor Theory highlights the role of human capital and labor quality in shaping trade patterns, particularly among industrialized countries, and emphasizes the importance of investments in education and training to enhance a country's competitive advantage in global trade.

The Technology Gap Theory emphasizes the importance of dynamic developments within an industry. As a result, the rapidly growing synthetic materials industry is the most suitable example for this theory. The Technology Gap Theory and Economies of Scale Theory are particularly effective in explaining trade in synthetic materials. The theory focuses on why developed countries with very similar economic conditions engage in trade of manufactured goods.

According to the theory, technological innovation temporarily alters the market structure. In a competitive industry, the firm that develops a technical innovation gains monopolistic power for a certain period. The theory argues that technological changes drive international trade. Since specific technological changes originate in a particular country, other countries will take time to imitate the innovation. During this period, the innovating country gains a comparative cost advantage in the new product, leading to trade. Thus, innovations often allow the innovating country to achieve a monopolistic position temporarily.

Countries that invest heavily in R&D to develop new products or production methods gain technological leadership over others, thereby improving their foreign trade performance. Posner, through the Technology Gap Theory, argued that countries that develop a new product or production method (technology) will initially become its exporters. Over time, as other countries acquire this technology and leverage their own advantages (such as labor, natural resources, etc.), they may achieve cost or competitive superiority, causing the innovating country to become an importer.

In summary, the Technology Gap Theory highlights the role of technological innovation in creating temporary monopolies and shaping trade patterns. It explains how countries that lead in innovation can dominate trade in new products until other countries catch up, at which point the competitive landscape shifts. This theory underscores the importance of R&D and technological advancement in maintaining a competitive edge in international trade.

The Preference Similarity Theory was proposed by Staffan Burenstam Linder in 1961. Linder was one of the first economists to incorporate the concept of demand into trade models. According to Linder, while factor endowments play a significant role in determining trade in primary goods, demand structure is more influential in trade involving manufactured goods (Abdullahi, 2016).

Linder explains trade in manufactured goods through preferences. This theory differs significantly from the Heckscher-Ohlin Theory, which is entirely supply-side, focusing on factor endowments and factor intensity. In contrast, the Preference Similarity Theory is entirely demand-side. Linder believed that the Heckscher-Ohlin Theory adequately explains trade in primary goods but falls short in explaining trade in manufactured goods.

The Preference Similarity Theory explains trade in heterogeneous industrial goods, where tastes and economies of scale are particularly important. It is also referred to as the Income Theory or the Overlapping Demand Hypothesis. The reason for this is that demand is a function of per capita income. When demand depends on per capita income, countries with similar income levels tend to have similar demand structures. Consequently, these countries demand nearly the same products.

• Assumptions of the Theory: Countries with similar income levels have similar tastes.

• Products are differentiated.

• There are increasing returns to scale.

Similar preferences imply that consumers in one country, comparable to another, are willing to purchase a specific product. Within a country, consumers are divided into majority and minority based on their preferences. The minority consists of either very rich or very poor segments of the population, while the majority includes everyone else.

Representative demand refers to the demand that must exist in the domestic market for a product to become a potential export good.

In this theory, the explanatory variable is not production costs but demand conditions, specifically the similarity of tastes and preferences between countries. The primary determinant of tastes and preferences is relative income levels.

According to the theory, countries trade with each other not because of differences in factor endowments but because of similarities in per capita income and demand. Trade in industrial goods is particularly intense among countries with similar preferences and income levels. The more similar countries are in terms of per capita income and income distribution (i.e., demand structures), the more intense their trade relations will be. Linder also identifies geographical proximity and cultural similarities as factors that increase trade between countries. He argues that products catering to domestic preferences will be easier to export to countries with similar cultures.

Linder asserts that for a product to become an export good, there must be representative demand for it in the domestic market. Domestic producers initially produce

goods that are profitable in the domestic market. No product is initially produced for the export market. Over time, as the domestic market becomes saturated, producers begin to seek export opportunities for these goods. Thus, exports begin to flow to markets in countries with demand structures similar to the domestic market. As tariffs and non-tariff barriers are reduced, potential trade turns into actual trade.

In the Heckscher-Ohlin Theory, a linear production function is assumed, where the use of each production factor is subject to diminishing marginal returns. In contrast, the Product Life Cycle Theory assumes increasing returns to scale. In the Heckscher-Ohlin Theory, factor intensities do not reverse. However, in the Product Life Cycle Theory, there is no information regarding the reversal of factor intensities. According to some economists, the reversal of factor intensities does not occur in the final stage of a product's life cycle. These economists assume that identical production functions exist across all countries in the final stage of a product's life cycle.

According to the Heckscher-Ohlin Theory, consumption patterns are the same across all countries at any given international price level. For example, if income levels are ignored, all products are consumed in the same proportion. In the Product Life Cycle Theory, however, consumption patterns vary according to income levels. Some goods are consumed in greater proportions by countries with higher income levels. Such goods are referred to as high-income products.

In the Heckscher-Ohlin Theory, perfect competition is assumed. Free trade is taken for granted (there are no trade barriers), and transportation costs are ignored. In the Product Life Cycle Theory, it is assumed that the transfer of information between countries incurs costs. According to the theory, the circulation of knowledge among firms and markets within a country also involves costs. Trade barriers and transportation costs are also considered. In the Heckscher-Ohlin Theory, production factors are immobile between countries. Proponents of the Product Life Cycle Theory, however, assume that capital is at least partially mobile between countries. Additionally, in the Heckscher-Ohlin Theory, production factors are assumed to be homogeneous in quality. The Product Life Cycle Theory does not make such an assumption, and it can be observed that production factors differ in quality within the theory.

The Heckscher-Ohlin Theory assumes full employment and is a static theory. In the Product Life Cycle Theory, there is no assumption about employment, and the theory is dynamic in nature.

Since the Heckscher-Ohlin approach is a static theory, it cannot explain changes in trade patterns over time. The Product Life Cycle Theory, on the other hand, can explain changes in trade patterns that occur now or may occur in the future. The Product Life Cycle Theory does not provide an explanation for independent industrial products. According to the theory, technical knowledge does not move freely between countries. As a result, the discovery of new products and production methods tends to occur in markets close to countries with strong demand rather than in countries with limited demand. On the other hand, the Qualified Labor Theory, although inherently a static theory, can be given a dynamic character by adjusting its assumptions.

In the Monopolistic Competition Theory, increasing returns to scale are presented as the reason for international trade. Monopolistic competition models were first proposed independently in 1933 by the American economist Edward Hastings Chamberlin and the British economist Joan Robinson. However, today, the Chamberlin model is widely used.

The Monopolistic Competition Theory differs from perfect competition in terms of product differentiation and from monopoly in terms of the large number of sellers. In perfect competition, products are assumed to be homogeneous. In a monopoly, the assumption is that there is only one seller.

The assumptions of the Monopolistic Competition Theory are as follows:

• There are many buyers and sellers.

• Entry and exit into the market are free.

• Households and other decision-making units have complete information.

