

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Humanities



Bachelor Thesis

**Economic Crisis and Regional Development in
Germany**

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BACHELOR THESIS ASSIGNMENT

Yernar Abilkhair

Economics and Management

Thesis title

Economic crisis and regional development in Germany

Objectives of thesis

The goal of thesis is to understand the influence of the global pandemic and the social as well as economical impacts on Germany. Further, introducing the undertaken recovery measures and analyzing their effectiveness's

Methodology

Methodology is based on the theoretical part of the thesis will describe the ongoing pandemic and discuss the effects it had on the economy of Germany. Meanwhile, the practical part will provide a quantitative and qualitative analysis of the regional development and recovery measures in place to help boost the economy of the Germany and it's regions .

The proposed extent of the thesis

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Economic crisis, socio-economic development, Germany, regional development, pandemic crisis

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Declaration

I declare that I have worked on my bachelor thesis titled "Economic Crisis and Regional Development in Germany" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break any copyrights.

In Prague on 15.03.2023

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Economic Crisis and Regional Development in Germany

Abstract

The goal of this thesis is to understand the influence of the global pandemic as well as economic and social impacts on Germany. Further on, the author analyses his results and proceeds to the formulation of objectives, where the author answers the question of whether the coronavirus had a significantly negative effect on the domestic population or not.

Methodology is based on the theoretical part of the thesis will describe the ongoing pandemic and discuss the effects it had on the economy of Germany. Meanwhile, the practical part will provide a quantitative and qualitative analysis of the regional development and recovery measures in place to help boost the economy of Germany and its regions.

The author concludes that the effect of the pandemic is high on both domains – economic and social one. Yet, due to the structure of the German economy, as well as organization of processes and vaccination, the country was quickly able to cope with all problems and return back to normality.

Keywords: economic crisis, socio-economic development, Germany, regional development, pandemic crisis

Hospodářská krize a regionální rozvoj v Německu

Abstrakt

Cílem práce je porozumět vlivu globální pandemie a také ekonomickým a sociálním dopadům na Německo. Dále autor analyzuje své výsledky a pokračuje k formulaci cílů, kde autor odpovídá na otázku, zda koronavirus měl na tuzemskou populaci výrazně negativní vliv, či nikoli.

Metodika vychází z teoretické části práce, která bude popisovat probíhající pandemii a diskutovat o dopadech, které měla na ekonomiku Německa. Praktická část zároveň poskytne kvantitativní a kvalitativní analýzu zavedených opatření regionálního rozvoje a obnovy, která pomohou podpořit ekonomiku Německa a jeho regionů.

Autor dochází k závěru, že účinek pandemie je vysoký na obou doménách – ekonomické i sociální. Přesto se díky struktuře německé ekonomiky, organizaci procesů a očkování země rychle dokázala vyrovnat se všemi problémy a vrátit se zpět k normálu.

Klíčová slova: hospodářská krize, socioekonomický rozvoj, Německo, regionální rozvoj, pandemická krize

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List of abbreviations

GDP...Gross Domestic Product

GRP...Gross Regional Product

1 Introduction

It is possible that a lot of individuals who were born in the last decade or so have no idea that their country is in crisis. The growing economic crisis, the pandemic, and the political situation around Russia and Ukraine are just a few examples of the many events that are taking place right now that are altering the conditions of the crisis, expanding people's perceptions of the crisis, and making it more difficult to prevent it from occurring. Because of this, it is of the utmost importance to underline the fact that the crisis is unavoidable, and the causes that led to it will continue to investigate new ways of making their power and destructive tendencies evident in the world.

Because of these conditions, not only the growth of nations that are now experiencing a crisis, but also the development of areas that often experience more influence than the centre cities of countries, is continually adjusted and developing. However, the evolution of Germany and regional economies amid what can be referred to as a crisis will be the primary subject matter covered in this dissertation. In this scenario, in-depth information on the problem in general, as well as its root causes and many potential solutions, will be provided. Also, in the section on practical applications, the effects of the financial crisis and the pandemic on the economy of Germany will be discussed, along with the repercussions that the situation has spawned as a direct result of the fact that the pandemic is still an urgent problem in Germany.

2 Objectives and Methodology

2.1 Objectives

The goal of this thesis is to understand the influence of the global pandemic as well as economic and social impacts on Germany. Further on, the author analyses his results and proceeds to the formulation of objectives, where the author answers the question of whether the coronavirus had a significantly negative effect on the domestic population or not.

2.2 Methodology

Methodology is based on the theoretical part of the thesis which will describe the ongoing pandemic and discuss the effects it had on the economy of Germany. Meanwhile, the practical part will provide a quantitative and qualitative analysis of the regional development and recovery measures in place to help boost the economy of Germany and its regions.

3 Literature Review

3.1 Economic Crisis

3.1.1 Concept

The crisis, both as a process and as a phenomenon, was first described on a theoretical and pragmatic level by Jean Bodin in 1577 in the book "The Six Books of the Republic". In this scientific work was published the first analytical thought regarding the concept of "crisis".

The crisis is interpreted as an overcomplicated situation, a sharpened situation, a decline. The concept of "crisis" comes from the Greek «κρίσις» - literally means "fracture", as well as a solution, a turning point, a result, a sharp fracture, a severe transitional state, an extreme point of fall, an acute disadvantage, a discrepancy. The term "crisis" is borrowed from medicine, has many essential characteristics, interpretations, and semantic shades. However, the scope of its use in the process of evolution has expanded and is currently used to denote a sharp transition, changes that are perceived as a violation of continuity.

The attitude to crisis phenomena in the economy has been changing for almost three centuries and only at the end of the XIX century did this concept began to be considered as a category relative to the national economy. Crises began to be associated with conjunctural fluctuations in demand, consumption, natural cycles and with phases of the cycle of reconstruction, which have signs of repeatability and periodicity. At the same time, the crisis on the one hand is a purely negative phenomenon, and on the other - a constructive phase of the cycle. In economics, the term "crisis" has become widespread and scientifically recognized primarily in connection with the development of the concept of cyclical development of economic systems, which belongs to the fundamental components of the categorical apparatus of economic theory and has occupied one of the central places in the research of various scientific schools and areas of economic science for over a hundred years (Talakh, V. I. , 2013).

An economic crisis can be called a complete imbalance in the economic sector, which is characterized by breaks and losses of harmonious ties both in the field of production and

also in market relations. The decline of the economy leads to a decrease in the standard of living and a deterioration in the living conditions of the population as a whole. The crisis is associated with global disruptions in development (Voevodskova, E. E. , 2015).

The concept of an economic crisis can be interpreted from a psychological aspect. In this case, the economic crisis is a non-standard situation in which the majority of subjects interacting with the economic system believe that its unfavorable deviation from the norm is excessively large and poses a threat to their habitual life, but they are able to quickly and significantly improve its expected condition. The norm in this case means the average level of the main characteristics among similar economic systems with approximately the same resources, capabilities and main results achieved (Manushin D.V. , 2014).

Types of socio-economic crises are differentiated, first of all, by its typological affiliation: by the place of distribution, by the scale of coverage of systems, by the essence and composition of relations in the socio-economic system of society for the immediate causes of occurrence (Didier, Jackunro Mbaitale, 2013).

According to the places of distribution, the crisis is divided into:

- global, (covers the entire socio-economic system at the planetary level);
- national (develops within one country);
- regional (develops within one region);
- local (occurs within one or more socio-economic subsystems.).

According to the scale of coverage of the systems, there are:

- micro crisis, which is an aggravation of one or more problems in the socio-economic system;
- macro crisis, which affects all sides, characteristics and aspects of the existence and vital activity of the system.

According to the essence and composition of relations in the socio-economic system, can be distinguished separate groups of economic, social, political, organizational, psychological, and systemic crises (Didier, Jackunro Mbaitale, 2013). It is important to note that in this part of work it is important to mention not only the economic type of crisis in the

socio-economic system, but also the social, political, organizational, psychological and systemic types of crisis, since they are often interrelated.

Economic crises are characterized by sharp contradictions in the economy of a country or a separate economic entity.

Social crises arise when contradictions and the clash of interests of various social groups escalate and are often a continuation of economic crises, because the latter are accompanied by such negative social manifestations as a drop in employment, rising prices for consumer goods, a decrease in the standard of living of citizens, a reduction in government spending on education and healthcare.

A political crisis is a crisis in the political structure of society, a crisis of power, a crisis in the realization of the interests of various social groups. Political crises, as a rule, turn into economic and social crises.

Organizational crises are associated with the fact that in the organizational structure of the socio-economic system, relations related to the structural construction, division and integration of activities, distribution of functions, regulation of the activities of divisions, administrative units, regions, branches, subsidiaries, representative offices may worsen.

Psychological crises are most clearly manifested during periods of great changes in society, in conditions of instability and falling living standards of people. Social and demographic crises are most directly related to them.

Systemic crisis means that the main components of the socio-economic system - technical, economic, social, political, organizational, and legal relations and institutions have come to such a mutual discrepancy, imbalance that in order to overcome them it is necessary to carry out qualitative changes in the essence of the system (Didier, Jackunro Mbaitele, 2013).

The typologization of crises mentioned above is rather practical. In economic theory, researchers often distinguish the following types of economic crisis: a cyclical crisis; an intermediate crisis; a partial crisis; an industry crisis; an agrarian crisis; a structural crisis.

The cyclical crisis of overproduction covers all spheres and branches of the economy. It is characterized by the displacement of obsolete equipment, reduction of production costs, renewal of the production structure, which leads to the creation of a new equilibrium with more efficient production. Cyclical overproduction crises give rise to a new cycle, during which the economy successively goes through four phases and prepares the basis for the subsequent crisis.

An intermediate crisis differs from a cyclical one in that it does not give rise to a new cycle, but interrupts for a certain time the course of the recovery or recovery phase. An intermediate crisis is a temporary reaction to emerging imbalances in the economy. It is less deep, less prolonged compared to the cyclical crisis and has a local character.

A partial crisis differs from an intermediate one in that it covers only one area of the economy. It can occur both in the recovery phase and in the phases of recovery and depression.

An industry crisis affects any branch of the economy. The reasons for its occurrence may be imbalances in the development of the industry, structural restructuring, overproduction, rising prices for raw materials, the influx of migrant workers, cheap imports, etc.

Agrarian crises, as a rule, are caused by a combination of natural factors, shortcomings in the organization of labor, technical backwardness, imperfect systems of land use and land ownership, etc. Agrarian crises differ in duration and acyclicity.

The structural crisis is caused by deep imbalances between the development of individual spheres and branches of the economy. It is of a long nature and covers several cycles. It involves the transformation of the production structure on a new technological basis. Structural crises can manifest themselves in the form of both relative under-production and relative overproduction, accompany the general economic cycle or do not coincide with it (V. F. Maksimova, 2019).

The study of theoretical approaches to the definition and classification of economic crises is

important for studying the nature of the economic crisis and for the practical implementation of strategies to overcome it.

3.1.2 Premises of Economic Crises

Economic science has developed a number of different theories explaining the causes of economic cycles and crises. P. Samuelson, for example, notes the following as the most well-known theories of cycles and crises (Vodolazhskaya, E. L., 2013):

- 1) Monetary theory, which explains the cycle of expansion of bank credit.
- 2) The theory of innovations explains the cycle by using important innovations in production.
- 3) Psychological theory that interprets the cycle as a consequence of waves of pessimistic and optimistic mood covering the population.
- 4) The theory of underconsumption, which sees the reason for the cycle in an excessively large share of income going to rich and thrifty people, compared to what can be invested.
- 5) The theory of excessive investment, whose supporters believe that the cause of the recession is excessive rather than insufficient investment.
- 6) The theory of sunspots – weather–harvest. English scientists Jevons and Moore saw the relationship between periodic changes in meteorological conditions and economic cycles. Favorable weather means high yields, high yields mean high incomes in agriculture, and then in transport, trade and in general in industrial production. Jevons linked the frequency of changes in weather conditions with changes in the activity of sunspots.

The economic crisis is most often associated with the phenomenon of overproduction. Economic crises, as a rule, are closely related to the field of finance, currency, and production. The reasons that lead to economic crises have a huge impact on the formation of demand for the currency, affecting the indices which are actively used for the analysis of trades. The world economy periodically faces an imbalance.

This phenomenon happens every 8-12 years. This can manifest itself in a wide range of problems:

- difficulties with the sale of goods;

- acute disruptions in the economic balance;
- reduction of production volumes;
- increase in unemployment;
- reduction of investor activity;
- dislocation of the lending area.

All these problems in the complex in history have become known as the crisis of overproduction. Money plays a big role in the formation of an unfavorable situation in the country, but only if it is considered as a means of communication and a tool for making payments. History shows that the imbalance of the economy in countries around the world began to appear only after the monetary and commodity form of economy was introduced in combination with capitalism. It is the contradictions of this state system that have made downturns in the life of countries simply necessary. The underlying premise of the phenomenon is the conflict between public production and the private capitalist form of ownership. The conditions of production and the conditions of sale of goods differ significantly due to surplus value. The productive power of the public hinders the release of large volumes of production, and the sale of the released goods is the proportionality of the spheres of activity of the company, which is determined not by the needs of people, but by their solvency. The main contradiction lies in the fact that world production has begun to produce so many goods that the world community is simply not able to consume them all (Voevodskova, E. E., 2015).

