SCHOOL OF ECONOMICS AND MANAGEMENT

Bachelor's Programme in Economy and Society

Mind the Gap - From Divide to Prosperity

A Comparative Study on Economic Growth and Income Inequality in the European Union between 1991-2019

by

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Abstract

This thesis investigates the relationship between economic growth and income inequality in the European Union from 1991 to 2019, alongside examining the impact of EU membership on income inequality in Eastern European nations. The theoretical basis of the research is the Kuznets theory, and the study will utilise data from the World Bank's World Development Indicators and employ a graphical method alongside a regression analysis. The findings reveal a negative relationship between the two variables for the Eastern European countries, the presence of a Kuznets curve in many of the sample nations, and a positive impact of EU membership on income inequality in Eastern European countries. Overall, the thesis deepens our understanding of income inequality dynamics and their drivers in the EU context.

EOSK12

Bachelor Thesis (15 credits ECTS)

June 2023

Supervisor: Viktor Malein

Examiner: Håkan Lobell

Key Words: *Economic Growth, Income Inequality, European Union, Eastern Europe, EU Membership*

Word Count: 11,509

Acknowledgements

I would like to express my gratitude to the individuals who have played a crucial role in the completion of this thesis:

First and foremost, I am highly grateful to my supervisor, Viktor Malein. His support and guidance have been of great value to me. His dedication to my thesis and passion for the subject have significantly influenced the direction and quality of this work. I would also like to extend my appreciation to the course convener for the thesis writing, Erik Green. His sharing of knowledge and expertise has been crucial in shaping my understanding and skills in this area. Additionally, I am grateful to Faustine Perrin, who provided valuable feedback on my research proposal during the methodology course. I would further like to acknowledge the support and assistance I have received from my fellow classmates. Lastly, I want to express my gratitude to my mother, for always being my dedicated proofreader. I am incredibly grateful for her commitment in carefully reviewing my work and helping ensure its quality and clarity.

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1. Introduction

1.1 Introductory Remarks

Economic growth and income inequality have been a widely discussed topic in economics for decades, with numerous studies examining this complex relationship. While economic growth can help combat poverty, it also risks resulting in wage inequality if the benefits of growth are not equally distributed (Milanovic, 2016). In recent years, concerns regarding excessive levels of income inequality in the European Union (henceforth EU) have come to the surface (European Commission, n.d.a). This issue holds great significance as it can hinder development and growth through a variety of means (Milanovic, 2016).

In this thesis I aim to offer a comprehensive analysis of the interplay between income inequality and economic growth in the Eastern EU countries and the core EU countries. To achieve this goal, I will employ both descriptive and econometric techniques to provide a detailed depiction of the dynamics involved. In particular, I use data from the World Bank's World Development Indicators and use a quantitative method which allows me to uncover the relationship between economic growth and income inequality. In general, my results show a negative relationship between the two variables in the Eastern EU nations and a positive, but declining relationship for the core nations.

1.2 Background

The term *EU core countries* refers to the countries that are considered the most economically and politically influential members of the EU. The exact definition of which countries are included in this group can vary depending on the context, and this paper will follow the index by Helen Caraveli in her study from 2016, where the core countries are Luxembourg, Austria, Ireland, Netherlands, Sweden, Denmark, Germany, Belgium, Finland, France, Italy and Spain. The Eastern EU countries include Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia (European Commission, n.d.b).

The EU is a cooperation between 27 European states and is regulated by a number of treaties, whereof the first one came into force in 1952 and concerned cooperation in the field of coal and steel (Nationalencyklopedin, n.d.). The cooperation has since been broadened and deepened in several treaties, including agricultural policy, trade policy and security policy (Nationalencyklopedin, n.d.). As explained by Beckfield (2006), the creation of the European Economic Community (EEC) in 1957 with six nations, its growth and evolution into the 15-member EU by 1995, and its subsequent expansion to 25 nations in 2004, represent a significant and extensive development in the global political economy. This development involved over 375 million individuals and is, according to Beckfield, reorganising the society, culture, economy and politics of the advanced capitalist nations in Western Europe.

As presented by Malerba and Spreafico (2014) along with Heidenreich and Wunder (2008), the EU became more heterogeneous after the enlargement in 2004 with the entries of Cyprus, Estonia, Lithuania, Latvia, Malta, Poland, Slovakia, Slovenia, Czech Republic and Hungary (European Commission, n.d.b) and 2007 (Bulgaria and Romania (European Commission, n.d.b)). The heterogeneity is due to the lower levels of economic development along with weaker institutional capacities of the new member states (Malerba & Spreafico, 2014; Heidenreich & Wunder, 2008). When these former socialist countries (all nations mentioned above except for Malta and Cyprus) belonged to the socialist bloc they were characterised by state ownership of industry, centralised planning and a lack of market mechanisms, meaning they were dependent on the Soviet Union for trade and economic support (Berend, 2009). Berend (2009) emphasises that the collapse of the Soviet Union in 1991 thus posed great economic challenges for these countries, as they had to undertake the challenge of transitioning to market economies and establishing new trade relationships.