• Factor mobility is perfect.

• Products produced by many firms are differentiated.

The key feature of a monopolistic competition market is that products are differentiated. Differentiated products refer to goods produced by one firm that differ in content and/or appearance from those produced by other firms. This differentiation leads consumers to prefer one firm's product over another's. As a result, each firm has its own unique group of buyers. On an international scale, the products produced by countries also differ, and each country has its own unique group of consumers. Consequently, even if the products produced by countries are generally similar, they become subjects of international trade due to differences in content and/or appearance.

Since products are not perfect substitutes but close substitutes, firms and/or countries have less market power compared to a monopoly.

The fundamental assumptions of the Monopolistic Competition Theory include full employment, the use of labor and capital as production factors (assumed to be homogeneous), and the assumption that these factors are mobile between industries. Additionally, the theory assumes increasing returns to scale in the industrial sector, the prevalence of monopolistic competition conditions, the heterogeneity of the industrial sector, the production of differentiated goods, and the idea that a significant portion of international trade consists of the buying and selling of these differentiated goods.

Product Differentiation and Trade in Monopolistic Competition Theory

The concept of product differentiation is central to the Monopolistic Competition Theory. Additionally, the theory divides trade into two categories: inter-industry trade and intra-industry trade.

Product differentiation refers to the process by which a product within a specific industry differs from other products in the same industry in terms of composition, usage, appearance, or at least branding. If consumers perceive a product as different for any reason, it is considered differentiated.

Inter-industry trade involves the exchange of goods produced by entirely different or dissimilar industries. Intra-industry trade, on the other hand, refers to the exchange of differentiated goods within the same industry or a country both exporting and importing differentiated goods within the same industry. This is also known as two-way trade. A significant portion of trade, especially among industrialized countries, consists of intra-industry trade.

According to the Monopolistic Competition Theory, international trade is determined by product differentiation and economies of scale.

In the Monopolistic Competition Theory, the reason for international trade is increasing returns to scale. In the presence of increasing returns to scale, comparative advantage between countries ceases to be the sole reason for trade. Even if countries have similar tastes, preferences, technological levels, and factor endowments, trade can still occur due to economies of scale. When economies of scale exist, the advantage of large-scale production leads countries to specialize and trade with each other. Specialization to benefit from economies of scale also explains the two-way trade of goods with similar factor intensities, i.e., intra-industry trade.

In summary, the Monopolistic Competition Theory highlights the role of product differentiation and economies of scale in shaping international trade patterns, particularly

emphasizing the importance of intra-industry trade among countries with similar economic structures.

There are two pieces of evidence supporting the idea that increasing returns to scale and intra-industry trade are reasons for trade. Increasing returns to scale, one of the fundamental topics of monopolistic competition theory, and intra-industry trade are explained based on two assumptions. First, in both countries, there are sectors where product differentiation occurs, and there is demand for each variety of the product. Second, increasing returns to scale exist for each variety of the differentiated product. This assumption leads to a monopolistically competitive market structure in industries where differentiated products are produced.

In a monopolistically competitive market, it is assumed that goods are differentiated. Based on this assumption, consumers demand different varieties of the same basic

product. Firms respond to this demand by producing a large number of differentiated goods. The products are similar but not perfect substitutes.

There are two reasons for the demand for differentiated goods. First, there are certain types of goods for which consumers demand a small quantity of each available variety. Second, each consumer has a strong preference for a small number of varieties that best suit their needs.

The preference for variety and the resulting demand lead firms to differentiate their products. However, unlimited variety is not possible. Excessive variety would cause significant losses in economies of scale. Therefore, there are many firms producing a small number of varieties of the same basic product. An industry composed of such firms is characterized by both competition and monopoly power, which is why it is called monopolistic competition. Since the products are differentiated, each firm holds some degree of market power. For example, they can control prices.

In the long run, since there are no barriers to entry, any excess profits will attract new entrepreneurs producing goods similar to those already in the market. Increased variety will reduce the demand for existing goods in the industry and lower firms' profits. Eventually, profits will be competed away, giving the industry a competitive character.

4 Practical Part

4.1 Empirical Literature Review

The first study examined in this context is Dollar's 1992 study. Dollar (1992) created an orientation index for 95 developing countries (43 in Africa, 16 in Asia, 24 in Latin America, and 12 in Europe/Middle East) during the 1976-85 period, incorporating the weighted averages of distortions and variability in real exchange rates. The author categorized these 95 countries into four groups based on their degree of openness and analyzed whether these economies grew rapidly using the created index.

In the established model, per capita GDP growth is a function of the investment ratio, changes in the real exchange rate, and real exchange rate distortions. This growth equation was tested for all four groups of countries. The results indicated that while investment ratios showed little variation among country groups, growth rates differed significantly, especially for Asia, and a positive and significant relationship between growth and openness was identified.

Similarly, Sachs and Warner (1995) developed an index to examine the relationship between trade openness and growth, following Dollar's study. This index has been widely discussed in various empirical studies and has also been criticized by some authors. Sachs and Warner, based on the study by Summers and Heston (1991), defined developed countries as those with a real GDP per capita of $5,000 or more in 1970 and analyzed 122 countries, including developing countries, for the 1970-1989 period.

Their openness index was composed of trade, exchange rate, and other policy factors. According to this index, an economy was classified as closed if it met at least one of the following five conditions; otherwise, it was considered open:

- Non-tariff barriers covering 40% or more of trade
- Average tariff rates of 40% or higher
- A black-market exchange rate depreciating by 20% or more relative to the official exchange rate during the 1970s and 1980s
- A socialist economic system
- A state monopoly on exports

As a result, the authors found that protective trade policies generally reduced growth and confirmed a positive and significant relationship between openness and growth.

Another study examining the relationship between total factor productivity, growth, and trade is Wu's (2004) research. Wu analyzed 16 member countries of the Asia-Pacific Economic Cooperation (APEC) from 1980 to 1997, investigating the relationships between openness, productivity, and growth among these economies.

The model established in the study refers to output-based technical efficiency and assumes that openness affects not only technical efficiency but also technological structure. Wu defined output based on capital, labor, and openness indicators (ratios of exports, imports, and foreign direct investments to GDP). Since the United States and Japan were the two most developed countries among APEC members, two dummy variables were included in the model to capture the potential technological gap between these two countries and the rest of APEC.

In addition to the growth equation, concepts such as technological progress, economies of scale, technical efficiency, and total factor productivity were calculated. The study estimated four specific cases using the maximum likelihood method: no effect of openness, a neutral effect of openness on technical efficiency, openness affecting both technical efficiency and production technology, and a non-neutral impact of openness on technology. The majority of coefficients were found to be statistically significant, indicating that openness positively affects technological progress and technical efficiency.

Lloyd and MacLaren (2000) reviewed the economic growth characteristics and macroeconomic performance of East Asian countries, focusing on real trade sector indicators, including both goods and services trade as well as foreign direct investments. While their study acknowledged that trade openness positively impacts growth, it also pointed out that some of today's fast-growing Asian economies are not relatively open in terms of goods and services trade. According to the authors, increasing trade openness is a necessary step to enhance the growth rates of these countries; however, implementing this step became more challenging following protective and regional policies in other countries.