However, sometimes the beginning of an economic crisis may be due to external factors. For example, with a pandemic. It should be noted that the global economic crisis that came in 2020 has a number of features and is somewhat different from previous similar phenomena. First of all, despite the presence of certain internal contradictions, initially embedded in the economic model itself, the main reason, and the "trigger" of the beginning of the crisis was the pandemic, which is nothing more than an "external shock" for the world economic system. At the same time, the depth and duration of the crisis directly depends not so much on the timeliness and effectiveness of anticrisis measures taken by the state (Shlychkov V. V. , 2020).

Many researchers agree that the crisis phenomena in the economy of the 21st century have

their own specifics and are associated with the emergence and spread of new challenges, for which the world economic system is not quite ready. The crisis that came in 2020 revealed a number of anomalies of the world economic system and clearly showed that the current model of the world economy is morally outdated and unable to adequately respond to the challenges of the XXI century. and to function effectively in conditions when the interdependent world we are creating requires grandiose societal changes and puts the question of human adaptability on the agenda in the most direct way (Shlychkov V. V. , 2020).

Identifying the causes when a crisis situation is detected is extremely important to combat it, since the main feature of the crisis is that, even if it is a local or micro crisis, as a chain reaction, it can spread to the entire system or the entire development problem. Because there is an organic interaction of all elements in the system and problems are not solved separately. However, sometimes there may be a situation when a deliberate motivation for the development of a crisis is carried out. A pseudo crisis is a manifestation of crisis signs in a "healthy" economic system. A pseudo crisis can be provoked, for example, with the aim of ousting competitors from the market, as well as veiling certain actions of business participants (Yakovlev E. A. , 2008).

According to many researchers, the crisis entails a sharp deterioration in the economic condition of the country, manifested in a significant decline in production, disruption of established industrial relations, bankruptcy of enterprises, increased unemployment and, as a result, a decrease in the standard of living and well-being of the population. At the same time, the crisis is a necessary process, which is a mechanism for eliminating the existing imbalances of the economic system of society and a starting point for making large investments in new economic conditions, it stimulates the economy, forcing it to reach higher levels of development.

The impact of the crisis in the region can also manifest itself at the level of the household consumer. For example, crisis processes in the economy have a significant impact on household consumption. Crisis conditions significantly restrict the freedom of consumer choice, forcing people to optimize the budget, change consumer activity, practices, habits, and consumption styles in response to a decrease in consumer opportunities.

Currently, the problem of the impact of crisis processes on the dynamics of economic development of territories is theoretically relevant and practically significant. This problem has been studied by many economic scientists for more than two centuries, but discussions about the nature and essence of economic crises, their causes, and measures to mitigate their consequences are still ongoing (Dementieva I.N., 2018).

It is important to note that a number of reasons can lead to a global economic crisis, and they should be considered both individually and in combination. Sometimes it is necessary to single out the main reason that caused the recession in other areas, and sometimes it is important to analyze the causes of the crisis in total. The regional economic crisis may be a consequence of the spread of the global economic crisis, or, on the contrary, it may become an impetus for its development in other countries. In general, despite the fact that universal causes of crises are formulated in economic theory, each case, especially in the current situation, should be considered separately.

3.1.3 Solutions to Crisis

Despite the general prerequisites for the emergence, any crisis is individual. Therefore, there is no single system for overcoming the crisis. Nevertheless, some steps that contribute to solving this problem can be indicated:

- Increasing the degree of state control over key sectors of the economy. Redistribution of budget funds in favor of more important industries.
- Control in the financial sphere.
- Technological and technical modernization in the industrial sphere.
- Reducing unemployment by creating additional jobs.
- Conducting a set of introductory and recommendation activities for the population.
- Budget diversification. Search for optimal ways to generate income.
- A detailed analysis of the causes of the crisis situation and the development of a program to solve the problem.

During periods of economic crises, the main burden and responsibility for ensuring the economic security of the country falls on public administration bodies, since state anti-crisis measures are the basis for the survival and recovery from the crisis of both enterprises and

households. The state anti-crisis policy is aimed at protecting them and preventing bankruptcies and reducing the level and quality of life of the population, maintaining consumer and investment demand, and eliminating administrative barriers to entrepreneurship. In times of crisis, the role of the state in managing the economy and social processes increases significantly. The State plays the role of organizer and coordinator of legal, financial, organizational, managerial activities carried out at all levels, especially at the micro level. The state assumes a significant part of the costs of anti-crisis measures, expands the public sector of the economy to perform strategic and socially significant functions (Shedko, 2019).

One of the control mechanisms in the financial sphere can be considered a currency board. The Currency Board is the most consistent form of fixing the exchange rate of the national currency. Within the framework of the currency board system, a certain national currency is rigidly tied to the reserve currency.

The currency board system first appeared in the colonies of the British Empire in the middle of the XIX century. The first ever monetary council was established in Mauritius in 1849. Then the number of countries using this system expanded. The currency board model has been used in more than 70 countries. It operated in the British colonies of Asia, Africa, the Caribbean, as well as in several (mostly small) independent States (Shagalov, 2006).

The concept of a currency board mechanism is characterized by the following main features:

- rigid fixation of the exchange rate of the national currency to a foreign one;
- automatic convertibility, constantly provided the opportunity to exchange local currency for reserve currency at any time at a fixed rate;
- availability of a sufficient volume of foreign currency reserves, which, at least, would not be inferior to the valuation of monetary obligations;
- a prohibition on the central bank's operations on the open market, with a rigid fixation of the exchange rate;
- prohibiting the central bank from lending to the government, the banking system and any other entity;
- achieving a reasonable recovery of the financial system,
- readiness to admit bankruptcy of weak banks;

- a long-term commitment to implement the specified policy, which must be formalized in the form of a law or mentioned in the banking code.

Technological and technical modernization in the industrial sphere is also important to overcome the crisis. The main objectives of modernization of industrial enterprises are reducing the specific labor intensity of production to the level of international indicators; optimizing the flow of raw materials and components; improving the quality of products; achieving competitive prices for products; reducing production costs; efficient operation of modern technological equipment; modern production organization (Somenkova, 2012).

In order to contain the growth of unemployment during the crisis, targeted programs are being developed to promote employment. They focus on retraining the unemployed, supporting active forms of job search and creating temporary jobs for students. The organization of advanced vocational training allows you to reduce the time needed to find a new job for the released employees. Measures to support small businesses and the organization of public works also promote employment. Increasing the mobility of the workforce can be achieved by creating a unified information base of vacant jobs, the development of rental of cheap municipal housing, targeted support for citizens when moving to a new place of work and residence. Monitoring the situation on the labor market is of particular importance. During the crisis it is carried out weekly across the country, data is collected, summarized and serve as the basis for operational management. Active measures are being taken to regulate labor migration. The volume of quotas for attracting foreign workers is being reduced, conditions are being created for internal migration in order to rationalize the use of released labor resources (Shedko, 2019).

It is extremely important to work with the population of the region during the economic crisis . The crisis is particularly acute in the decline in the level and quality of life of the population. Falling incomes of the population due to an increase in the number of unemployed, the "freezing" of salaries of public sector employees in order to save budget expenditures, an increase in the tax burden on workers, rising prices for essential goods, a reduction in the financing of social infrastructure - all these measures are extremely unpopular with the population. They can provoke social conflicts, strikes, demonstrations,

and destabilize the socio-political situation in the country. Therefore, informing the population is important to prevent further destabilization of the situation (Shedko, 2019).

An important mechanism for overcoming the crisis is economic diversification. Economic diversification is a course of state policy aimed at overcoming the dependence of the economy of a country or region on a narrow range of economic activities and creating a more balanced production structure in terms of possible sources of income, employment, as well as cyclical and market risks. Although the discourse of diversification is most often associated with developing countries and lagging regions whose economies rely on commodities, the need for diversification is also recognized in world economic leaders. The areas of structural transformation of the economy are associated with innovative development. Of the greatest interest is the growth of industries based on knowledge and innovation (Kravchenko, Ageeva, 2017)

Since each crisis is individual, a detailed analysis of the causes of the crisis situation and the development of a program to solve the problem is important. However, the use of some of the above mechanisms can help to stabilize the situation or even completely bring the region out of crisis.

3.2 Regional Development

3.2.1 Definition

A mode of operation of the regional system that is focused on the positive dynamics of the parameters of the level and quality of life of the population and is ensured by the sustainable, balanced, and multifactorial reproduction of the social, economic, resource, and environmental potentials of the territory is referred to as regional development. It is common practice to use the word "development" in conjunction with one or more of the following concepts: economic development, socio-economic development, development of the country's economy, development of the area, and development of the city (.

In each instance, development refers, mostly but not exclusively, to any kind of incremental change that takes place within the economic sector. This shift may be quantifiable, in which case one would speak about economic growth. It is possible for there

to be a qualitative shift; in which case one would speak of structural changes in the substance of development or the acquisition of new features by the economic system. It is common practice to take into account social development criteria in addition to simply economic aspects of progress. In addition, social traits have long since evolved into fully-fledged indicators that may be used to evaluate the level of development present in any given place. A goal or set of objectives will always serve as the compass that guides development in the right path. If this direction is heading in the right direction, then one may speak of progress; if it is heading in the wrong way, then one can speak of regression or degeneration. To put it another way, the whole process of regional development inherently presupposes the achievement of one or more specific goals.

The growth of the region is a process that involves many different aspects and dimensions on their own. The growth of an area is typically conceptualized as the simultaneous achievement of a number of distinct social and economic objectives. Even if it is only about economic development, it is typically considered together with social development and includes the following:

- growth in production and income;
- changes in the institutional, social, and administrative structures of society;
- changes in public consciousness;
- changes in traditions and habits.

Even if it is only about economic development, it is typically considered together with social development. This way of looking at regional development essentially differentiates it from other processes, such as mechanical expansion or the accumulation of structural problems. For instance, the method of developing the Russian North by saturating the terrain on only one side with industrial infrastructure cannot be considered real regional development (Dax, 2018).

3.2.2 Types of Regions

The fundamental linkages in the spatial distribution of production and the integrated development of the country's regions are the country's urban and rural communities, which

can be either permanent or transient. The population is split into urban and rural areas according to factors such as population, employment in industry or agriculture, and manner of life. Urban areas have a higher concentration of people.

The existence of urban settlements may be determined based on two primary characteristics:

1. the number of people who live in the specified area
2. the jobs held by those people.

The systems that govern urban settlements are dynamic; over time, their states may shift and evolve (Crisp, 2012). Its basic parts are functionally associated with one another, and this results in the formation of unusual structures. The city-forming basis of the system of urban settlements is integral territorial production complexes, the nature of which also determines the primary structural characteristics of such systems (the volume of products, the degree of specialization, the degree of concentration of production, the development of market and social infrastructure, etc.). Urban settlement systems are different.

The variety of their city-forming base, in addition to the environmental, historical, economic, and ethno-national factors, as well as the characteristics of their construction, are the primary contributors to the disparities between them. Cities, urban-type settlements, rural settlements with non-agricultural activities of the population (forestry's, hunting farms, mining and fishing settlements), and resort settlements are the primary components of systems of urban settlements. Other components include resort settlements and rural settlements with non-agricultural activities of the population. The system of urban settlements is a network of settlements that have been brought together to form a single territorial whole via the establishment of functional links between cities that are part of the same system as well as between a city and the environment that it occupies. The processes of urbanization in various nations, which are accompanied by the expansion of cities and the proliferation of an urban way of life, are distinguished by natural-geographical, production-economic, and socio-demographic characteristics. Cities continue to grow in size and urban lifestyles continue to spread. In developed nations, these processes are linked to the advancement of science and technology; in developing countries, however, they are related with an increase in the world's population as well as bad living circumstances in rural regions

(Cohen, 2006). At the moment, the following types of human habitation are recognized in global practice:

- agglomeration,
- metropolitan (supercity),
- big, large, medium, and small cities;
- townships;
- and rural communities.

There are urban areas that serve as hubs of industry. They are often situated in close proximity to mineral reserves as well as significant industrial establishments. There are several cities that serve as major hubs for tourism and recreation. There are urban hubs of religious practice, for example Mecca and Medina in Saudi Arabia (Shihab, 2011).

The problem of improving the system of resettlement of the rural population, improving the sectoral structure of employment and economic activity, taking into account the gender, age, and professional characteristics of the rural population is connected to the evolution of the territorial structure of agriculture and the transition to new economic conditions. Both of these processes are connected to the problem of improving the system of resettlement of the rural population. Complex processes of market changes and an insufficient degree of development in the social and domestic domains are to blame for the decline in both the total number of people living in rural settlements of all kinds and the total number of people living in rural settlements of any kind.

Several types of economic endeavors are carried out in various rural communities. For instance, people of rural areas in the United States and Canada each have their own unique home on their own land, and their children ride specially designed school buses to get to and from class. In Africa, the village consists of a collection of huts made of clay that are devoid of any modern conveniences, and there are no schools for the children. In the country of France, the town serves as the epicenter of much of the country's tourist, and the living standards here are notably superior (Spellerberg, 2007).