However, the EU played a significant role in supporting this transition process and offered financial aid along with support for economic reforms (Berend, 2009). Since 1991, the EU's relationship with the former socialist countries has been governed by the "Europe Agreements", which established a zone of free trade between the EU and ten of these countries as well as acted as a precursor to the eventual enlargement of the EU (Heidenreich & Wunder, 2008). Heidenreich and Wunder (2008) highlight that this development has had a significant impact on the economic, social and political landscape of Europe, as well as on global affairs. The former socialist nations that successfully transitioned to market economies and implemented necessary reforms were eventually able to join the EU, which offered them

access to a larger market and increased economic opportunities (Berend, 2009). But even after this, these countries faced economic and political challenges as they worked towards further integration with the rest of Europe. Some countries, for example Hungary and Poland, were able to successfully integrate and experience notable economic growth, while others, such as Bulgaria and Romania, faced ongoing challenges (Berend, 2009).

Malerba and Spreafico (2014) argue that these discrepancies between member states are linked to the EU's objectives of improving living standards and quality of life for all citizens, along with advancing economic and social unity across the union. These goals were initially highlighted in the Lisbon Agenda devised in 2000, and have since been reaffirmed, together with their corresponding strategies, in the Europe 2020 program created in 2010 (Malerba & Spreafico, 2014; European Parliament, n.d.). The EU has undertaken a long-standing commitment to closely monitor and address the issue of income inequality across all of its member states (Malerba & Spreafico, 2014; Van Stolk, Hoorens, Brutscher, Hunt, Tsang & Janta, 2011). In addition, Heidenreich and Wunder (2008) note that the EU is slowly becoming a more uniform economic, legal, and political domain that supports social and economic unity throughout Europe, and the economic disparities between Eastern and Western Europe are slowly decreasing. The scholars consequently highlight that an important question regarding the future of the EU is how inequalities in the EU have developed over the years after the reunification of Eastern and Western Europe, following the fall of the Soviet Union (Heidenreich and Wunder, 2008).

Atanasova and Tsvetkov (2021) also explain how income inequality in Europe has vastly increased since the mid-1980s, and that the new country entries are not the sole reason for this, since this inequality has also risen within many of the core countries. While there has been a decrease in income inequality between European countries, significant differences still exist, and within-country income inequality has increased since 1980, albeit at a slower pace since the Great Recession of 2008 (Morgan & Neef, 2020). Despite regressive tendencies emerging in both Eastern and Western European countries over the past decade, Western European nations still outperform their Eastern counterparts in terms of redistributive outcomes (Morgan & Neef, 2020). In addition to this, Van Stolk et al. (2011) highlight that numerous groups in certain EU member states are still at a considerable risk of poverty, including women, elderly, single-parent families and households without employment. For

this reason, this study is highly relevant and of great importance to both policymakers and economists.

1.3 Aim and Scope

The primary objective of this study is to examine the relationship between economic growth and income inequality in the Eastern EU countries in contrast to the core EU countries, between the years 1991 and 2019. The year 1991 is chosen as it marked the fall of the Soviet Union, consequently reunifying Eastern and Western Europe, as discussed in part 1.2. The study will end with year 2019 in order to omit the risk of faulty results due to COVID-19. A significant part of this research will be to analyse the trends in economic growth and wage gaps in the EU over the past few decades. Additionally, the factors contributing to the income inequalities in the EU will be explored along with the impact of economic growth on income inequality. Moreover, the study will analyse the impact of EU membership on income inequality in the Eastern European nations.

The research question therefore goes as following:

1.4 Research Question

Research question: *How has economic growth affected income inequality in the Eastern EU countries compared to the core EU countries from 1991 to 2019?*

Sub-question: *How has the role of integration, specifically EU membership, impacted income inequality for the Eastern EU countries?*

1.5 Outline of the Thesis

The paper is organised as follows: Section 2 explains the theoretical basis for the study, alongside discussing other growth theories. Section 3 is a literature review, presenting different factors affecting growth and inequality. Section 4 describes the data, methodology and limitations. Section 5 presents the results obtained and thereafter contains a discussion regarding the findings. Section 6 offers some concluding remarks and the last section contains the reference list.