Dollar and Kraay (2004), in their study, focused on 10-year time intervals and argued that changes in growth and trade volume were not significantly influenced by geographical characteristics or unobservable institutional quality factors of countries. The authors defined developing countries that significantly opened their trade over a 20-year period as "post-1980 globalizers" and aimed to compare their growth rates with those of other countries. These globalizers were categorized into three groups: the first group included developing countries with high trade growth, measured as the share of GDP in constant prices between

1975-79 and 1995-97; the second group consisted of countries identified based on an absolute reduction in average tariff rates; and the third group comprised countries present in both of the first two groups. For each group, simple and population-weighted average trade volumes, tariff rates, and growth rates were reported.

The standard growth equation, incorporating unobserved country and time effects, was estimated for approximately 100 countries, with explanatory variables also including lagged values. The results indicated a strong correlation between changes in trade volume and changes in growth rates, showing that a 100% increase in trade share led to a cumulative 25% increase in income over a 10-year period. Additionally, institutional quality variables were found to have a weak and statistically insignificant positive effect on the trade-growth relationship.

While the economic growth of the "post-1980 globalizers" increased from the 1970s to the 1990s, both developed and lagging developing countries experienced declines in growth, suggesting that post-1980 globalizers were catching up with rich countries while other nations were falling further behind. Furthermore, Dollar and Kraay examined how greater international trade openness could help reduce inequality between rich and poor countries. They argued that increased growth rates associated with expanded trade would lead to proportional increases in the incomes of the poor, supporting the view that globalization fosters faster growth and poverty reduction in developing nations.

In the literature, the causality direction between openness and growth has been a frequently debated topic. Some panel studies (Harrison, 1996; Lewer & Van Den Berg, 2003) failed to establish a clear one-way relationship between the two variables. However, certain studies focusing on China (Liu, Song & Romilly, 1997; Liu, Burridge & Sinclair, 2002; Tsen, 2006) found either one-way causality (from trade to growth) or bidirectional causality.

Harrison (1996) defined the growth equation as a function of capital stock, primary and secondary education, labor force, arable land, and technological development, emphasizing that openness measures influence output through their effects on technological change. To test the relationship between openness and growth in developing countries, seven different openness indices were examined. The study analyzed cross-sectional data, annual data, and five-year averages to investigate the growth-openness relationship. When using cross-sectional data, only one index showed a statistically significant and correctly signed relationship. However, with annual data and five-year averages, six and three indices, respectively, demonstrated a statistically significant relationship. To determine the causality

direction of the growth-openness relationship, the researcher applied the Granger causality test but failed to identify a clear one-way causal link.

Liu, Burridge, and Sinclair (2002) examined the causal relationships between foreign direct investment, exports, imports, and GDP in China for the period 1981-1997, finding results similar to those of Yu (1998). Their study concluded that there were bidirectional causality relationships between investments, exports, and GDP, while imports had a weaker feedback effect on the other three variables.

Tsen (2006), in his study on China, analyzed the periods 1952-1999 and 1978-1999 (the period when China transitioned to a market economy and opened its economy to the world) using time series analysis to investigate Granger causality relationships between international trade, human capital accumulation, and economic growth. Trade openness was measured by the share of exports and imports in GDP. The study first applied unit root tests and the Johansen cointegration test to examine the existence of long-term relationships between the variables.

The results generally indicated a stable long-term relationship between the logarithms of per capita real GDP, trade openness, and human capital. Granger causality tests showed that for the 1952-1999 period, economic growth caused human capital accumulation. However, for the 1978-1999 period, there was bidirectional Granger causality between economic growth and trade openness, economic growth and human capital accumulation, and human capital accumulation and trade openness. Only the results for the 1978-1999 period were statistically significant, highlighting the strong effect of these variables during China's economic reforms.

While previous studies have demonstrated a positive relationship between trade openness and growth, numerous studies in the literature have questioned the reliability of this relationship. Levine and Renelt (1992) tested whether the findings in the literature were robust to small changes in the dataset by using a model that included a large number of variables. To reassess the significance of the coefficients in the growth equation, they applied the "extreme bounds analysis (EBA)" method developed by Edward Leamer in 1983. Their growth model, which included trade, financial, and political variables, was estimated for 119 countries covering the 1960-1989 period. The results confirmed a positive and robust relationship between growth and the share of investment in GDP, as well as between this share and the international trade-to-GDP ratio. However, nearly all other results were found

to be fragile. Furthermore, most economic, financial, and political indicators did not exhibit a reliable relationship with either growth or the share of investment.

Another critical study in the literature was conducted by Rodriguez and Rodrik (1999), who scrutinized studies that established a positive link between trade and growth, including those by Dollar (1992), Ben-David (1993), Sachs and Warner (1995), Edwards (1998), and Frankel and Romer (1999). While previous research suggested a negative relationship between trade restrictions and economic growth, Rodriguez and Rodrik argued that these studies failed to accurately measure trade restrictions through openness indicators and suffered from econometric methodology problems, making their findings less realistic. They further contended that establishing a negative and significant relationship between growth and trade policy variables (such as tariffs and non-tariff barriers) was difficult.

In a similar study, Rodriguez (2007) examined how various measures of openness were related to growth rates across multiple countries between 1990 and 2003. His findings did not support a strong link between higher openness and growth. In particular, since the 1990s, some of the fastest-growing countries had implemented strict trade policies, while some of the more open economies experienced significant declines in growth. Rodriguez concluded that if there had been a negative relationship between trade restrictions and growth, it had disappeared after the 1990s.

Wacziarg and Welch (2008) analyzed 133 countries over the 1950-98 period to examine the relationship between liberalization, growth, investment, and openness. Their growth equation included a liberalization dummy variable (which takes the value of 1 if t is greater than the country's liberalization year and 0 otherwise) and a residual term incorporating fixed effects. The equation was tested separately for cross-section (CS) and within-country variation (WCV). The findings showed that the effect of growth and liberalization increased over time for WCV, reaching its peak in 1990, whereas the effect was the opposite for CS, meaning that countries that liberalized in 1990 had higher post-liberalization growth rates compared to those that liberalized in other periods.

For the 1950-98 period, countries with a free regime had higher average physical capital investment rates compared to non-liberalized countries. The effect of liberalization on growth through the investment channel accounted for 21% of the total effect, supporting the argument that the positive relationship between liberalization and growth is largely driven by physical capital investments. Trade liberalization also increased trade volumes, helping reforming countries integrate more deeply into the global economy.

Wacziarg and Welch further examined the time paths of growth, investment, and openness before and after liberalization for 81 countries. Their analysis found that growth gradually increased in the years following liberalization, with sustained growth becoming more evident a few years after the reform. Investment rates took off within a decade and remained high, while openness followed an upward trend. However, institutional environments, the scope and depth of economic reforms, and existing macroeconomic policies varied across countries.