3.2.3 Eradication of Disparities

A region's development is a multifaceted process, which is typically regarded from the point of view of a combination of a variety of social and economic objectives. Even if we are merely discussing economic growth, it is common practice to examine it in conjunction with social development. The following are some factors that are included in socioeconomic development:

- increase in output and income;
- shifts in the institutional, social, and administrative structures of society;
- shifts in the consciousness of the general public;
- shifts in the traditions and habits of individuals and groups.

At the moment, enhancing the standard of living of the populace serves as the primary focus of the economic development efforts of the vast majority of nations throughout the globe and the locations in which they are located. As a result, the process of socioeconomic growth is comprised of three primary components, which are as follows:

- increasing people's incomes, bettering the health of the population, and elevating the level of their education;
- creating conditions that are favorable to the growth of people's self-esteem as a result of the formation of social, political, economic, and institutional systems that are centered on respect for human dignity;
- expanding people's degrees of freedom, including their economic freedom (Sachs, 2012).

When determining the level of socioeconomic development of countries and regions, the final two aspects of quality of life are not always taken into consideration; however, in recent years, economic science and political practice have been giving these aspects of quality of life an increasing amount of importance.

As aims for the socioeconomic development of the region, things like raising incomes, improving education, nutrition, and health care, reducing poverty, enhancing the environment, creating equality of opportunity, extending personal freedom, and enriching cultural life are utilized. There are some of these objectives that are the same, but depending

on the circumstances, there may be considerable variations between them. Therefore, constrained financial resources can be allocated either toward the improvement of health care or toward the conservation of the environment. There is competition between various objectives for growth. At the same time, it is abundantly evident that the population will be healthier and that the ultimate aim, which is the health of people, will be attained to a greater degree to the extent that the environment is cleaned up. As a result, the competition between the aims is not completely unresolvable in this circumstance. On the other hand, there are situations in which the competing aims of development demand unique analysis and particular approaches to their resolution.

A set of criteria (developmental features) and markers that assess these criteria are constructed in accordance with the growth objectives of the areas. International organizations evaluate the level of development of nations and areas using some universal integral indicators, despite the fact that there are some disparities among regions and countries inside the hierarchy of values and in terms of their development. The Human Development Index is one of these indicators, and it was established under the context of the United Nations Development Program. According to this metric, countries are ranked from 0 to 1 in increasing order (Wilson, 2007). In addition to this, in order to do the calculation, three indices of economic progress are utilized:

- life expectancy at birth;
- intellectual potential (adult literacy and average duration of education);
- the value of per capita income, taking into account the purchasing power of the currency and the decrease in the marginal utility of income.

One can utilize the human development index and other comparable measures for doing interregional comparisons, just as one would when conducting international research. Individual private indicators of the growth of the region can also be employed, in addition to integral indicators, to analyze the progress of the region. One of them is:

- The national income per capita;
- the level of consumption of particular material items;
- the degree to which incomes are differentiated;
- the life expectancy of the population;
- the level of physical health;

- the level of education;
- degree of happiness of the population.

It is in the best interest of the nation's economic growth to clearly define both long-term and short-term objectives, as well as the criteria associated with each. A rise in the level of living of any and all people in the country, such as the quality of healthcare, education, and heritage, is one of the long-term goals.

Other long-term goals include the establishment and growth of a post-industrial society, the production of highly qualified jobs for future generations and the formation of a post-industrial society. Conquering the crisis and reaching predetermined rates of expansion in the gross national product over the course of the following year, quarter, month, etc. are both attainable objectives that can be thought of as short-term goals (Ayres, 2014). The content of long-term and short-term goals is considerably different from one another, and the means by which they can be accomplished also varies greatly from one another.

The function of objectives or targets in economic growth criteria is not always something that can be guaranteed, and vice versa. In many cases, the strategic objectives of regional development are comprised of intermediate tasks that serve as required prerequisites for successful growth. These strategic objectives for the growth of an area or city include, but are not limited to:

- development of new types of businesses,
- expansion of existing businesses,
- development of small businesses,
- development of the city center,
- development of industry,
- development of the service sector,
- increase in the overall level of employment in the region.

Traditional indicators that evaluate the level of production and consumption of goods as well as the growth of this level per capita (gross national income (GNP), gross domestic product (GDP), real GNP per capita, growth rates for these indicators) are of particular importance when determining the level of economic development of the region (Moran,

2008). It is recommended that metrics that evaluate the percentage of the region's economic development be used when attempting to evaluate the dynamics of development. These indicators include the economic expansion rate of per capita wealth, labor productivity, in addition to the rate of institutional transition of manufacturing and culture. The influence on rates of economic growth is an important factor to consider when formulating economic policy for the country as a whole as well as for a specific region.

Purely economic measures, such as gross domestic product (GDP), per capita income, labor productivity, and their growth rates, are not sufficient to provide a comprehensive evaluation of the region's socio-economic progress. Indications of the life expectancy of the society, the quality of health of the demographic, the quality of education and credentials held by the population, and measures of fundamental changes in the economy and society are all equally essential (Drucker, 2012).

Changes in the structure of social production, in particular the rise of a post-industrial society as an alternative to the industrial society, are occurring concurrently with the expansion of many nations' and regions' economies (Crouch, 2019). This is the case in many parts of the world. The proportion of those who are gainfully employed who are working in the service sector is growing, while the proportion who are directly employed in manufacturing and agriculture is decreasing.

The industries that were formerly considered fundamental are no longer indispensable and will never again play that role. Individualization of consumption, a decrease in the circulation of production, and the phenomenon known as "demassification" of production are all occurring concurrently (Kotler, 2010). The level of intellectualization that it possesses is increasing, and the information resources that it possesses are rapidly becoming the most important components in its production. The creation of added value occurs primarily in the non-material sphere, while labor takes on new characteristics. Creative functions start to take the lead in labor, and the type of worker that is committed to his or her work and constantly seeks to incorporate new aspects into that work becomes increasingly common. The line between low-tech and high-tech sectors is becoming increasingly blurry as all businesses are becoming increasingly knowledge-intensive and absorbing an increasing number of managerial, financial, and commercial advances. The availability of new technology and the capabilities of the workforce are becoming more essential elements in determining

competitiveness than cheap labor costs and other traditional variables. The historical benefits that countries and regions have traditionally enjoyed are gradually losing some of the significance they formerly held. The manifestation of each of these tendencies may be found, to a greater or lesser extent, in virtually every nation on the face of the earth.

Because non-material production is rapidly becoming a paradigm of economic development, it is necessary for us to reevaluate the level of wealth possessed by different nations and areas. Historically, nations and areas have been ranked according to the amount of wealth they possess in terms of their forests, minerals, soils, climatic conditions, fixed assets, and geographical position. The standards by which nations and regions are judged on their level of material prosperity are undergoing a sea change as a result of the emergence of novel concepts about the non-material production sector as the location at which the majority of value is generated (Ryfield, 2019). The richness of people and the qualities they possess, the management technology available, the market infrastructure, the business network, and the culture of businesses are often cited as the most important variables. Education, science, medicine, telecommunications, and management skills are some of the areas of public life that have a decisive influence on the pace and direction of a country's overall economic development. New ideas about the sources and factors of economic development allow us to take a fresh look at these areas of public life.

3.2.4 Effects of Economic Crises

The economic crisis can create serious difficulties for the current government, and sometimes for the entire social system. This is natural since it entails a noticeable deterioration in the living conditions of citizens.

The first, immediate and most obvious consequence is a widespread increase in unemployment and a decrease in the incomes of the working population. Starting in the financial services sector, the decline in employment gradually spread to retail trade, repair and other services, the state apparatus and, last but not least, real economy sectors (Borko, 2009).

Currently, an important additional factor complicating the social and political situation in a

number of European countries, especially in Germany, is the growing tension in relations between the indigenous population and immigrants, in the influx of which many citizens see one of the main reasons for the increase in unemployment. The deterioration of the socio-economic situation caused by the crisis is reflected by the aggravation of the conflict between the indigenous inhabitants of the region and immigrants (Borko, 2009).

One of the inevitable consequences of the economic crisis has always been the deterioration of the structure of mass demand, and consumption. Two components can be distinguished in this phenomenon. The first is associated with a reduction in demand for durable goods, which can be dispensed without directly damaging lifestyle and health. The negative consequences of such abstinence are manifested only indirectly — as a result of the curtailment of the production of related goods and the resulting reduction of hired personnel. The second involves the rejection of vital expenses for the purchase of high-quality food and medicines, some forms of medical care, recreation, etc (Galkin, 2009).

The crisis inevitably reduces the number of financial resources available to State institutions, even in the richest countries. In such a situation, as a rule, there is a temptation to solve the problem by minimizing social spending - from curtailing state funding for education and healthcare to saving on pensions and other types of social security. The most widespread forms of such savings are the expansion of the sphere of paid social services, the abolition of benefits provided to certain groups of those in need, an increase in the retirement age, a reduction in its size, etc (Galkin, 2009).

However, the reduction of social spending is also not an easy thing. It is a very painful procedure that undermines the important foundations of the existence of a significant part of citizens. Moreover, it is most painful for the population of those countries where, over many years of struggle, an extensive social infrastructure and a social security system have developed, which has become an integral part of the usual way of life (Galkin, 2009).

In addition to the negative consequences of the economic crisis, a number of positive ones can be identified. Firstly, in any crisis situation, leading industries and outsider industries appear. Further research allows countries to better develop strategies for crisis management and economic development of the region. In spite of this, it is essential to highlight the fact

that crisis management is something that arises in response to a crisis; yet the goal of crisis management itself is to get rid of a crisis as quickly as possible while simultaneously preventing it from occurring again.

The impacts and repercussions of a crisis are a different but related issue to the one known as crisis management, which is also discussed in this thesis. Naturally, the happenings of spring 2020, such as the decline in oil prices and the consequences of the global epidemic of coronavirus infection, led to a halt or slowdown in many industries (Wang, 2020). As a direct result of this, many market participants significantly reduced or completely abandoned the purchase of services from the same IT companies. This was especially true in the healthcare industry. Since every work done by an IT company involves planning and work that is based on plans for future developments, some of which may already be bound by a contract or any other kind of transaction, it is clear that IT firms plan and work on everything they do. Not all players in the digital area were prepared for such a sudden suspension of funding, and they started taking measures to prevent an insolvency issue, which included reducing the number of employees they employed.

SAP is a wonderful example to use in this scenario because it showed its preliminary financial results for the first quarter of 2020. In the announcement, the company also discussed the impact that the Covid-19 epidemic will have on its business (Senol, 2020). The firm reported that business activity was fairly "strong" in the first two months of the quarter but as the impact of the pandemic intensified significantly towards the end of the quarter, a significant number of the newly planned activities were put on hold. In this context, SAP has declared the move to a strategy of remote deployment and virtual sales. Additionally, they were required to cut back on recruiting and business travel, and transition to digital event formats. During this time, it is important to keep in mind the numerous distinctions that exist between management during the pre-crisis period and company management techniques that are implemented during the crisis. As a result of the fact that one of the most essential components of development and forward movement is an investigation into the justification of actions taken to solve the financial problems of the company at the expense of its employees and an evaluation into the necessity of making changes to the operational procedures of the business while it is in the midst of a crisis.

The crisis can be seen as a test of the stability of the economic system of the region. From this point of view, crisis phenomena can be assessed quite positively. The consequences of the economic crisis for the region depend on the specific crisis situation and on the reasons that caused the economic downturn. However, some universal consequences should be taken into account and a model of crisis management should be developed in accordance with their analysis.

3.3 Coronavirus Pandemic in Germany

In the event that the author provides a concise summary of the beginning of the epidemic in Germany, then some members of the Bundestag were placed in quarantine, theaters and clubs were shut down, and Berlin buses started operating without tickets. If in the first few days of March 2020 about several hundred disorders related with the coronavirus were discovered, then one week later the coronavirus started to blanket Germany at an unrealistically fast rate. The decision to close secondary schools and kindergartens in the capital city of Berlin was made by the city authorities as early as March 13. After one another, all of Germany's other federal states made the announcement of their support for the legislation. Already on March 17, a state of emergency was declared throughout the Bavarian area. During these months, virtually no social activity took place anywhere in Germany, as it did in the vast majority of other countries. All around the nation, cultural institutions including museums, theaters, concert and exhibition halls, restaurants, bars, hairdressers, beauty salons, swimming pools, and fitness centers are closed. It was banned for people to congregate in groups larger than two, however there were certain exemptions given for families and those living in the same household. A space of 1.5 meters should be maintained between you and the person next to you whether you are walking along the street or shopping. The officials in charge of administration and law enforcement keep an eye out for anyone who breaks the rules (Buthe, 2020).

Marks were made in stores indicating where customers should stand while waiting in line at the cash registers. At the entrance of some retail outlets, there are employees who let customers in one at a time, ask them to take carts regardless of the number of purchases, and disinfect them after each customer. Marks were also made indicating where customers should stand while waiting in line at the cash registers. There are several locations that do not accept cash payments at all. Posters and placards asking people to maintain their distance

were displayed everywhere, including on the streets, in shop windows, and at the doors of stores. When you order food to be delivered to your house, some people bring it in a box, from which the person himself withdrew it and placed a tip there; others leave the dishes at the entrance of the apartment and go a reasonable distance away.