2. Theoretical Framework

2.1 The Kuznets Curve

2.1.1 The Kuznets Curve - A Theoretical Basis for Examining the Relationship between Income Inequality and Economic Growth

There is a large body of relevant literature regarding the relationship between income inequality and economic growth. The topic is found globally and throughout history, and there are various aspects and theories to be considered. The widely debated theory of the Kuznets curve created by economist Simon Kuznets (1955) is an important model to take into account, and the theoretical basis for this study. The theory is a graphical representation of the relationship between income inequality and economic growth. It suggests that income inequality initially increases as a country develops, reaches a peak, and then decreases as it becomes more developed (Kuznets, 1955). According to the Kuznets curve, income inequality is high during the early stages of economic growth because of differences in skill levels and access to e.g. education and capital. However, as countries develop, income inequality decreases as the economy becomes more diversified, and individuals have more opportunities to access education and improve their skills (Kuznets, 1955). While this theory has been criticised for oversimplifying a relationship many scholars consider more complex, it remains a useful framework for understanding the dynamics of income inequality and can provide an overview of the relationship between the two variables.

2.1.2 Challenges for the Kuznets Theory

Nonetheless, Kuştepeli (2006) examines the relation between income inequality and growth in the enlarged EU through employing fixed-effects panel regressions, and finds that there is no evidence of a Kuznets curve for any of the EU countries in his study. Many earlier studies have provided certain evidence in support of the Kuznets theory, but the evidence is not consistent across different countries and time periods (Chang & Ram, 2000; Barro, 2000; Bowman, 1997; Randolph & Lott, 1993). For example, Barro (2000), highlights in his study using evidence from a broad panel of countries, that the relationship between inequality and growth is complex and context-dependent, and that there is some empirical support for the Kuznets curve, but that the pattern does not explain most of the differences in inequality that

we see. Moreover, Bowman (1997) underlines that in some cases, economic growth results in a rise in inequality, but in others, inequality remains stable or even decreases, and both he and Randolph and Lott (1993) conclude that policymakers cannot rely on the Kuznets hypothesis in order to reduce inequality.

Additionally, in a study by Milanovic (2016), a new framework is presented to analyse global income inequality, investigating the patterns and drivers of wage disparities across countries and regions. This research presents a challenge to the Kuznets theory by pointing out recent increases in income inequality in the rich world that contradict the hypothesis. Milanovic moreover states that inequality appears during periods of strong economic growth, and provides examples such as the first industrial revolution, along with the economic boom after the 1980s that was driven by technological breakthroughs. The author further explains that global inequality decreased after the 1930s, in between these two booms. This was due to a slight race between education and technological advancements, with technology eventually surpassing education (Milanovic, 2016). As a result, skill-biassed technology emerged, which favours skilled labour over unskilled labour and leads to increased income disparities (Milanovic, 2016).

2.2 Alternative Growth Theories

2.2.1 Technological Advancements, Human Capital Investments, Credit Market Imperfections and Financial Deepening

Galor and Moav (2000) are of a similar opinion as Milanovic in their article, wherein they develop a growth model which predicts that technological advancements favouring high-skill workers lead to a rise in income inequality. In other words, as new technology is introduced that requires higher levels of education and skills, the wages of the individuals with those skills will increase relative to the ones without them (Galor & Moav, 2000). The authors further find that this increase in inequality might have a negative impact on economic growth, since it reduces incentives for the individuals without the necessary skills to invest in education and training. They however highlight that there are policy solutions to mitigate these negative effects of technological advancements on income inequality and economic growth, such as investing in education and skill development along with progressive taxation and minimum wage laws.

Galor and Zeira (1993) strengthen this argument in their paper investigating the relationship between income distribution and growth. Utilising mathematical equations along with data from various countries, the paper highlights the importance of human capital investments. The authors develop a theoretical model in which individuals live for two periods; in the first period, they can either invest in education, or work as unskilled. In the second period, they work as skilled or unskilled based on their education, they consume and then they leave inheritances. The authors explain that the distribution of wealth determines investment levels, labour and output, as well as the long-run distribution of income and wealth. Rich dynasties invest in education and leave larger bequests, whereas poor dynasties work as unskilled and leave less to their children (Galor & Zeira, 1993). The initial distribution of wealth affects the long-run equilibrium in the economy, making wealth distribution significant in both short and long-term (Galor & Zeira, 1993).