The study also tested equations incorporating country effects for 24 countries. The results showed that post-trade reform, per capita income growth differed significantly among countries. While 13 out of the 24 countries experienced positive growth, 6 recorded negative growth, and the remaining 5 exhibited a near-zero effect. In terms of investment, some countries saw a positive impact following liberalization, while in roughly half of the countries, the effect was either neutral or negative.

Similarly, Jin (2004) conducted a study on China, showing that trade openness-growth findings varied by geographic location. Jin examined the trade-growth relationship for 27 regions in China from 1978 to 1998 using cointegration analysis. The model linked GDP with physical capital, human capital, and the openness ratio (exports + imports/GDP). The study found that China's eastern coastal regions, being more open to external trade, exhibited higher growth rates and that growth in these areas moved in tandem with trade openness. However, in inland regions, trade openness had a negative effect on growth. According to Jin, this discrepancy was due to the eastern regions having infrastructure investments that attracted foreign capital, thereby increasing their competitiveness.

4.2 Methodology

4.2.1 Research Model

Covering the period from the first quarter of 1995 to the fourth quarter of 2019, this thesis investigates the relationship between trade liberalization and economic growth in ten countries Austria, Belgium, Czechia, Denmark, France, Germany, Italy, the Netherlands, Norway, and the United States using quantitative research. These nations were chosen because of data availability and dependability. The main objective is to grasp how export expansion as a sign of trade liberalization influences economic growth, assessed by GDP per capita. The main research question is: How does trade liberalization, represented by export growth, affect economic growth in these ten countries between 1995 and 2019? The study

used a panel data econometric model, adjusting for significant economic variables like inflation, unemployment, and investment (measured by gross fixed capital formation), to examine this link. It offers consistent findings on the long-term influence of trade liberalization on economic performance using sophisticated methods such panel cointegration tests, random effects, and fixed effects.

4.2.2 Data Scope and Characteristics

Reputable sources such as the World Bank and OECD databases provide consistent and comprehensive macroeconomic data for the ten selected economies Austria, Belgium, Czechia, Denmark, France, Germany, Italy, Netherlands, Norway, and the United States spanning the period 1995:Q1 to 2019:Q4.These countries were chosen based on the availability of reliable, consistent data relevant to macroeconomic stability, trade openness, and economic progress. The selected time period ensures that the analysis captures long-term trends free from distortions caused by major global crises including the COVID-19 pandemic, which created economic instability and policy changes beyond the scope of this paper. Five key elements have been carefully selected when looking at the relationship between trade liberalization and economic growth across the 10 selected countries—Austria, Belgium, Czechia, Denmark, France, Germany, Italy, Netherlands, Norway, and the United States. These factors have been chosen to provide a comprehensive understanding of how export growth, as a measure of trade liberalization, influences economic performance, while considering relevant macroeconomic factors that might influence growth dynamics.

Table 1. Variables

Variable	Code	Number of Countries	Period (Quarterly)	Source	Type of Variable
GDP Per Capita	GDPPC	10	1995:Q1-2019:Q4	World Bank, OECD	Dependent
Export Growth Rate (%)	EXP	10	1995:Q1-2019:Q4	World Bank, OECD	Independent
Inflation (%)	INF	10	1995:Q1-2019:Q4	World Bank, OECD	Control
Gross Fixed Capital Formation	GFCF	10	1995:Q1-2019:Q4	World Bank, OECD	Control
Unemployment Rate (%)	UNEMP	10	1995:Q1-2019:Q4	World Bank, OECD	Control

Source: Elaborated by author

The key measure of economic development in this paper is GDP per capita (GDPPC). It reveals the average income of individuals in a nation and provides a reasonable sign of long-term economic well being. The main goal of this article is to examine how trade liberalization gauged by export growth influences GDP per capita in the chosen nations. A favorable relationship between export growth and GDP per capita would suggest that increased international trade helps boost economic prosperity, hence reinforcing the idea that open trade promotes development.

The export growth rate (EXP) is the primary independent variable in this framework as it reflects how actively a country participates in world trade. Usually, a stronger export growth rate implies more trade openness, which might result in more manufacturing, job creation, and more overall economic development. The study aims to find out if, by way of this relationship, trade liberalization greatly affects fostering long-term growth. The research also offers a well-rounded analysis using several control variables. One such element that directly influences overall economic stability and cost of living is inflation. Though high inflation would reduce GDP per capita and impair purchasing power, moderate inflation would suggest a growing economy. Conversely, deflation would suggest economic stagnation, which would also be negative for investment and expenditure.

Another important control element is gross fixed capital formation (GFCF), which includes long-term investments in buildings, infrastructure, and equipment. These kind of investments increase production and revenue levels.

Examining GFCF enables one decide if investment is significant for economic growth in nations opening up to trade.

A major sign of how effectively the labor market is operating is the unemployment rate (UNEMP). Usually, high unemployment indicates to financial issues that lower income, consumption, and output. On the other hand, low unemployment indicates a better economy as more individuals help to generate overall revenue. The study examines unemployment as a control to counteract the effect of labor market dynamics on GDP per capita.

All things considered, this article examines how macroeconomic factors, trade liberalization, and economic development interact. It seeks to demonstrate whether greater openness to international trade really results in more robust and more stable economies in developed nations. The results will help to clarify how trade liberalization supports national income and long-term growth.

Table 2 shows a summary of the major variables considered in the study—including GDP per capita (gdppc), export growth rate (exp), inflation (inf), unemployment (unemp), and gross fixed capital formation (gfcf).

Table 2. Summary statistics

Variable	Obs	Mean	Std. dev.	Min	Max
gdppc	1,000	38319.11	12406.89	13558.3	72429.2
inf	1,000	1.98179	1.413605	-1.62	13.25
exp	1,000	2.23818	7.568764	-35.80593	45.11373
gfcf	1,000	3181381	4620673	10942.7	1.62e+07
unemp	1,000	6.683	2.408039	2	12.9

Source: Elaborated by author based on STATA output

The primary research variables—including the number of observations, average values, standard deviation indicating data variation, and the greatest and lowest recorded values—are summarized in this table

Average income per person, GDP per capita (gdppc), is the subject of the study. Although the large standard deviation of $12,406.89 reveals significant national variations, individuals in the study nations make on average around $38,319. Reflecting significant variations in economic achievement, the lowest GDP per capita is $13,558.3 and the greatest is $72,429.2.

Averages 2.24%, the export growth rate (exp), which gauges trade openness, differs greatly with a standard deviation of 7.57%. Ranging from a strong rise of 45.11% to a catastrophic decline of -35.81%, the figures reveal how much trade activity has varied over time and among countries. While negative ones indicate trade slowdowns, high growth figures indicate excellent trade performance.

Inflation indicates that the nations in the research typically experience moderate inflation, averaging about 1.98%. Ranging from -1.62% (indicating deflation) to 13.25%, inflation still exhibits significant volatility.