Just one month after the start of the pandemic, Germany was one of the top five nations most afflicted by COVID-19. The country had more than 120,000 people who were infected with the virus (Flaxman, 2020). But the mortality rate (number of deaths/population) in this region was far lower than that of many nations in Western Europe: 5 deaths per 100,000 residents, compared to 41 and 43 deaths per 100,000 residents in Spain and Belgium, respectively (Yamamoto, 2020). Although not to the same extreme degree as in other nations, the mortality rate in Germany is much lower than the global average. Nevertheless, it cannot be overstated how seriously the German people viewed the situation in their country.

Due to a fresh wave of the coronavirus pandemic, restaurants, bars, theatres, and other entertainment facilities will stop operating throughout Germany on November 2, and the work that may be done in stores will be restricted. The country will be placed under quarantine at least until the end of the autumn season. It is against the law for German nationals to get together in groups larger than 10 persons in public locations for the purpose of throwing parties. Restaurants, taverns, fast food restaurants (with the exception of companies that offer food and beverages for takeaway), movie theaters, amusement parks, fairs, and brothels are some of the businesses that will be shut down. Additionally, until December, health clubs, swimming pools, spas, massage parlors, and tattoo shops would not be open to the public. Hotels are only allowed to provide their services to locals who are traveling for official government business. Tourists are not permitted to stay in these establishments. The standards for disinfection and personal protective equipment will continue to be enforced, but schools, kindergartens, stores, and institutions performing medical operations will continue to be able to operate normally. If, at the start of the epidemic, in the middle of March, during this time, schools as well as kindergartens were closed as well. At the conclusion of the month of March, the authorities issued an order prohibiting individuals from congregating in groups larger than two. In places like cafés, restaurants, and hair salons, customers are required to keep a social distance from one

another. However, if we look at the numbers, we can see that the transmission of coronavirus in Germany is continuing to slow down. The country is experiencing a "break" in the second wave of the pandemic, but it is not yet done. This new turn of events did not take long to take place, as the third wave of the pandemic created a new level of harm. Since March 2021, the Robert Koch Institute has recorded an increase of more than 3 000 in the number of new diagnoses, bringing the total to 16,000 a day. The very following day, the number of instances that occurred for per 100,000 people in Germany reached 104. If this ratio is more than 100 diagnoses per 100,000 people, the specialists at the institution say that critical care units will no longer be able to handle the volume of patients coming through their doors (Hoebel, 2021).

In Germany, the quarantine was first implemented in December 2020; consequently, its next extension will be allowed; thus, limitations will be in place in the nation for a period of five months. And it was difficult to even call this point in the struggle against coronavirus the middle of the battle. Since the beginning of the pandemic in Germany, more than 3 million individuals have been infected with coronavirus, and 79,000 people have died as a result of the sickness. In total, the number of infections and deaths has increased. On March 19, the European Commission made the announcement that the beginning of the third wave of coronavirus has begun in Europe (Kruspe, 2020).

At this point in time, the use of a total of four vaccinations against coronavirus has been given the go-ahead for use in Europe. These vaccines are from the pharmaceutical firms Pfizer, Moderna, and Johnson & Johnson in the United States, as well as the British-Swedish AstraZeneca. It's possible that the introduction of emergency vaccinations was the sole glimmer of hope during such a dark time for the entire planet. Because of the rapidity with which COVID spread, decisions needed to be made in a very timely manner (Bown, 2022). While it is true that there were some concerns that any vaccine would need to be tested over time, developed, and adjusted, this was complicated by the fact that decisions needed to be made very quickly. At the beginning of this year, the authorities in the EU intended to commence a widespread vaccination campaign, which, as was anticipated, would make it possible to gradually return to normal life. However, a lack of vaccine impeded the full implementation of the vaccination campaign. Pharmaceutical firms were unable to produce

the requisite number of doses for a variety of reasons, which hampered the full execution of the vaccination program.

The regulations that safeguard citizens from contracting contagious illnesses have recently been strengthened in Germany. The revisions to the legislation that were passed by the deputies call for consistent steps to be taken across the entirety of the nation in order to battle the epidemic. Under these circumstances, revisions were made to the legislation governing infection control. These amendments provide for the transfer of certain of the powers to the federal government, which will allow the federal government to act independently of the Bundestag as well as the state legislatures. Even at that point, it was difficult to speculate when the epidemic as well as the general quarantine would come to an end. More than 100,000 individuals would have lost their lives in Germany due to the consequences of coronavirus infection by the end of the year 2021. The peak infection rates for the nation are documented toward the conclusion of the second year of the pandemic that has been going on there. The immunization drive is coming to a standstill. The fourth wave of the coronavirus pandemic in Germany is continuing to acquire speed, with the majority of this momentum coming from an increase in the incidence among younger individuals. If, in the beginning of the pandemic, persons of advanced age were the ones who were infected with coronavirus, then the situation started to go against all preparations, and the virus started to impact those of medium age and younger age. It is possible that a decrease in vaccination preparedness among those who are not vaccinated is one of the factors contributing to the increased trend in incidence among younger individuals. In Germany, where there is a significant prevalence of the disease, there are regulations in place that make it illegal for unvaccinated people to access public places like restaurants and shopping malls. Not only is the pandemic still active, but it has also entered its fourth wave, which is currently in full swing.

By the beginning of 2023, Germany will have had over 38 million cases of infection and approximately 170,000 fatalities since the beginning of the pandemic. And the epidemic is still going strong, with no telling when the fifth wave could begin to spread. The effects of this crisis are still being determined, despite the fact that it is still active and being fought against at the present day (WorldoMeter, 2023).

4 Practical Part

4.1 Descriptive Analysis of Macroeconomic Indicators and Dynamic of Coronavirus

4.1.1 GDP

In the first part of the practical part, the author analyzes tendencies that were happening with the development of indicators related to both economic and social domains for the whole Germany. However, for some variables based on the availability of data, the author considers two regions that were selected for his comparative analysis – Thuringia and Berlin (selected based on the principle of an economically advanced region – Berlin and a less economically advanced one - Thuringia). First, the author starts with the analysis of quarterly GDP of the whole Germany and the author dynamizes the original indicator by computing the difference of GDP compared to the same quarter one year ago. Table 1 presents the development of the quarterly GDP growth over time in Germany.

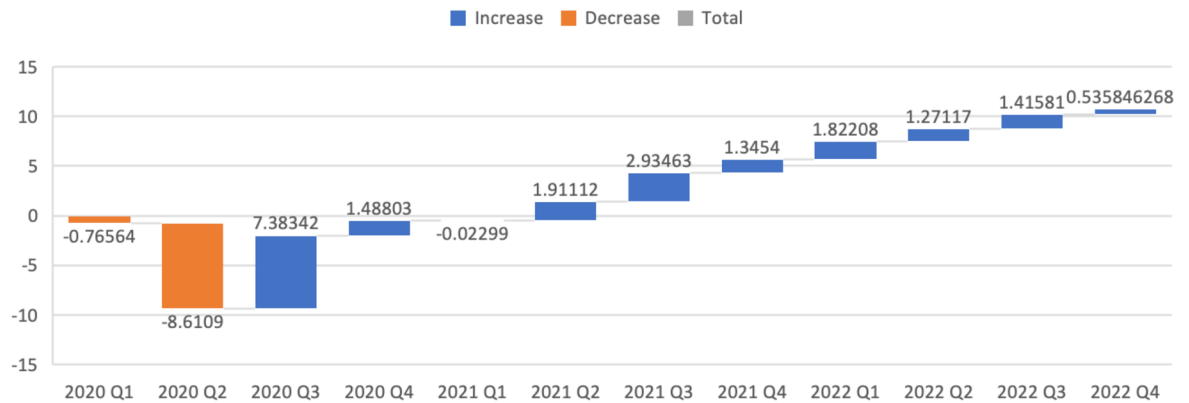
Table 1, dynamized GDP

Year	Quarter	GDP change from previous quarter
2020	2020 Q1	-0.76564
2020	2020 Q2	-8.6109
2020	2020 Q3	7.38342
2020	2020 Q4	1.48803
2021	2021 Q1	-0.02299
2021	2021 Q2	1.91112
2021	2021 Q3	2.93463
2021	2021 Q4	1.3454
2022	2022 Q1	1.82208
2022	2022 Q2	1.27117
2022	2022 Q3	1.41581
2022	2022 Q4	0.535846268

Source: German Statistical Office, 2022

Consequently, the author proceeds to the analysis of the variable. The development of the quarterly GDP is presented in Figure 1.

Figure 1, change in GDP



Source: own processing based on German Statistical Office, 2022

Clearly, after looking at the development of the variable in time in Figure 1, it becomes evident that the German economy was able to come to grips with the ongoing crisis in the third quarter of 2020, when the economy returns its expansionary dynamics. The worst economic performance of the German economy is identified in the first and the second quarter of 2020 with the second one being one of the worst quarters in the recent economic history of Germany in terms of percentual decrease. All in all, it is wise to say that not everything was perfect after the third quarter of 2020, since the economy entered into a complex stage in the first quarter of 2021 once again with another decrease registered. Yet, it is wise to say that the degree to which the economic output decreased suggested that the economy was much more prepared for handling a crisis.

4.1.2 Transport

Then, continuing to another variable of transport, it is wise to say that inspecting indices related to all possible kinds of transport used by people in Germany will help to understand the exact moment when society became less restricted and the integrity of Germany was restored in terms of economic and social cooperation. In Table 2, the author offers the overview of selected indicators each related to particular kind of transport.

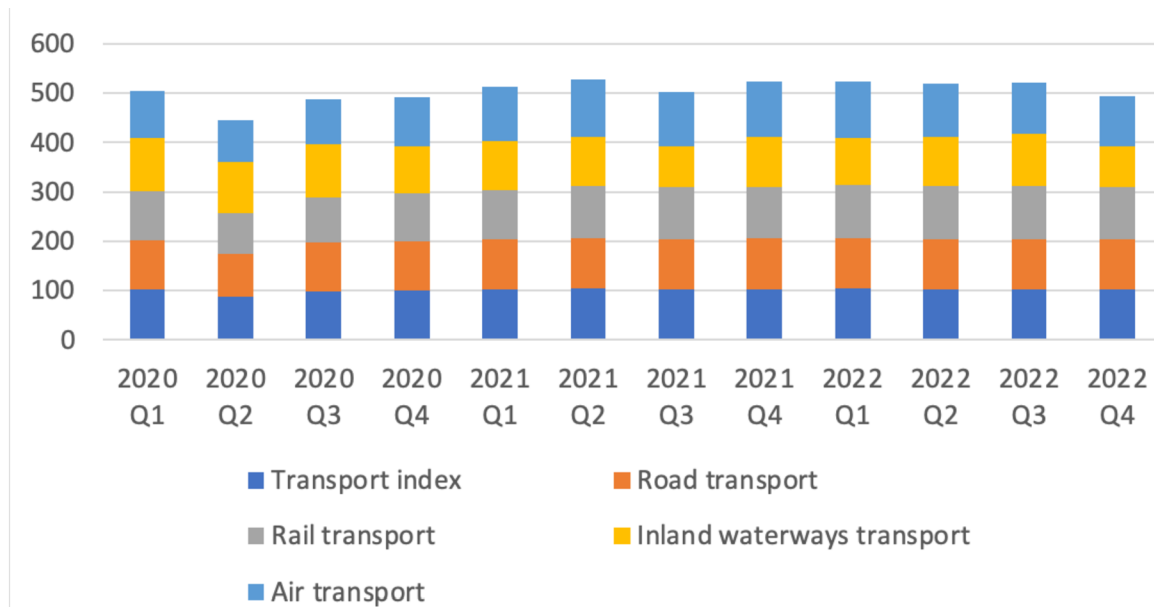
Table 2, quarterly transport indices

Year	Quarter	Transport index	Road transport	Rail transport	Inland waterways transport	Air transport
2020	2020 Q1	101.004582	100.851537	99.1576657	107.92111	96.0037148
2020	2020 Q2	87.0087151	86.6345798	82.2901285	104.094741	85.8590279
2020	2020 Q3	97.8524395	98.541281	91.5647461	108.168656	92.3822979
2020	2020 Q4	99.4860182	100.673825	96.7861037	94.3743002	99.5461541
2021	2021 Q1	101.656226	102.273232	99.8872379	99.8614906	109.404757
2021	2021 Q2	103.339326	103.250648	105.303636	98.8229115	116.191498
2021	2021 Q3	101.58056	102.806368	104.157726	82.7181148	111.847686
2021	2021 Q4	102.805997	102.362088	104.568796	102.393861	111.983931
2022	2022 Q1	103.482293	103.250648	107.120917	96.0707096	114.434039
2022	2022 Q2	102.737068	101.828952	107.403125	99.957017	107.599159
2022	2022 Q3	102.832254	101.295816	107.338014	107.217645	103.414054
2022	2022 Q4	101.626949	102.362088	106.204371	81.9217013	102.55976

Source: German Statistical Office, 2022

Consequently, the author proceeds to the graphical representation of each indicator using the help of Excel – see Figure 2.