However, instead of placing the blame on technological change for economic differences, Galor and Zeira (1993) suggest that credit market imperfections lead to differences in human capital investments. The economists find that richer economies tend to have a more equal distribution of income and smaller wage differences, as nations with more developed financial systems often have milder credit market imperfections. Economies with imperfect credit markets can lead to lower levels of investment, innovation and productivity growth, ultimately affecting economic growth and equality negatively (Galor & Zeira, 1993). This theory suggests a sort of self-reinforcing process, as when an economy becomes richer and more technologically advanced, the demand for skilled workers increases, resulting in a rise in the wages of skilled workers. At the same time, investment in education also increases, leading to a rise in the supply of skilled workers, which thus results in a more equal distribution of income (Galor & Zeira, 1993), demonstrating the causality of the relationship between inequality and growth . Moreover, similar to both Milanovic (2016) and Galor and Moav (2000), Galor and Zeira (1993) suggest policies aimed at reducing income inequality and promoting inclusive economic growth.

Townsend and Ueda (2006) also highlight the importance of policies aimed at reducing inequality. Using a quantitative model, they explore the relationship between inequality, growth and financial deepening (i.e. the increase in the availability and use of financial services in an economy). The authors find that financial deepening can lead to higher

economic growth but increase income inequality as those who are already wealthy may have greater access to financial services and investment opportunities. However, with the help of targeted social welfare programs and progressive taxation, these negative effects of financial deepening on inequality can be mitigated (Townsend and Ueda, 2006). This is further supported by Papanek and Kyn (1986), arguing that the distribution of income is affected by the economic strategies and policies that countries pursue. They moreover suggest that economic growth does not have to increase inequality if the right policies are implemented.

2.2.2 The Effects of Income Inequality on Economic Growth

Another factor to take into account is whether income inequality always is something bad, or if it is necessary for development and a prospering economy. As explained by Van Stolk et al. (2011), certain inequality can be necessary to have incentives to perform, work hard and challenge ourselves, something pivotal for economic growth. However, the authors underline that sustained inequality limits social mobility - the ability of individuals to move up or down the ladder over time - and results in stagnation. This is strengthened by Malerba and Spreafico (2014), who found in their study that there is a negative relationship between both inequality and equality of opportunities, as well as inequality and social mobility, consequently hindering intergenerational mobility. Furthermore, Cingano (2014) explains that income inequality negatively impacts growth and that it is imperative to reduce inequality in order to achieve sustainable economic growth. According to his calculations, the OECD countries with decreasing income inequality grow faster. Both Milanovic (2016), Heidenreich and Wunder (2008) and Van Stolk et al. (2011) support this argument by explaining how it is not just the poor who are negatively affected by income inequality, but everyone, due to the negative externalities and spill-over effects. Rising inequality often results in political and social unrest which can catalyse destructive forces such as wars or revolutions (Milanovic, 2016). These events ultimately contribute to reducing inequality, but cause devastation and upheaval in the process (Milanovic, 2016). Moreover, Milanovic (2016) provides the example of how the reduction in inequality before the 1980s coincided with a huge rise in average incomes in all countries studied, proving that rising inequality is not essential for growth.

Concluding, while some degree of income inequality may provide incentives for economic growth, sustained and increasing inequality can result in numerous adverse consequences for

society. Therefore, reducing inequality is crucial for promoting sustainable economic growth and a thriving society. Although the relationship between income inequality and economic growth is a complex and debated topic with many different theories, most scholars concur on the importance of human capital investments.

3. Empirical Studies

3.1 The Impact of Growth Factors on Income Inequality in the EU

3.1.1 Structural Determinants of Income Inequality in the EU

Numerous scholars have investigated the impact of various aspects of growth on income inequality, but the findings have been inconsistent and inconclusive. An example of this is a book chapter by Van Stolk et al. (2011) investigating income inequality in the EU through using different inequality indicators. The study finds that when examining the correlation with income inequality, there are two main categories typically considered; changes impacting labour supply (e.g. immigration, education, female workforce participation) and changes impacting labour demand (technological advancements, increased international trade, outsourcing and changes to taxation and labour market institutions). For 13 member states in the EU in the year 2000, the main factors linked to wage inequality were returns to education (differences in wages depending on education levels), tax structures and centralisation (Van Stolk et al. 2011). According to the authors, the connection between these factors and income inequality reflects differences in the social models of member states, with social institutions such as the welfare state playing a significant role in upward social mobility and job polarisation.