Long-term investments including infrastructure and equipment, gross fixed capital formation (gfcf) shows significant variation among nations. With an average spending of $3.18 million, stressing various degrees of investment and economic strategy as some nations spend as low as $10,942.7 and others as much as $16.2 million. Unemployment at its greatest was 2%, suggesting almost full employment; at its lowest, 12.9%, suggesting more difficult economic conditions.

These figures taken together provide a clear picture of economic trends across the chosen nations. Given all the diversity in income, trade, investment, inflation, and employment, they also emphasize why robust and consistent econometric techniques are required to really grasp how trade liberalization affects economic development.

4.2.3 Model Specification

To create a strong econometric model evaluating the drivers of economic growth, the approach must be strongly rooted in proven growth theories. Following the literature's recommendations, this section develops the growth equation using theoretical models that emphasize major drivers of economic expansion. The endogenous growth theory, advocated by Romer (1994), Aghion and Howitt (2008), and Grossman and Helpman (1991), holds that long-term growth is driven by internal factors rather than external forces. This viewpoint highlights the importance of technology breakthroughs, human capital accumulation, and innovation as main growth drivers.

Endogenous growth theory, in contrast to exogenous growth theories such as Solow's (1956) model, which treats technological development as an externally determined factor, emphasizes the importance of domestic investments in R&D, education, and capital formation in sustaining economic growth (Gundlach, 2007). Higher levels of investment in innovation and physical capital are thought to boost productivity, resulting in a self-sustaining cycle of economic growth.

Beyond endogenous growth theory, the literature extensively investigates various factors that contribute to economic growth. Barro and Lee (1994) emphasize the importance of institutional quality, government policy, and market circumstances as essential drivers of development, in addition to physical and human capital accumulation and technical progress. Given this broader theoretical framework, it is critical to choose variables that reflect several characteristics of economic growth when developing an empirical model. Any econometric research attempting to estimate growth drivers must include fundamental determinants such as capital investments, technological breakthroughs, macroeconomic stability, and labor market conditions.

Building upon this theoretical foundation, the general form of the growth equation can be expressed as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \cdots + u_{it}$$

Where:

- Y_{it} represents a dependent vrable of any economic growth indicators such as gdp per ccapita. Gdp growth etc..
- X_{1it}, X_{2it}, X_{3it} … are independent variables representing various sources of economic growth, which may include factors such as R&D investment, technological innovation, physical capital accumulation, human capital, government policies, and institutional quality. These variables can be tailored to the specific context of the study based on the available data and relevant theory.
- α represents the intercept term, capturing the baseline growth rate.
- β_1, β_2, β_3,… are the coefficients of the independent variables, measuring the impact of each source of growth on GDP.
- u_{it} is the error term, capturing unobserved factors that may influence growth.

To estimate the relationship between trade liberalization and economic growth, this study adopts a panel data regression model, using GDP per capita as the dependent variable, export growth rate as the main independent variable, and inflation, gross fixed capital formation, and unemployment as control variables. The econometric equation can be specified as follows:

$$GDPPC_{it} = \alpha + \beta_1 EXP_{1it} + \beta_2 INF_{2it} + \beta_3 GFCF_{3it} + \beta_4 UNEMP_{3it} + \cdots + u_{it}$$

Where:

- GDP per capita (GDPPC): The logarithm of GDP per capita, which serves as the key measure of economic performance.
- Export growth rate (EXP): Represents trade liberalization by measuring the rate at which exports increase over time.
- Inflation rate (INF): Captures macroeconomic stability by measuring the percentage change in the general price level of goods and services.
- Gross fixed capital formation (GFCF): Reflects investment in physical assets such as infrastructure, machinery, and buildings, which contribute to economic growth.
- Unemployment rate (UNEMP): Measures labor market conditions by indicating the percentage of the labor force that is unemployed but actively seeking work.
- Error term (u): Accounts for unobserved factors that may influence economic growth but are not explicitly included in the model.

4.2.4 Data Analysis Techniques

The estimating technique begins with unit root testing of the panel data. A unit root test must be used to determine whether the variables are stationary or include a unit root, which means they track a random walk and do not return to the mean. Non-stationary data

can provide erroneous results through spurious regression, in which the anticipated relationships between variables are misleading. The Levin, Lin, and Chu (LLC) test (Westerlund, 2006) is used in this study to find unit roots in panel data. The LLC test is a popular method in panel data analysis since it assumes a common unit root process across all cross-sections, making it suitable for datasets in which nations are considered to have comparable economic tendencies. Based on the null hypothesis—that every individual time series in the panel comprises a unit root—versus the alternative hypothesis—that every time series is stationary—the LLC test is According to Choi (2006), the test statistic for the LLC test is computed as follows:

$$t^* = \frac{\sum_{i-1}^{N} t_i}{\sqrt{N}}$$

where ti represents the individual t-statistics for each cross-section in the panel and N is the number of cross-sections. If the test statistic t∗ is significantly negative, the null hypothesis of a unit root is rejected, implying the series is stationary. This phase assures that the variables included in the econometric models are appropriate for future analysis, lowering the possibility of erroneous results.

Once the data's stationarity is validated, the next step is to choose an appropriate econometric model to assess the link between the circular economy indicators and the dependent variables (economic growth and carbon dioxide emissions). The decision between fixed effects and random effects models is crucial in panel data analysis because it governs how unobserved heterogeneity between nations is addressed. Unobserved heterogeneity refers to country-specific factors that are not represented by the independent variables but may influence the dependent variable. Fixed effects models account for this unobserved heterogeneity by allowing each country to have its own intercept, removing any bias from omitted variables. Random effects models, on the other hand, presume that unobserved heterogeneity is random and uncorrelated with the independent variables, allowing for more efficient estimates by pooling data from multiple nations.

The Hausman test is used to assess whether a fixed effects or random effects model is the better fit. The Hausman test compares estimates from the fixed effects and random effects models. The Hausman test's null hypothesis states that the preferred model has random effects, implying that the coefficient differences between the two models are not systematic. The test statistic is calculated as follows (Amini et al., 2012):

$$H = (\beta\hat{}RE - \beta\hat{}FE)'(Var(\beta\hat{}FE) - Var(\beta\hat{}RE))^{-1}(\beta\hat{}RE - \beta\hat{}FE)$$

where β^RE and β^FE are the coefficient estimates from the random effects and fixed effects models, respectively, and Var(β^RE) and Var(β^FE) are their respective variance-covariance matrices. If the test statistic H is significantly large, the null hypothesis is rejected, implying that the fixed effects model is chosen over the random effects model, which would produce skewed estimates. In contrast, if the test statistic is not significant, the random effects model is chosen because it yields more efficient estimates under the assumption that the individual effects are uncorrelated with the regression variables.

5 Results and Discussion

5.1 Stationarity Test Results

The LLC test looks for a unit root in data series for variables guaranteing that any correlations found in the econometric analysis are dependable and not resulting from underlying trends in the data by establishing the stationarity of these variables.