Figure 2, transport indices



Source: own processing based on German Statistical Office, 2022

Obviously, it is pretty evident that the biggest decrease in the overall mobility of people living in Germany can be identified in the second quarter of 2020, as well as in the third quarter of 2021. When comparing individual means of transport, it can be concluded that the biggest means that started to be used significantly less than others are rail transport and air

transport. When it comes to the rail transport, this particular was rather complicated to exercise under the condition of maintaining social distance, while the situation with air transport is explained by the fact that almost all international travels were significantly restricted. As for the means least impacted by the pandemic, it can be said that these are the road transport and also inland waterways transport. All in all, the author can conclude a significant decrease in the mobility of people.

4.1.3 Unemployment

Then, continuing to the unemployment variable, it is wise to mention that the author's approach for analyzing changes with unemployment is slightly different approach, where he first computes seasonality and then creates trend that will help to understand what the projected level of unemployment was and what was the real one given the effect of pandemic. Complete dataset is presented in the appendix of this bachelor thesis in Table 12. In Table 3, the author indicates the computational of seasonality factors for each quarter prior to the year 2020.

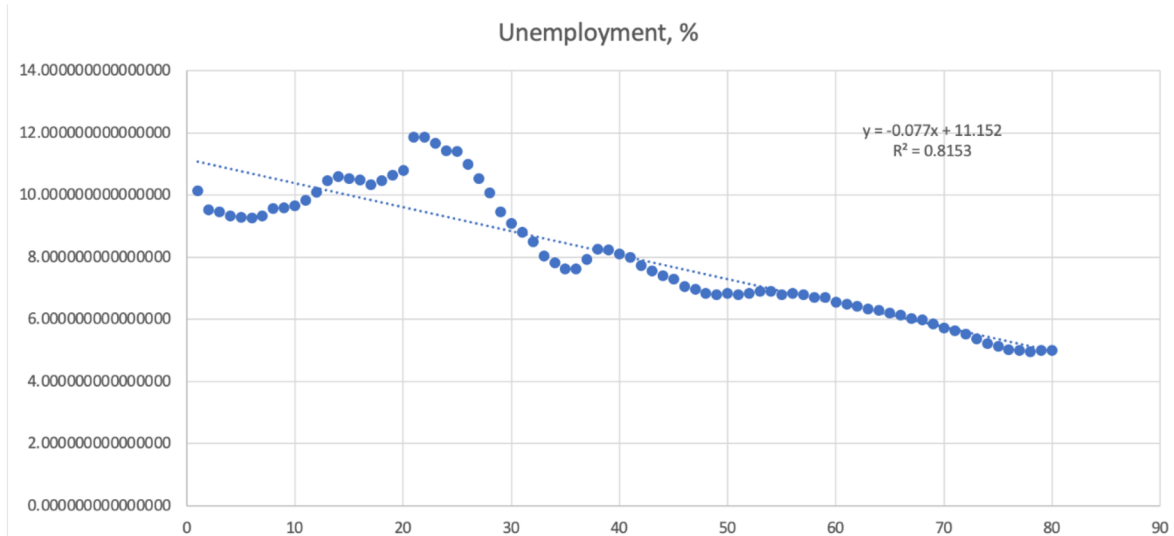
Table 3, seasonality factors

Quarter	Averages
Q1	8.163333333333330
Q2	8.066666666666670
Q3	7.981666666666660
Q4	7.918333333333330
Grand Average	8.032500000000000
Quarter	Averages
Q1	101.63%
Q2	100.43%
Q3	99.37%
Q4	98.58%

Source: own processing based on German Statistical Office, 2022

Based on the calculations from Table 3, it can be concluded that on average, the unemployment in Germany was 1.63% higher in the first quarter, 0.43% higher in the second quarter, 0.63% lower in the third quarter and 1.42% lower in the fourth quarter prior to the events that happened in 2020. Then, the author computes the trend for the variable with the results presented in Figure 3:

Figure 3, unemployment trend



Source: own processing based on German Statistical Office, 2022

According to the output from Excel (Figure 3), the following trend can be estimated:

$$y = 11.152 - 0.077t + S_i + \varepsilon_i$$

Parameters of the trend suggest that the annual quarterly decrease in the unemployment in Germany was equal to 0.077 percentage point, which indicates a good tendency. The quality of 0.81 or 81% suggests that the trend can be used for analysis. Then, the author computes unemployment for the next four quarters by putting time vectors representing the first quarter of 2020, the second quarter of 2020, the third quarter of 2020 and the fourth quarter of 2020. In addition to that, the author also adjusts the seasonality component (S_i). In Table 4, the author presents the table of fitted values adjusted to seasonality for 2020.

Table 4, fitted values for 2020

Year and Quarter	Unemployment, %	Unemployment, % adjusted to seasonality
2020 Q1	4.915	4.834944496
2020 Q2	4.838	4.817421309
2020 Q3	4.761	4.791129785
2020 Q4	4.684	4.750574126

Source: own processing based on German Statistical Office, 2022

Then, after calculating fitted values for 2020, the author compares the observed ones with the ones calculated by the author in Table 4. See the calculation and comparison in Table 5.

Table 5, computation of error

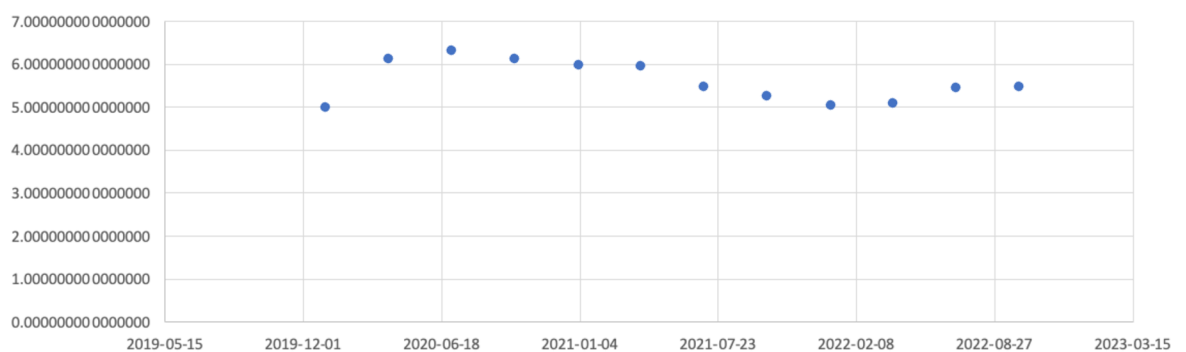
Year and Quarter	Fitted, %	Observed, %	Error, %
2020 Q1	4.834944496	5	-0.17
2020 Q2	4.817421309	6.133333333	-1.32
2020 Q3	4.791129785	6.333333333	-1.54
2020 Q4	4.750574126	6.133333333	-1.38

Source: own processing based on German Statistical Office, 2022

Clearly, according to the situation that can be observed in Table 5, it can surely enough be said that the performance of the German economy could have been significantly better when it comes to unemployment as the deviation between the fitted values and the observed show a negative difference meaning that the real performance is significantly worse than the hypothesized one.

Finally, the very last aspect of unemployment that is essential to be taken into consideration is the development of the indicator after the first quarter of 2020 and until the fourth quarter of 2022. In Figure 4, the author presents the visual representation of the development of unemployment on the selected time period.

Figure 4, unemployment after the start of the pandemic



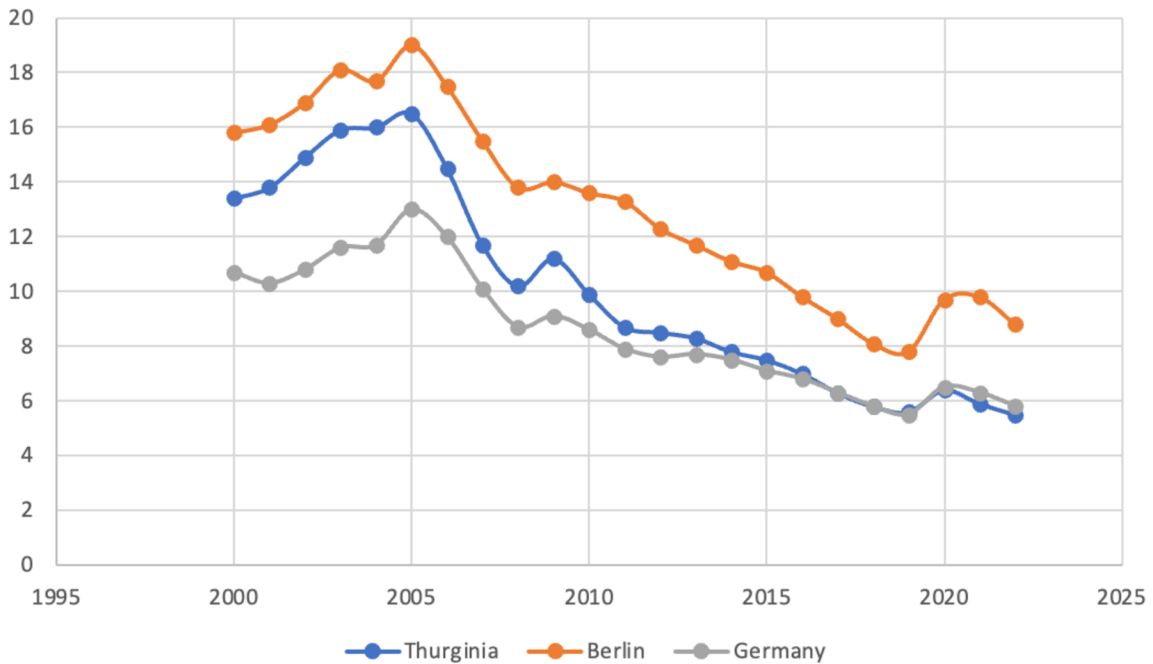
Source: own processing based on German Statistical Office, 2022

Seasonal pattern remains, but the overall level is slightly higher than the one that could be observed on the pre-pandemic period. Overall, it is possible to say that the pandemic has had a serious toll on the unemployment level in Germany.

Then, the author proceeds to the analysis of unemployment for the two selected regions – Berlin and Thuringia. The author uses dataset from Table 13 in the thesis’s appendix to

perform his analysis. Based on the data from Table 13 obtained from the German Statistical office, the author proceeds to the visualization of data on Figure 5.

Figure 5, development of unemployment in Germany and selected regions



Source: own processing based on German Statistical Office, 2022

Clearly, based on the development of the variable for three different domains – Thuringia, Berlin and Germany as a whole, it can be said that the level of unemployment for both regions was higher than the German average for almost all periods. However, the pandemic changed the situation and the level of unemployment for Thuringia became lower than the German average, while the gap between the indicator for Berlin and the country’s average increased. Further on, the author proceeds to Table 6, which presents the overview of average unemployment rate for the pre-pandemic and post-pandemic period.

Table 6, average unemployment for regions

	Average		
	Thuringia	Berlin	Germany
<i>Pre-pandemic</i>	10.675	13.59	8.94
<i>Post-pandemic</i>	5.9333333	9.4333333	6.2

Source: own processing based on German Statistical Office, 2022

Clearly, the level of unemployment for both regions before the pandemic that happened in 2020 was slightly higher than the average level for the country – 8.94% for Germany

versus 10.675% for Thuringia and 13.59% for Berlin. However, the pandemic seems to have temporarily changed the way how matters stand with unemployment, as the employment situation of Thuringia improved and after the start of the pandemic, the region has the rate of unemployment lower than the country's average, while the situation of Berlin remained more or less the same with values higher than the country's average.

4.1.4 Gross Regional Product

In Table 7, the author presents the dataset containing fundamental information about the Gross Regional Product or GRP.

Table 7, gross regional product dataset

State	2019, billion EUR	2020, billion EUR	Percentual change	Average for the group
Hamburg	711.42	697.13	-2.0 %	-2.75 %
Bremen	632.90	610.22	-3.6 %	
Bavaria	524.33	500.79	-4.5 %	
Baden- Wuerttemberg	307.04	295.9	-3.6 %	
Hesse	294.48	281.42	-4.4 %	
Berlin	153.29	153.63	0.2 %	
North Rhine- Westphalia	145.00	141.9	-2.1 %	
Lower Saxony	128.10	125.57	-2.0 %	
Saarland	123.27	118.13	-4.2 %	-3.11 %
Rhineland- Palatinate	97.96	97.22	-0.8 %	
Schleswing- Holstein	74.33	73.93	-0.5 %	
Saxony	63.87	62.65	-1.9 %	
Thuringia	63.55	61.54	-3.2 %	
Brandenburg	46.47	46.01	-1.0 %	
Mecklenburg- Vorpommern	36.25	33.61	-7.3 %	
Saxony- Anhalt	33.62	31.58	-6.1 %	

Source: German Statistical Office, 2022

In order to understand regional disparities and generally understand if there is any difference in the way how the negative effect of the pandemic was distributed among regions of the country, the author uses statistics available from the German Statistical Office that indicates the annual level of the GRP, which stands for the gross regional product and

generally speaking, this variable shows the level of output respectively to each region. In order to understand if there is generally a big difference in the way how the economic impact of the pandemic was distributed, the author takes into consideration all 16 regions of Germany and he splits those regions in two categories – first eight regions according to their GRP are classified as economically advanced, while the rest is considered to be slightly economically active.