Table 3. Stationarity for GDP per capita

	Statistic	p-value
Unadjusted t	5.0384	
Adjusted t*	7.8923	1.0000

Source: Elaborated by author based on STATA output

The Levin–Lin–Chu (LLC) unit root test results indicate that the null hypothesis (H0), which assumes the presence of a unit root (non-stationarity), cannot be rejected since the p-value is 1.0000, which is far above the conventional significance levels (e.g., 0.05 or 0.10). The adjusted t-statistic (7.8923) is positive and large, further supporting non-stationarity. This suggests that GDP per capita (gdppc) is not stationary in its current form, implying that it may need differencing or transformation before conducting further econometric analysis.

Table 4. Stationarity for Export per capita

	Statistic	p-value
Unadjusted t	-18.7291	
Adjusted t*	-15.6335	0.0000

Source: Elaborated by author based on STATA output

The Levin–Lin–Chu (LLC) unit root test results for export growth rate (exp) indicate that the null hypothesis (H0), which assumes the presence of a unit root (non-stationarity), is rejected at a 1% significance level since the p-value is 0.0000. The adjusted t-statistic (-15.6335) is highly negative, confirming that exp is stationary in its current form. This means that export growth rate does not require differencing or transformation for further econometric analysis.

Table 5. Stationarity for Inflation per capita

	Statistic	p-value
Unadjusted t	-11.2665	
Adjusted t*	-7.4764	0.0000

Source: Elaborated by author based on STATA output

The Levin–Lin–Chu (LLC) unit root test results for inflation (inf) indicate that the null hypothesis (H0), which assumes the presence of a unit root (non-stationarity), is rejected at a 1% significance level since the p-value is 0.0000. The adjusted t-statistic (-7.4764) is strongly negative, confirming that inflation is stationary in its current form. This suggests that inflation does not require differencing or further transformation for econometric analysis.

Table 6. Stationarity for Gross Fixed Capital Formation per capita

	Statistic	p-value
Unadjusted t	-0.6134	
Adjusted t*	1.0393	0.8507

Source: Elaborated by author based on STATA output

Levin–Lin–Chu (LLC) unit root test results for gross fixed capital formation (gfcf) indicate that the null hypothesis (H0), which assumes the presence of a unit root (non-stationarity), cannot be rejected since the p-value is 0.8507, which is far above the conventional significance levels (e.g., 0.05 or 0.10). The adjusted t-statistic (1.0393) is positive, further confirming that gfcf is non-stationary in its current form. This suggests that gross fixed capital formation requires differencing or transformation before it can be used in econometric analysis.

Table 7. Stationarity for Gross Fixed Capital Formation per capita

	Statistic	p-value
Unadjusted t	-4.0719	
Adjusted t*	0.1589	0.5631

Source: Elaborated by author based on STATA output

Results of the Levin–Lin–Chu (LLC) unit root test for unemployment rate (unemp) show that the null hypothesis (H0), which assumes the presence of a unit root (non-stationarity), cannot be rejected since the p-value is 0.5631, which is well above conventional significance levels (e.g., 0.05 or 0.10). The modified t-statistic (0.1589), which is near zero, confirms further that unemployment is non-stationary in its present form. This implies that, before being applicable in econometric study, the unemployment rate needs differencing or change. To handle unit root issues, the initial differences of the non-stationary variables—GDP per capita, gross fixed capital formation, and unemployment rate—were taken. These changed variables were re-tested using the Levin–Lin–Chu (LLC) unit root test following differencing. The new test findings verified that the first-differenced series are stationary since the null hypothesis of a unit root was rejected at standard significance levels. This guarantees that the data satisfy stationarity criteria, hence enabling consistent econometric study.

Table 8. Cointegration test results

H0: No cointegration		Number of panels	= 10
Ha: All panels are cointegrated		Number of periods	= 98
Cointegrating vector:	Same		
Panel means:	Included	Kernel:	Bartlett
Time trend:	Not included	Lags:	2.70 (Newey-West)
AR parameter:	Same	Augmented lags:	1

	Statistic	p-value
Modified Dickey-Fuller t	-37.0201	0.0000
Dickey-Fuller t	-17.9678	0.0000
Augmented Dickey-Fuller t	-12.0978	0.0000
Unadjusted modified Dickey-Fuller t	-58.0411	0.0000
Unadjusted Dickey-Fuller t	-19.2725	0.0000

Source: Elaborated by author based on STATA output

Whether a long-run link exists between the variables in the panel dataset is found using the cointegration test outcomes. In this instance, the test looks at whether the variables move together over time to guarantee a stable long-term equilibrium even with transient changes. The null hypothesis (H_0) holds that the variables have no stable long-term association by means of absence of cointegration. According to the alternative hypothesis (H_1), all panels are cointegrated, therefore assuming a shared equilibrium relationship among the variables

over the panel's countries. Usually employed in cointegration testing, the findings show many Dickey-Fuller and Augmented Dickey-Fuller (ADF) test statistics. At any traditional threshold (1%, 5%, or 10%), the p-values for all tests are 0.0000, hence they are statistically significant. We reject the null hypothesis of no cointegration and derive from the p-values below 0.05 that a long-run link exists among the dataset's variables. The test guarantees cointegration, therefore the variables in the model migrate together with time. The variables will finally return to a common equilibrium path even if temporary deviations result from policy changes or economic shocks. This outcome supports the analysis of the long-term consequences of trade liberalization and economic growth by means of long-run estimate methods as panel vector error correction models (VECM) or fully modified ordinary least squares (FM-OLS). Confirming cointegration guarantees that the calculated links are significant throughout time and are not driven by non-stationary data, therefore preventing misleading correlations. This supports the theory that over time trade liberalization, economic development, and macroeconomic stability are interrelated and increases the validity of the findings.

5.2 Panel data analysis results

The Hausman test was conducted to determine whether the Fixed Effects (FE) model or the Random Effects (RE) model is the appropriate choice for this panel data analysis. The test results indicated that the null hypothesis (which favors the RE model) was rejected at a 5% significance level, confirming that the Fixed Effects model is the correct specification for this study.

Table 9. Hausman Test results

	Coefficients (b) FE_model	(B) RE_model	(b-B) Difference	sqrt(diag(V_b-V_B)) Std. err.
exp	23.58091	21.39799	2.182916	.7621453
inf	-39.09547	-44.94067	5.845201	3.225718
d_gfcf	.0000181	.0000191	-9.63e-07	1.73e-06
d_unemp	-287.6551	-294.67	7.014991	3.512234

b = Consistent under H0 and Ha; obtained from **xtreg**.
B = Inconsistent under Ha, efficient under H0; obtained from **xtreg**.

```
Test of H0: Difference in coefficients not systematic

    chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
            =   9.12
Prob > chi2 = 0.0277
```

Source: Elaborated by author based on STATA output

The null hypothesis (H_0) of the test supposes that the difference in coefficients between the two models is not systematic, so the efficiency of the Random Effects model is preferred. On the other hand, should the null hypothesis be disproved, the Fixed Effects model would be better suitable since the RE model would provide erratic estimations resulting from interaction between the individual-specific effects and the regressors.