When comparing the situation in terms of the GRP for all regions in 2020 with the figures for 2019, it becomes evident that almost all regions experienced a very serious decrease in the total volume of output produced. Yet, there is one exception, and it is Berlin, which was able to increase its total output by 0.2% in 2020 compared to 2019.

When calculating the average change for each category, the author finds himself in the situation, where the average decrease for the category of economically advanced regions is equal to 2.75%, while the average decrease for the category of less economically advanced regions is equal to 3.11%. Hence, there is a difference of 0.36 percentage point between two categories. The author can conclude that less economically advanced regions were hit stronger than the economically advanced ones based on the first series of calculations. Then, the author proceeds to the comparative analysis of two selected regions – Thuringia and Berlin.

Based on the output from Table 7, the author can draw a conclusion that the change in GRP of Berlin was equal to 0.2%, while the change identified for Thuringia is equal to negative 3.2%, meaning that the region was far more seriously hit by the pandemic of the coronavirus from the economic perspective. Furthermore, it becomes obvious when comparing those individual figures with the average for German regions, which is equal to negative 2.9%. Therefore, the economic recession of Thuringia was 0.3 percentage points higher than the German average, while the situation Berlin in terms of the economic growth was significantly better than the German average.

4.1.5 Daily Cases

In this chapter, the author takes an insight into another crucial variable – daily cases and the author presents the data used for the analysis in Table 8 for the whole Germany.

Table 8, daily cases dataset

Year	Quarter	Sum of new_cases
2020	Q1	61913
2020	Q2	132346
2020	Q3	94960
2020	Q4	1430518
2021	Q1	1089136
2021	Q2	919268
2021	Q3	499360
2021	Q4	2881681
2022	Q1	13995327
2022	Q2	7076352
2022	Q3	5131512
2022	Q4	4057493

Source: German Statistical Office, 2022

Then, when talking about the impact of the pandemic, it is also wise to take an insight into the development of one of the most crucial variables related to the phenomenon – daily cases. The author calculates totals for each quarter starting from the first quarter of 2020 and then the author also calculates seasonality for the variable in order to understand the quarters where the pandemic is most active. In Table 9, the author offers the overview of his calculations.

Table 9, daily cases of coronavirus seasonality

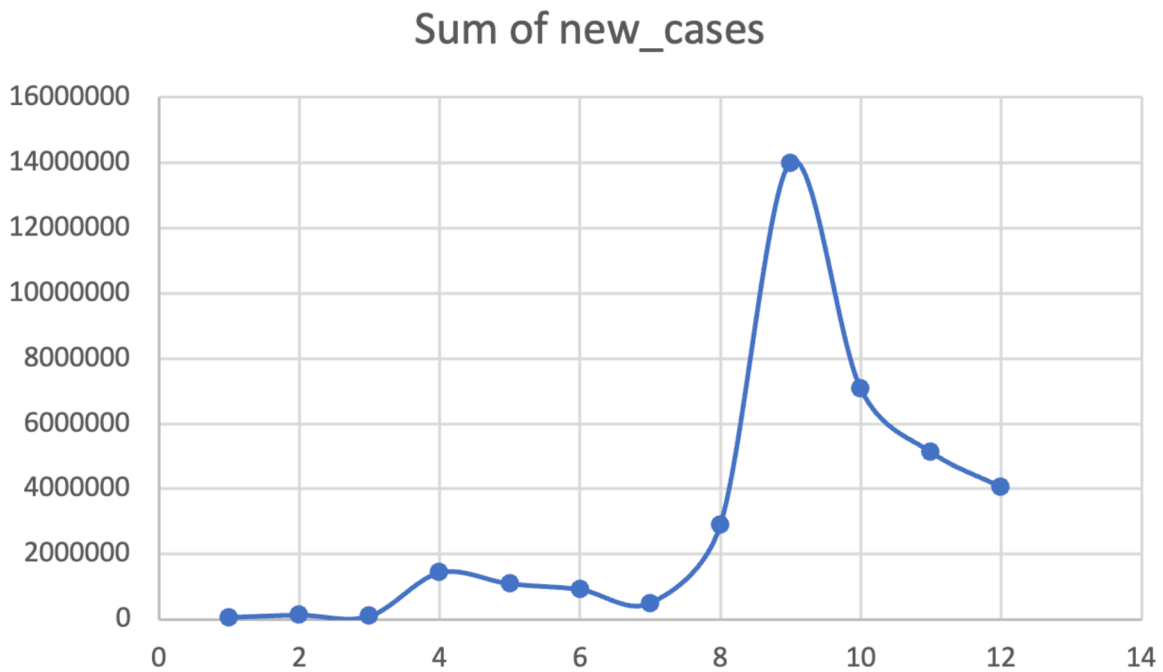
Quarter	Average
Q1	5048792
Q2	2709322
Q3	1908610.67
Q4	2789897.33
Grand Average	3114155.5
Seasonality	
Q1	1.62
Q2	0.87
Q3	0.61
Q4	0.89

Source: own processing based on German Statistical Office, 2022

Consequently, it can be concluded that on average, the number of total daily cases for the first quarter is 62% higher, for the second quarter it is 13% lower, for the third quarter it

is 38.8% lower and for the fourth quarter it is 10.5% lower. Hence, the worst quarter for Germany in terms of the pandemic is the first one. In Figure 6, the author presents the visual representation of the dynamics behind the variable.

Figure 6, sum of daily cases over time



Source: own processing based on German Statistical Office, 2022

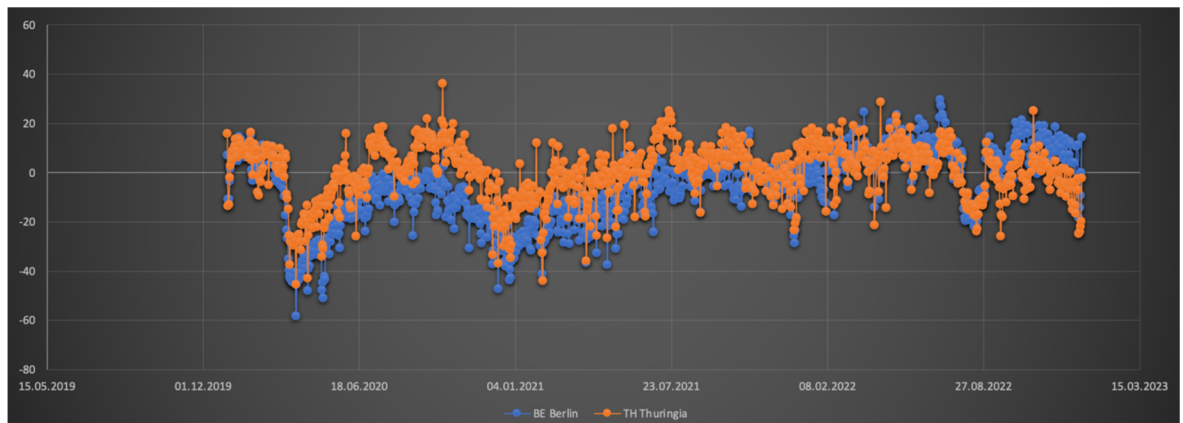
Clearly, it becomes evident by looking at the figure above that the grip of the pandemic slowly weakens as the numbers slowly start to shrink. Overall, it can be said that the pandemic is somewhat behind for the country.

4.1.6 Mobility

Then, another important indicator that will help the author with his analysis is mobility. Clearly, measuring mobility is rather complicated, so the methodology of this variable, according to the German Statistical Office involves the calculation and assessment of mobile activity in selected regions. The author considers two same regions – Thuringia and Berlin.

In Figure 7, the author presents the chart, with the change in mobility on a given day in a given year. For the computation of values, the indicator of mobility in 2019 was subtracted from the actual mobility in a selected year,

Figure 7, change in mobility



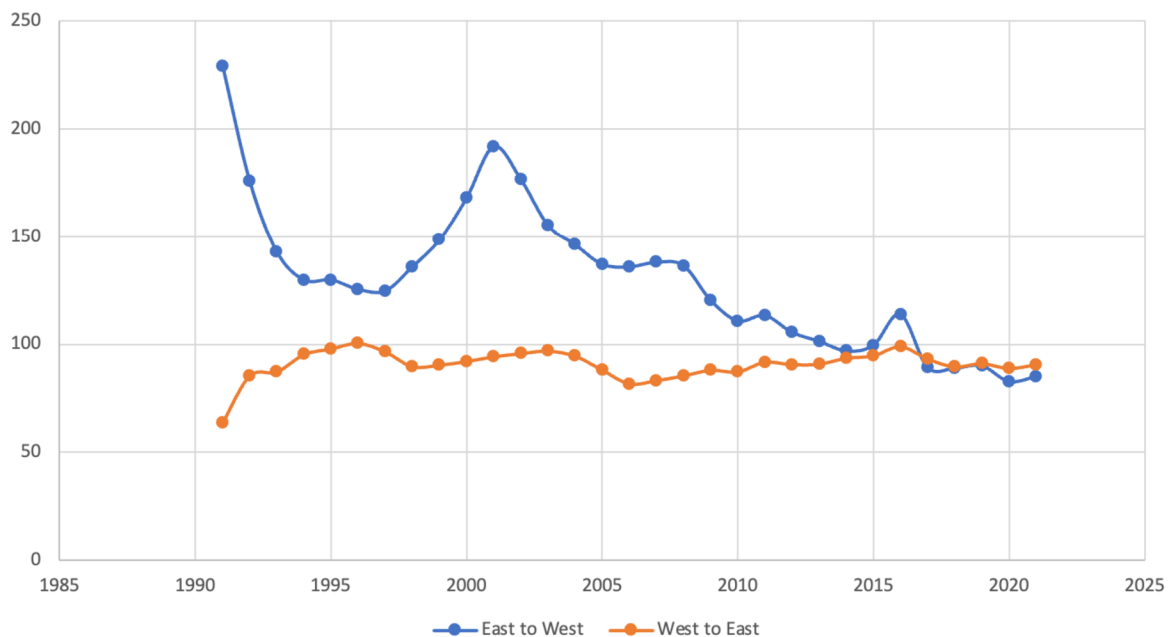
Source: own processing based on German Statistical Office, 2022

When looking at Figure 7, it is rather interesting that the drop in the mobility of a less developed region is lower than the decrease in Berlin. Yet, this tendency persists until the second quarter of 2022, when the mobility of people in Berlin started to increase. Based on this chart, it can be concluded that only by the year 2022, international companies as well as tourists were finally able to return. This chart helps the author to extract a very valuable observation – presumably, the recovery for the country’s advanced regions finished in 2022, when the tourists were finally able to travel without restrictions and international companies were also able to resume their operations as if the covid did not exist at all. Consequently, the author calculates the average change in mobility for Thuringia and Berlin, whereas the average indicator of mobility for the first, less economically developed and more rural region is equal to 0.39% change from 2019 and the average change in mobility for the second one is equal to -12.46%. Clearly, there is a major difference in the mobility identified after the start of the pandemic for those two regions. Given the average change in mobility equal to 0.42%, the author suggests that the figures for Berlin are far from the German average, while the situation of Thuringia is closer to the German average.

4.1.7 Domestic Migration

Finally, another interesting indicator that can help to understand social dynamics of Germany is domestic migration. Due to the historical background, the country is often artificially divided into 2 parts – the West and the East, according to the real way of how the country was divided after the Second World War. The dataset used for the analysis of this variable is located in the appendix of this thesis in Table 14. In Figure 8, the author generates a chart in Excel that will help to visualize the situation with the domestic migration.

Figure 8, domestic migration chart

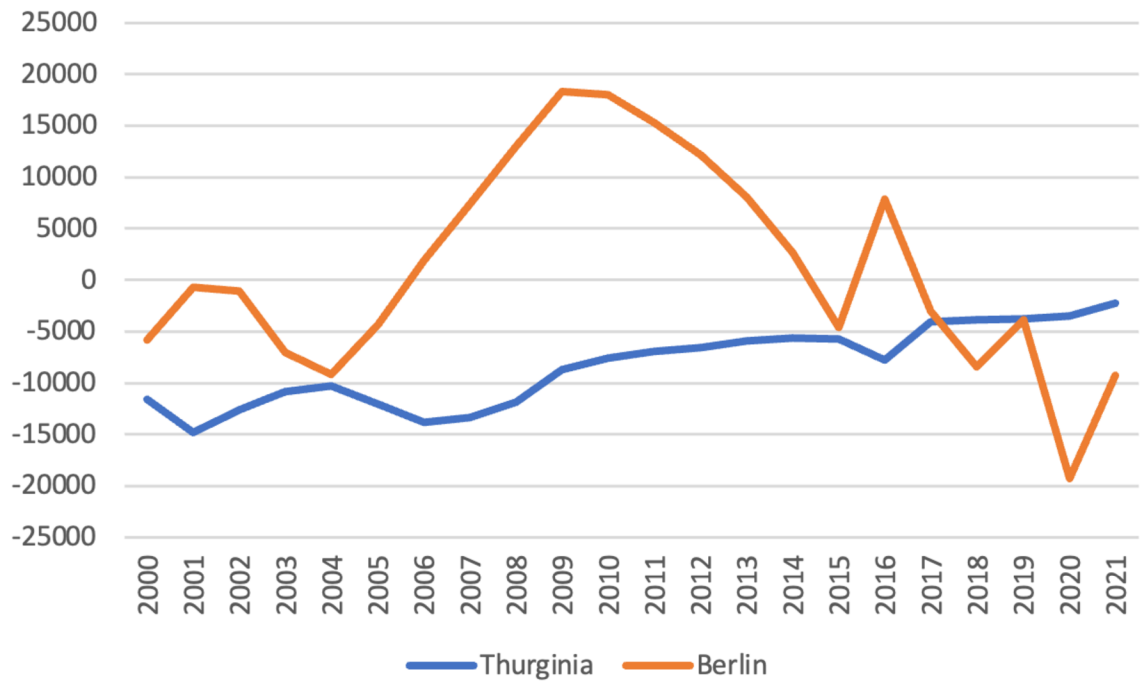


Source: own processing based on German Statistical Office, 2022

Based on the Figure 8, it can be concluded that the tendency of domestic migration has changed significantly over the course of the last thirty years with the tendency to migrate from the West to East prevailing starting from 2017. Interestingly, the ongoing pandemic did not change the way how matters stand in terms of the dynamics, but it has actually accelerated the migration from the West to East of the country.

In addition to that, the author proceeds to the analysis of net migration for the two selected regions – Thuringia and Berlin. The author uses the dataset in Table 13 available in the appendix of the thesis for making conclusions. Based on Table 15 from the appendix, the author proceeds to the creation of a graph in Figure 9, where the development of the net migration variable for two regions will be indicated.

Figure 9, net migration in Thuringia and Berlin in thousands



Source: own processing based on German Statistical Office, 2022

Based on Figure 9, it can be said pretty with a fair degree of confidence that the recent pandemic of the coronavirus changed the vector of development of the net migration variable for Berlin, where the tendency to migrate from the region started to prevail more and more until eventually reaching its absolute minimum in 2020. The situation in Thuringia developed in a different direction, whereas the recent pandemic of the coronavirus decreased the number of people migrating from the region. Nevertheless, the average net migration for the selected time period for Thuringia is equal to -8323.31, while the value for the very same indicator for Berlin is equal to 1283.90. For sure, the situation with net migration for Berlin is more positive and presumably, this region is more attractive to inhabitants of the country.

Clearly, the pandemic changed everything and the average net migration during the pandemic for Thuringia is equal to -2873.5, which is significantly higher than the average for the period, while the average net migration in Berlin during the pandemic is equal to -14235, which is far different from the average. Undoubtedly, when it comes to migration, Berlin had to face significant changes during the pandemic from what had been experienced by the region before the crisis.

4.2 Correlation Analysis

Finally, the author incorporates another technique which is related to the computation of correlation. In Table 10, the author indicates the result of the correlation analysis, which is put into a single correlation matrix.

Table 10, correlation matrix

	Sum of new_cases	GDP change from previous quarter	Transport index	Road transport	Rail transport	Inland waterways transport	Air transport	Unemployment, %
Sum of new_cases	1							
GDP change from previous quarter	0.118601182	1						
Transport index	0.407820199	0.660949068	1					
Road transport	0.331968972	0.70721365	0.982745111	1				
Rail transport	0.549649757	0.459920761	0.929777819	0.883039916	1			
Inland waterways transport	-0.124424878	-0.088864533	-0.227017258	-0.33530128	-0.36048834	1		
Air transport	0.438643304	0.390786758	0.80856152	0.797991515	0.82783628	-0.387737001	1	
Unemployment, %	-0.578804844	-0.003372795	-0.530425685	-0.44457908	-0.65986678	0.091809868	-0.40620324	1

Source: own processing based on German Statistical Office, 2022

In order to understand if there is any correlation between the pandemic of the coronavirus and indicators used and discussed by the author earlier, it is wise to take a look at the first column and analyze the calculated coefficients. There are just a couple of coefficients whose value is high, but when looking at them and reflecting on their signs, it becomes evident that the pandemic and the number of daily cases does not have such a disruptive effect on the economy and mobility of people. Presumably, this suggests that the country was eventually able to tackle the problem entirely and learnt how to live with the presence of the pandemic.

4.3 Interview

For the series of interviews, the author decided to conduct a semi-structured interviews with participants from Thuringia and Berlin. Unfortunately, the author was not able to engage a higher number of participants than just 4 – 2 from Thuringia and 2 from Berlin, who would fit into the special criteria, which are:

- 1) Participants should be at least 20 years old.
- 2) They should have either Berlin or Thuringia as a current place of living now and also prior to the pandemic, as well as during it.

The author was able to contact 4 participants who were selected for the analysis through Facebook and the series of semi-structured interviews was conducted with the help of

Google Meet – all conversations lasted for approximately 10-15 minutes and the author recorded the most important responses of participants. All participants agreed to the usage of information provided by them for this research and they also allowed the author to use their real name. The author asked a series of similar questions, which were mainly related to migration, unemployment and the economic situation in their region. The author summarizes the findings of the series of semi-structured interviews in Table 11, which is available below. Full transcripts of conversations that the author had had with respondents is available in the appendix of this bachelor thesis.

Table 11, overview of responses

Question/Participant	Hans	Eva	Karl	Ella
Region	Thuringia	Thuringia	Berlin	Berlin
Age	42	37	29	23
Job prior to the pandemic	Manager	Sales-support	Logistics	Student
Job during the pandemic	Jobless	Sales-support	Finance	Student
Job after the pandemic	Manager	Sales-support	Finance	Has a job, did not specify which one
Negative effect of the pandemic	High	High	High	High
Desire to change the region	No	No	No	Yes
Economic situation after the pandemic	The same	Improved	Same	The same as it was in 2019

5 Results and Discussion

5.1 Impact on Economic Domain

In order to understand if the coronavirus pandemic has really had a significant negative impact in the economic domain of the country, it is essential to specify that there can be 2 answers to this question depending on the time perspective. When considering the short-term effect of the pandemic, it is wise to say that it is quite likely to be one of the biggest ever crises that happened with the German economy, since the drop in 2020 was downright enormous and horrific at the same time with a shrink of quarterly output almost equal to 10% for some periods. Following the decrease in output and restriction of almost all business and economic processes due to the national lockdown, the problem with unemployment occurred and as the author has analyzed, the most vulnerable group were people who were working in hospitality segment and other entertainment industries due to the fact that there was no possibility to shift to home office. The same applies to mobility, tourism and all other domains that involve physical movement of people – the pandemic has literally stopped all economic processes and raised a lot of questions of whether the economy will at all be able to promptly recover after this. The same concern is expressed by Nicola, 2020, who stressed out potentially disruptive effect of the pandemic that might last for years. Henceforth, it is possible to say that the short-term effect on the economy was devastating and the whole year 2020 was considered to be one of the worst-ever years in terms of economic performance of Germany. Additionally, it is wise to focus on the regional differences between Berlin and Thuringia, which were taken as examples of an urban and rural regions. Based on the analysis, the author suggests that the mobility for Berlin decreases significantly with many people actually returning to their hometowns and cities, while Thuringia faced an increment of migration which was presumably explained by the aforementioned phenomenon.

However, on the other hand, when considering the long-term effect of the pandemic, it is wise to say that the economy was able to turn the tide quickly and return to expansionary trend in the year 2021 despite the presence of additional waves of the coronavirus. The fact that the correlation between the daily cases and selected economic indicators is positive suggests that German economy was able to cope with the presence of the coronavirus, restructure economic processes and continue to generate economic output, which is surely

enough a good sign showing resilience and flexibility of the German economy. However, the author believes that it will not at all be correct to say that the main reason for being able to cope with the pandemic in the long-term perspective was the organization of processes and the structure of German economy. When talking a look at the situation in the context, it becomes pretty logical that the economy stopped being significantly affected by the ongoing pandemic when the active vaccination campaign was initiated in the country. Henceforth, the author suggests that the vaccination helped the country to continue economic expansion and perform a quick recovery since more and more people were protected against the virus.

Clearly, there might be a lot of concerns about the effectivity of the vaccine with numerous occurrences when individuals were still falling ill with the coronavirus even despite being vaccinated. Yet, studies show that the way how their handled their illness differs significantly with people vaccinated being able to return to work quicker than those who had decided not to get a vaccine, which is a crucial point that underpins the author's suggestion. The author coincides in his findings with Deb, 2022, who concludes that vaccinated people are less prone to experience difficulties with their productivity and performance even after having the coronavirus due to the fact that their bodies better handle the illness.

5.2 Impact on Social Domain

When it comes to social domain, it is wise to say that regions were hit differently by the pandemic with a slightly worse effect for less developed regions in terms of the economic output. Following the drop in the economic output, it can easily be assumed that people became more and more anxious, worried and uncertain about their future as unemployment level rose everywhere in Germany. In addition to all that, it is also wise to say that mobility of more advanced regions decreased on average more than the mobility of less economically advanced regions, as the author's analysis revealed it. Yet, when comparing the results of two analyses, it can be said that despite a decrease in the mobility, those economically advanced regions focused on producing goods and services with high value added managed to adopt to new circumstances due to the nature of economic activities conducted there. Drop in the mobility and movement of people but an increase in the economic output in Germany can be explained by the fact that people continued to work in the home office regime even after being locked up, which cannot be said about people who work in more rural and less

economically developed regions that mostly rely on agriculture, industry or primary service such as entertainment or tourism because under the circumstances of complete lockdown, almost all economic activities are impossible.

According to the series of interviews conducted by the author, it can be suggested based on responses collected from four different participants that the pandemic took a serious toll on everyone and when it comes to particular individuals, it was a strong emotional shock that almost prompted the final participant from Berlin to consider returning to her hometown of Ratingen, according to herself. At the same time, it is wise to highlight that the pandemic created a foundation for people to return to their hometowns, as the net migration of Thuringia, an example of a small region improved significantly, while the situation of Berlin's net migration worsened. In addition to the descriptive analysis, the conversations that the author had with participants during the series of semi-structured interviews also underpin the fact that some people in fact had to go back due to the series of financial difficulties. However, as the author's analysis revealed it alongside with the series of semi-structured interviews, as the time went on, people were able to return to normality and for some of them, it was even possible to return to their previous job thus avoiding a high share of uncertainty and ambiguity related to the future.

Nevertheless, even despite facing the problem, the third participant seems to admit the fact that the government did a good job of protecting ordinary people. Henceforth, it is possible to say that over time, people start to really appreciate what the German government did even despite causing them a significant number of troubles. Finally, it is wise to say that in terms of movement and transportation, the worst hit was taken by air transportation and railway transportation, while not much has changed for other means of transport. In addition to this, it is wise to conclude another crucial point about regional development of Germany – the pandemic accelerated migration of Germans from the West to the East with the gap between the two rising even more in 2020.

6 Conclusion

The goal of this bachelor thesis was to understand the influence of the global pandemic as well as economic and social impacts on Germany. The author has managed to come to the series of fundamental conclusions regarding the effect of the pandemic based on the example of two selected regions – Berlin and Thuringia, where the first one was an example of an urban one and an economically advanced, while the second one was an example of a rural and less economically advanced one. Consequently, the author suggests that the situation for rural and less economically active regions improved after the pandemic. This is explained by the increase in the migration of people back to their home cities after the series of economic shocks that badly hit the economic centers of the country.

In addition to that, it is also wise to say that the effect of the pandemic on individuals was also dramatic and for some cases, it is possible to say that the pandemic put people in the situations with a high degree of uncertainty, which caused a fair amount of psychological and moral disturbance. At the same time, the author also suggests that despite the confirmed fact that the pandemic took a serious toll on the domestic population of Germany, the country was able to quickly recover and continue to the economic expansion once again.

The author suggests that in the case of a new pandemic, the country and also the society will be able to handle the crisis better due to their long-lasting experience with the recent pandemic of coronavirus, that significantly contributed to people's flexibility and stress resistance.

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8 Appendix

8.1 Thuringia Interviews

8.1.1 First Participant

1. What is your name?
 - Hans.
2. What is your age?
 - 42.
3. Are you native to your region?
 - Yes.
4. Did you have a job prior to the pandemic?
 - Yes, but I unfortunately lost it right after the first restrictions were imposed – I worked as a manager of a small restaurant.
5. Where do you work now?
 - As the restrictions were lifted, I returned to work in the same restaurant.
6. Were there many acquaintances of yours who were in the same situation?
 - I think that the majority of my friends who worked in the hospitality and similar industries faced this problem.
7. Do you find the situation in your region to be worse than in other regions during the pandemic when it comes to the economic aspects?
 - I think that in some aspects we were worse, while in others we managed better.
8. Can you specify some examples?
 - I think that in terms of the output and jobs, we lost a lot due to the fact that we do not really have any IT businesses here and we focus mainly on those jobs that involve human interaction.
9. So, according to you, the leading regions of Germany were hit less than smaller ones like yours?
 - Yes and no, I think that we experienced a slightly different degree of problems, while bigger cities faced a serious problem with the number of tourists and generally economic activity dropped, but they were able to shift to online. How can a manager like me shift to online? The idea of my work fully loses its sense.
10. Was there any wave of people coming from big cities to the region?