Here the chi-squared statistic is 9.12 and the p-value is 0.0277, less than the accepted significance level of 0.05. The null hypothesis is thereby disproved, so verifying the systematic nature of the variations in coefficients between the FE and RE models. The Fixed Effects model is the proper specification for this study since the Random Effects model supposes no link between the explanatory variables and the individual effects yet this assumption is broken here.

Although there are unobserved individual-specific effects impacting the dependent variable, the Fixed Effects model guarantees that the calculated coefficients stay consistent and objective by choice. Further confirming the use of the FE technique is the rejection of the Random Effects model, which also implies that country-specific traits may be rather important in explaining fluctuations in GDP per capita.

Table 10. Fixed effects result

```
Fixed-effects (within) regression               Number of obs     =      1,000
Group variable: id                              Number of groups  =         10

R-squared:                                      Obs per group:
     Within  = 0.1342                                         min =        100
     Between = 0.0279                                         avg =      100.0
     Overall = 0.1196                                         max =        100

                                                F(4, 986)         =      38.19
corr(u_i, Xb) = -0.2186                         Prob > F          =     0.0000
```

d_gdppc	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
exp	23.58091	2.40202	9.82	0.000	18.86725	28.29457
inf	-39.09547	12.37885	-3.16	0.002	-63.38738	-14.80356
d_gfcf	.0000181	.0000302	0.60	0.549	-.0000412	.0000775
d_unemp	-287.6551	57.75233	-4.98	0.000	-400.9866	-174.3235
_cons	385.6335	29.53469	13.06	0.000	327.6754	443.5916
sigma_u	88.662646					
sigma_e	510.49488					
rho	.02928141	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(9, 986) = 2.65                      Prob > F = 0.0049
```

Source: Elaborated by author based on STATA output

By allowing for individual country-specific traits that do not change over time, the Fixed Effects (FE) regression results offer insights on the link between trade liberalization and economic growth. The R-squared values show the degree to which the model fits changes in GDP per capita. With an R-squared value of 0.1342, the independent variables in the model help to explain over 13.42% of the variation in GDP per capita (after considering nation fixed effects). The between R-squared (0.0279) and overall R-squared (0.1196) point to still a notable amount of variation left unresolved, presumably from other macroeconomic elements not included in the model.

The F-statistic (38.19) with a p-value of 0.0000 confirms that the model as a whole is statistically significant, meaning that at least one of the independent variables has a meaningful impact on GDP per capita.

Looking at the coefficient estimates, the export growth rate (exp) has a positive and highly significant effect on GDP per capita. The coefficient 23.58091 means that a one percentage point increase in export growth is associated with a 23.58 increase in GDP per capita, holding other factors constant. This supports the argument that trade liberalization and increased exports contribute positively to economic growth by stimulating productivity, foreign investment, and market expansion.

With a coefficient of -39.09547, the inflation rate (inf) negatively and statistically significantly influences GDP per capita. This implies that a one percent point rise in inflation lowers GDP per capita by about 39.10 units. This result is consistent with economic theories that excessive inflation lowers purchasing power, raises financial market uncertainty, and discourages investment, therefore slowing down economic development. The 0.002 p-value indicates the significant level, so verifying the statistical dependability of this link.

Though it is not statistically significant (p-value = 0.549), the coefficient for gross fixed capital creation (d_gfcf) is 0.0000181. This implies that within this dataset, variations in investment in fixed assets like machinery and infrastructure have little direct effect on GDP per capita. Delays in investment returns, measurement problems, or the likelihood that other elements—such as labor productivity and institutional quality—have a more major impact on economic development could all help to explain the insignificance.

With a coefficient of -287.6551, the unemployment rate (d_unemp) has a negative and somewhat large influence on GDP per capita. Therefore, a one percentage point rise in the unemployment rate results in a roughly 287.66 unit decline in GDP per capita. The great

relevance (p-value of 0.000) implies that unemployment is a main factor influencing economic performance. High unemployment rates point to underuse of labor resources, lower household incomes, and lower consumer spending—all of which have negative effects on general economic development.

With all independent variables at zero, the constant term (cons) is 385.6335, the projected GDP per capita. Though it is not as crucial for interpretation, this value guarantees that the model catches a baseline economic level.

The variance components—sigma_u (88.66) and sigma_e (510.49)—indicate the degree of fluctuation both inside and between nations. With a quite low rho value of 0.0293, the fraction of variance resulting from country-specific factors is shown. The F-test for individual fixed effects (F(9,686) = 2.65, p = 0.0049) validates that country-specific effects are substantial, therefore supporting the usage of the Fixed Effects model above the Random Effects model.

Table 11. Arellano bond dynamic panel data estimation results

```
Arellano-Bond dynamic panel-data estimation     Number of obs     =        980
Group variable: id                              Number of groups  =         10
Time variable: quarters
                                                Obs per group:
                                                              min =         98
                                                              avg =         98
                                                              max =         98

Number of instruments =    940                  Wald chi2(5)      =     354.08
                                                Prob > chi2       =     0.0000
One-step results
```

d_gdppc	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
d_gdppc						
L1.	.3791858	.0289071	13.12	0.000	.3225288	.4358427
d_gfcf	.0000186	.0000283	0.66	0.510	-.0000368	.000074
d_unemp	-124.3656	55.57248	-2.24	0.025	-233.2857	-15.44555
exp	20.58186	2.292671	8.98	0.000	16.08831	25.07542
inf	-33.60195	12.04138	-2.79	0.005	-57.20262	-10.00128
_cons	250.1414	30.03073	8.33	0.000	191.2822	309.0005