- I do not personally know anyone doing so, but I heard that a lot of people lost their jobs in bigger cities and had to come back to the places where everything began until the pandemic ended.
11. After the pandemic finished, did the situation got better for the region?
 - I think that it just returned to normality, nothing specific did not really happen with our lives but we are happy that we can work without being restricted to anything.
 12. Did you consider the idea of changing the region after the pandemic?
 - No.
 13. Can you, please, specify why?
 - Because I would have probably faced the same situation with my job everywhere in Germany, my friends from other regions also lost it but eventually claimed it back right after the pandemic finished.
 14. Were they from a small region?
 - No, they are from Bavaria but from a small town near Munich – the pandemic hit us all badly.
 15. So finally, according to you, you suggest that smaller rural regions were hit worse by the pandemic than the urban ones?
 - Yes, but only because of the specialization and the power of remote work, a lot of people from urban regions also lost their jobs – it is more a question of industries rather than regions.
 16. Has the economic situation of the region improved after the pandemic or not?
 - I think it is more or less the same.

8.1.2 Second Participant

1. What is your name?
 - Eva.
2. What is your age?
 - 37.
3. Are you native to your region?
 - No, but I live here with my husband for more than 10 years.
4. Where are you originally from?

- I was born in Hamburg.
5. Did you have a job prior to the pandemic?
 - I have been working as a sales-support for the last 8 years of my life, so I still have the same job even after the pandemic as I had it before it.
 6. Did you face any difficulty in relation to your work during the pandemic?
 - Not really, I just had to create a special kind of office for me at home, but there is not much difference between the actual office and the cabinet which I created for myself at home.
 7. Were there any layoffs in your organization during the pandemic? Or everyone was transferred to the home office?
 - Specialists like me were transferred to the home office, while some employees from the operational levels such as cleaners and similar staff were receiving compensation as well.
 8. Do you have any relatives in Hamburg or have you been to the region during the pandemic?
 - Yes, I have relatives but unfortunately I have not been there for 4 years already.
 9. Based on your conversations with them, where do you think the effect of the pandemic was worth – in Hamburg or in your city?
 - In Hamburg because the specialization of the region is trade and international logistics, which was almost entirely disrupted during the pandemic. We are mostly an industrial region and we also faced difficulties, but it is incomparable with the situation in Hamburg during the pandemic.
 10. Did you notice any specific change in tendencies, such as migration in the region?
 - I think that after the pandemic, we received more people and the region became slightly more alive.
 11. What do you think is the reason for that?
 - I think that one of the main reasons is the fact that our region is relatively peaceful and it might have attracted people who were afraid of the virus itself, since in this rural area, it is much safer, I believe.
 12. Did you consider the idea of changing the region after the pandemic?
 - No.
 13. Do you have any acquaintances who moved to other regions during the pandemic or after the pandemic?

- I have a few acquaintances who changed their country, but I do not really know anyone who would purposefully change one region for another.
14. What do you think is the reason for that?
- I think that one of the main reasons is the fact that there is really no difference in the damage of the pandemic after all. Yes, some were hit worse, such as Hamburg but everyone knew that the situation would improve, and everything will return to normality – we had this feeling.
15. Has the economic situation of the region improved after the pandemic or not?
- To some extent, yes, but I think it is just related to the economic cycle of the country.

8.2 Berlin Interviews

8.2.1 First Participant

1. What is your name?
 - Karl.
2. What is your age?
 - 29.
3. Are you native to your region?
 - Yes, I was born here, but I spent couple of years studying away.
4. Where were you studying?
 - In England, Coventry.
5. Did you have a job prior to the pandemic?
 - Yes, I was working in logistics, but I switched to finance.
6. Was this switch in the specialization related to the pandemic?
 - Yes and no, I thought to myself that I want to change something and especially during the pandemic, logistics was not the best industry to work in.
7. Were there many people who lost their jobs from logistics industry?
 - Not lost, but our pay sometimes depends on the amount of job that we do. Unfortunately, we were not really working much back then, so some of us tried to find a better job.
8. Was it hard to find a new one?

- I had connections in the finance department, so it was not really hard, but some of my colleagues did not succeed in it.
9. What did your colleagues who did not find a job do?
 - Some of them were jobless during the pandemic and a part of them were not doing anything, while the other part went back home to their smaller town.
 10. Do you believe that many people left the big city and returned home?
 - Not many but those who did not have an apartment – it is just hard to pay the rent.
 11. Did you consider the idea of changing the region after the pandemic?
 - Not really, I am native to this region.
 12. Were many firms practicing remote office?
 - In Berlin, yes, but sometimes even for IT and other companies it was complicated, because it is really hard to control the process.
 13. Has the economic situation of the region improved after the pandemic or not?
 - I think it is on the same level now after the recovery.

8.2.2 Second Participant

1. What is your name?
 - Ella.
2. What is your age?
 - 23.
3. Are you native to your region?
 - No, I moved here to study.
4. Have you spent the pandemic in Berlin?
 - A part of the pandemic, yes, but I moved shortly back to my hometown during the winter semester of 2020/2021, because we were allowed to study online.
5. What is your hometown?
 - Ratingen.
6. Is your situation with temporary return to Ratingen related to financial difficulties during the pandemic?
 - Not really, I have not worked anywhere – I was just studying, and I could study online for a couple of months and spend them with my family.
7. Have you tried to find a job?

- I was searching before the pandemic, but as soon as pandemic came in, there were really no options left for me.
8. Do you consider the situation with unemployment in Berlin during the pandemic as critical?
 - Not critical, but it created difficulties for people, yes.
 9. Do you know anybody who has lost his or her job during the pandemic?
 - A couple of my friends but most of them worked in a restaurant, so it is pretty understandable why they lost it.
 10. Do you think that the situation improved or worsened after the pandemic for Berlin?
 - I think it is worsened because the economy had to recover for a really long time.
 11. Was the situation better in your home city better when it comes to the economic aspect?
 - I think it was the same everywhere, if we will start to compare the effect on the pandemic, just some regions were able to recover more quickly than others.
 12. Did you consider the idea of moving back home or anywhere else after the pandemic?
 - Yes because it was rather hard to cope with all problems and also with the series of ongoing restrictions.
 13. Do you want to change your residence now?
 - Not really, I found a job and I think that I will be able to make my living in Berlin.
 14. Is the economic situation now better than it was prior to the pandemic in Berlin?
 - I think that it is the same as it was in 2019.

8.3 Tables

Table 12, unemployment dataset

Date	Quarter	Unemployment, %
2000-01-01	Q1	10.133333333333300
2000-04-01	Q2	9.533333333333330
2000-07-01	Q3	9.466666666666670
2000-10-01	Q4	9.333333333333340
2001-01-01	Q1	9.300000000000000
2001-04-01	Q2	9.266666666666670
2001-07-01	Q3	9.333333333333340

2001-10-01	Q4	9.566666666666670
2002-01-01	Q1	9.600000000000000
2002-04-01	Q2	9.666666666666660
2002-07-01	Q3	9.833333333333340
2002-10-01	Q4	10.100000000000000
2003-01-01	Q1	10.466666666666700
2003-04-01	Q2	10.600000000000000
2003-07-01	Q3	10.533333333333300
2003-10-01	Q4	10.500000000000000
2004-01-01	Q1	10.333333333333300
2004-04-01	Q2	10.466666666666700
2004-07-01	Q3	10.633333333333300
2004-10-01	Q4	10.800000000000000
2005-01-01	Q1	11.866666666666700
2005-04-01	Q2	11.866666666666700
2005-07-01	Q3	11.666666666666700
2005-10-01	Q4	11.433333333333300
2006-01-01	Q1	11.400000000000000
2006-04-01	Q2	11.000000000000000
2006-07-01	Q3	10.533333333333300
2006-10-01	Q4	10.066666666666700
2007-01-01	Q1	9.466666666666670
2007-04-01	Q2	9.100000000000000
2007-07-01	Q3	8.800000000000000
2007-10-01	Q4	8.500000000000000
2008-01-01	Q1	8.033333333333330
2008-04-01	Q2	7.833333333333330
2008-07-01	Q3	7.633333333333330
2008-10-01	Q4	7.633333333333330
2009-01-01	Q1	7.933333333333330
2009-04-01	Q2	8.266666666666670
2009-07-01	Q3	8.233333333333330
2009-10-01	Q4	8.100000000000000
2010-01-01	Q1	8.000000000000000
2010-04-01	Q2	7.733333333333330
2010-07-01	Q3	7.566666666666670
2010-10-01	Q4	7.400000000000000
2011-01-01	Q1	7.300000000000000
2011-04-01	Q2	7.066666666666670
2011-07-01	Q3	6.966666666666670
2011-10-01	Q4	6.833333333333330

2012-01-01	Q1	6.800000000000000
2012-04-01	Q2	6.833333333333333
2012-07-01	Q3	6.800000000000000
2012-10-01	Q4	6.833333333333333
2013-01-01	Q1	6.900000000000000
2013-04-01	Q2	6.900000000000000
2013-07-01	Q3	6.800000000000000
2013-10-01	Q4	6.833333333333333
2014-01-01	Q1	6.800000000000000
2014-04-01	Q2	6.700000000000000
2014-07-01	Q3	6.700000000000000
2014-10-01	Q4	6.566666666666670
2015-01-01	Q1	6.500000000000000
2015-04-01	Q2	6.433333333333333
2015-07-01	Q3	6.333333333333333
2015-10-01	Q4	6.300000000000000
2016-01-01	Q1	6.200000000000000
2016-04-01	Q2	6.133333333333333
2016-07-01	Q3	6.033333333333333
2016-10-01	Q4	6.000000000000000
2017-01-01	Q1	5.866666666666670
2017-04-01	Q2	5.733333333333333
2017-07-01	Q3	5.633333333333333
2017-10-01	Q4	5.533333333333333
2018-01-01	Q1	5.366666666666670
2018-04-01	Q2	5.233333333333333
2018-07-01	Q3	5.133333333333333
2018-10-01	Q4	5.033333333333333
2019-01-01	Q1	5.000000000000000
2019-04-01	Q2	4.966666666666670
2019-07-01	Q3	5.000000000000000
2019-10-01	Q4	5.000000000000000
2020-01-01	Q1	5.000000000000000
2020-04-01	Q2	6.133333333333333
2020-07-01	Q3	6.333333333333333
2020-10-01	Q4	6.133333333333333
2021-01-01	Q1	6.000000000000000
2021-04-01	Q2	5.966666666666670
2021-07-01	Q3	5.500000000000000
2021-10-01	Q4	5.266666666666670
2022-01-01	Q1	5.066666666666670

2022-04-01	Q2	5.1000000000000000
2022-07-01	Q3	5.4666666666666670
2022-10-01	Q4	5.5000000000000000

Source: German Statistical Office, 2022

Table 13, unemployment by region

Year	Thurginia	Berlin	Germany
2000	13.4	15.8	10.7
2001	13.8	16.1	10.3
2002	14.9	16.9	10.8
2003	15.9	18.1	11.6
2004	16	17.7	11.7
2005	16.5	19	13
2006	14.5	17.5	12
2007	11.7	15.5	10.1
2008	10.2	13.8	8.7
2009	11.2	14	9.1
2010	9.9	13.6	8.6
2011	8.7	13.3	7.9
2012	8.5	12.3	7.6
2013	8.3	11.7	7.7
2014	7.8	11.1	7.5
2015	7.5	10.7	7.1
2016	7	9.8	6.8
2017	6.3	9	6.3
2018	5.8	8.1	5.8
2019	5.6	7.8	5.5
2020	6.4	9.7	6.5
2021	5.9	9.8	6.3

2022	5.5	8.8	5.8
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Source: German Statistical Office, 2022

Table 14, domestic migration – East and West

Year	East to West	West to East
1991	229.21	63.82
1992	175.868	85.531
1993	142.952	87.373
1994	129.935	95.441
1995	129.948	98.056
1996	125.546	100.617
1997	124.885	96.683
1998	136.067	89.802
1999	148.648	90.514
2000	168.167	92.216
2001	191.979	94.414
2002	176.703	95.876
2003	155.387	97.035
2004	146.352	94.677
2005	137.188	88.212
2006	135.979	81.835
2007	138.133	83.328
2008	136.543	85.536
2009	120.457	88.142
2010	110.956	87.377
2011	113.465	91.879
2012	105.633	90.731
2013	101.506	91.009
2014	97.045	93.719
2015	99.66	94.856
2016	114.019	99.082
2017	89.418	93.415
2018	89.08	89.732
2019	90.165	91.211
2020	82.914	89.004
2021	85.1	90.656

Source: German Statistical Office, 2022

Table 15, domestic migration – Thuringia and Berlin

Year	Thurginia	Berlin
2000	-11601	-5820
2001	-14829	-701
2002	-12569	-1050
2003	-10844	-7043
2004	-10246	-9133
2005	-12000	-4328
2006	-13780	1955
2007	-13332	7377
2008	-11853	12958
2009	-8700	18353
2010	-7544	17990
2011	-6936	15341
2012	-6516	12134
2013	-5878	8068
2014	-5656	2672
2015	-5693	-4628
2016	-7724	7891
2017	-4021	-3013
2018	-3871	-8436
2019	-3773	-3871
2020	-3498	-19229
2021	-2249	-9241
Average	-	-
	8323.31818	1283.90909

Source: German Statistical Office, 2022