```
Instruments for differenced equation
        GMM-type: L(2/.).d_gdppc
        Standard: D.d_gfcf D.d_unemp D.exp D.inf
Instruments for level equation
        Standard: _cons
```

Source: Elaborated by author based on STATA output

By including possible endogeneity and autocorrelation in the panel dataset, the Arellano-Bond dynamic panel-data estimation results shed light on the short-term factors of GDP per capita growth. As an explanatory variable, the model comprises lagged GDP per capita growth (L1.d_gdppc), therefore enabling the capturing of the continuity of economic growth throughout time. With a p-value of 0.0000 and a Wald chi-squared statistic of 354.08, the general model is statistically significant—that is, at least one of the independent variables greatly explains GDP per capita growth.

With a p-value of 0.000 the coefficient for delayed GDP per capita growth (L1.d_gdppc) is 0.3792, which is quite significant. This confirms that GDP per capita development shows persistence across time since past economic growth has a significant beneficial effect on current development. A coefficient of 0.3792 indicates that roughly 37.92% of the increase from the previous quarter translates into the current period, thereby indicating that economies with positive historical growth are probably going to keep expanding in the short run.

With a coefficient of export growth (exp) of 20.5819, 1% level statistical significance is obtained (p = 0.000). This implies that GDP per capita development is rather correlated with export increase. Reiterating the case that trade liberalization and export expansion greatly help to drive economic development, a one percentage point rise in export growth results in an increase in GDP per capita growth by about 20.58 units.

With a coefficient of -33.6019—negative and statistically significant at the 1% level—the inflation rate (inf) has This shows that inflation lowers economic growth, therefore validating the theory that increasing prices can lower purchasing power, discourage investment, and generate economic uncertainty. The outcome emphasizes the need of keeping price stability for continuous economic development since it shows that a one percentage point rise in inflation results in a decline in GDP per capita growth by over 33.60 units.

At the 5% level, the coefficient for unemployment (d_unemp) is -124.3656; it is statistically significant. This outcome proves that diminishing GDP per capita development is linked to increasing unemployment. Labor market circumstances clearly influence economic performance since a one percentage point increase in unemployment reduces GDP per capita growth by roughly 124.37 units. High unemployment lowers general productivity, inhibits demand, and reduces consumer expenditure, therefore impairing economic development.

Though not statistically significant (p = 0.510), the coefficient for gross fixed capital creation (d_gfcf) is 0.0000186. _ This implies that, in this dataset, investments in fixed assets like machinery and infrastructure have no direct direct effect on GDP per capita development. This can be the result of capital investments usually having long-term benefits instead of instantaneous short-term effects on economic performance.

With all other variables kept at zero, GDP per capita growth would still have a strong positive base level; the constant term (_cons) is 250.14 and is quite significant (p = 0.000).

Especially for lagged dependent variables, the Arellano-Bond estimate addresses any endogeneity problems using Generalized Method of Moments (GMM). The model uses first-differenced variables to provide robustness and GMM-type instruments for lagged GDP per capita growth. Second-order lags for GDP per capita growth among other instruments are meant to remove autocorrelation and offer consistent results.

6 Conclusion

For the period from 1995:Q1 to 2019:Q4, this diploma thesis sought to examine the relationship trade liberalization and economic growth across 10 chosen economies—Austria, Belgium, Czechia, Denmark, France, Germany, Italy, Netherlands, Norway, and the United States. Using panel data econometric approaches including fixed effects regression, Arellano-Bond dynamic panel estimation, and panel cointegration tests, the diploma thesis offers empirical evidence on whether increased trade openness—as indicated by export growth—controlling for inflation, gross fixed capital creation, and unemployment helps to contribute to economic growth. The results support the case that trade liberalization promotes economic development but also emphasize the need of macroeconomic stability and labor market conditions in forming economic performance.

Export growth and GDP per capita show a substantial and statistically significant positive correlation according to the empirical results of the fixed effects model. A one-percentage-point rise in export growth corresponds with an increase of almost 23.58 units in GDP per capita, implying that more trade openness promotes higher productivity, foreign direct investment inflows, and market expansion—all of which help to generate economic prosperity. This result is consistent with other research including those by Dollar (1992) and Sachs and Warner (1995), who likewise found a strong and clear link between trade openness and development. Unlike past studies mostly focused on underdeveloped economies, the current thesis offers data supporting the trade-growth nexus inside rich and industrialized economies, nevertheless.

The clear negative effect of inflation on GDP per capita confirmed the standard economic theory that says too high inflation reduces purchasing power, generates uncertainty in the financial markets, and discourages investment. According to the findings, a one-percentage-point increase in inflation reduces GDP per capita by about 39.10 points. This result is in line with the results of Abbas (2022), who underlined the dual influence of inflation on economic performance, whereby modest inflation may boost development but too high inflation causes economic instability.

Furthermore clearly negatively affecting GDP per capita is unemployment; a one-percentage-point increase in unemployment results in a drop of over 287.66 units in GDP per capita. Higher unemployment rates so seem to impede economic performance by lowering household incomes, thus weakening consumer demand, and so lowering of general

production. This outcome is consistent with earlier research, notably those by Barro and Lee (1994), which underlined the important part labor market circumstances play in economic growth. The results confirm the case that policies guaranteeing labor market stability and job creation must complement trade liberalization if it is not enough for continuous growth.

Although investment in infrastructure and productive assets is theoretically a major engine of economic growth, the results for gross fixed capital development show that this direct impact on GDP per capita in the chosen economies was not statistically significant. Although the coefficient for gross fixed capital creation was positive but lacked significance, this suggests that other elements—such as institutional quality, technical development, and human capital accumulation—may be more major drivers of economic development. This result is consistent with studies such as those by Rodriguez and Rodrik (1999), who questioned the validity of some growth determinants across various economic environments, while it contrasts with the Harrod-Domar model, which generally suggests that capital investment is a primary determinant of economic growth.

Among GDP per capita, export growth, inflation, unemployment, and gross fixed capital formation, the panel cointegration test verified a long-run equilibrium link. This implies that although short-term variations are possible, the variables usually move together over time, therefore supporting the perspective that long-term economic development is shaped by trade liberalization, macroeconomic stability, and labor market conditions jointly. These results fit the research of Wacziarg and Welch (2008), who showed that over time trade liberalization causes slow but steady increases in economic growth.

The Arellano-Bond dynamic panel estimation confirmed the continuation of economic expansion, as seen by the somewhat positive coefficient of lagged GDP per capita development. This emphasizes the need of keeping a positive policy climate for continuous development since it implies that nations going through economic expansion in the past are more likely to keep growing in the current period. The Arellano-Bond studies also verified the notable favorable influence of export growth on economic performance, therefore supporting the theory that trade liberalization is a main engine of economic progress.

Although the results of the research coincide with most of the body of current research on trade openness and development, there are some clear variations. Unlike studies like those by Dollar and Kraay (2004), which underlined that trade liberalization had a large and persistent influence on lowering income inequality, this thesis did not clearly investigate inequality consequences. Furthermore, although the findings confirm the favorable effect

of export expansion on GDP per capita, they do not offer strong proof on whether trade liberalization influences development consistently in all economic environments. For example, Jin (2004) discovered that trade openness had different effects on growth depending on the geographic area inside China; coastal areas gained more than interior areas.

Finally, this analysis offers strong empirical data showing that trade liberalization—as gauged by export growth—helps advanced economies to expand economically. To completely enjoy the advantages of trade openness, however, it also emphasizes the need of preserving macroeconomic stability and guarantees labor market efficiency. Policymakers should thus take a measured approach, supporting open trade policies while concurrently enacting policies to lower inflation, boost investment, and lower unemployment. Incorporating new trade-related data, such tariff reductions, foreign direct investment flows, and sectoral trade compositions, further study could extend this methodology and help to obtain a more complete knowledge of the trade-growth relationship.

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8 List of pictures, tables, graphs and abbreviations

8.1 List of tables

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8.2 List of abbreviations

Abbreviation	Meaning
GDP	Gross Domestic Product
FDI	Foreign Direct Investment
OECD	Organisation for Economic Co-operation and Development
IMF	International Monetary Fund
WTO	World Trade Organization
R&D	Research and Development
MPC	Marginal Productivity of Capital
EBA	Extreme Bounds Analysis
APEC	Asia-Pacific Economic Cooperation
CEC	Council for Mutual Economic Assistance
CPI	Consumer Price Index
USA	United States of America
UN	United Nations