Malerba and Spreafico (2014) employ a panel dataset spanning fifteen years (1995-2015) across 25 countries to determine the impact of various structural determinants on household income inequality in the EU. This paper concludes that households with children, the proportion of homeowners with outstanding mortgages, social mobility and labour market institutions constitute the principal structural determinants of income inequality in the EU. Additionally, economic growth and social spending have a significant influence on wage inequality (Malerba and Spreafico, 2014). Moreover, the article highlights the importance of education when it comes to income inequality. The paper concludes that a 1 per cent increase

in the proportion of the population with tertiary education results in a 0.43 reduction in the Gini coefficient, which is a measure of income inequality ranging from 0 to 1, with higher values implying higher inequality. The study additionally found that higher levels of unionisation and collective bargaining coverage are associated with lower levels of income inequality, highlighting the importance of labour market institutions. Malerba and Spreafico (2014) moreover discovered that economic growth can worsen income inequality via individual earnings dispersion between sectors of the economy, and especially on the extremes of the distribution.

Heidenreich and Wunder (2008) who utilise quantitative methods in order to investigate patterns of regional inequality in Europe, discuss four different scenarios or theories regarding social inequality in Europe. The first scenario is based on the Kuznets curve, predicting low inequality in the beginning of industrialisation, an increase during industrialisation and eventually a decrease. The second scenario discusses the rise in income inequalities observed in many countries since the 1980s, explained by the globalised economies and economic integration resulting in new opportunities and risks, leading to increasingly diversified life chances. The third scenario explores the increase of between-nation income inequalities in Europe, as former national barriers to market entry have been increasingly undermined by the liberalisation of goods, services, capital and labour markets, which could lead to greater differences in the European economies and increase inequalities. The fourth scenario challenges the assumption that the EU is a completely open space and argues that it is a relatively closed field, contributing to the reduction of income inequalities in the union through coordinating and harmonising national social and employment policies and increasing regional integration. This analysis by Heidenreich and Wunder (2008) reveals the multi-faceted nature of inequality in Europe, which requires a nuanced and comprehensive approach to address effectively. Thus, there seems to be a lack of a clear answer as to concretely how the economic growth has affected income inequality in the EU.

3.1.2 The Impact of Globalisation on Income Inequality

Many scholars highlight the effects of globalisation on income inequality, but the results are inconclusive. Lee (2006) examines whether globalisation results in income inequality through analysing data on wage disparities, trade and foreign direct investment (FDI) from the EU

and OECD. The scholar concludes that globalisation has led to an increased income inequality both between and within EU countries. He notes that while globalisation has led to economic benefits like integration and growth, it has also caused an increase in income inequality. Furthermore, the majority of the EU's founding member nations have already undergone trade and investment liberalisation as a result of globalisation (Lee, 2006). Yet, Atanasova and Tsvetkov (2021) did an econometric, comparative analysis regarding the effect of globalisation in European countries and concluded that globalisation does not have an impact on income inequality. Instead, it has a positive effect on the gross domestic product (GDP) of developing countries while not affecting that of developed nations. The GDP of developing nations does not affect wage inequality, while in developed countries, it has a slight positive effect (Atanasova & Tsvetkov, 2021).

However, Beckfield (2006), who conducted an empirical analysis using a panel of data from 25 EU countries over a 15-year period to understand the factors affecting income distribution in the EU, holds a contrasting opinion. This scholar posits the idea that globalisation increases income inequality through weakening labour by creating an international labour pool, thus increasing wage inequalities. Lee (2006) moreover explains that globalisation is often measured through trade and FDI, and found that FDI has a negative impact on income inequality. The reason for this is the potential of FDI to favour skilled workers and create high-income jobs as firms invest in high-skill jobs in developed countries while outsourcing low-skill jobs to developing countries, resulting in job polarisation (Lee, 2006). Wood (2000) finds similar results, concluding that globalisation has caused an increase in income inequality in developed countries through weakening the bargaining power of workers and increasing the demand for skilled labour. Regarding developing nations, globalisation increases these inequalities as well, especially between skilled and unskilled workers (Wood, 2000).

Further, Lee (2006) illuminates the part of globalisation which is trade liberalisation, and its contribution to wage inequalities through replacing workers in low-skill jobs with cheaper imports from developing nations. However, Van Stolk et al. (2011) argue that the lowering of trade barriers has a positive impact on the poor rather than the rich, resulting in a decrease in income disparities. The authors explain that this is due to the fact that trade liberalisation benefits low-income sectors, such as the rural economy, more than other industries. Additionally, it leads to a decrease in import costs, increasing the purchasing power of

low-income groups (Van Stolk et al., 2011). Atanasova and Tsvetkov (2021) concur with this and observe that a country's economy becoming more integrated into international trade results in a decrease in domestic inequality. Moreover, the scholars find that economic growth leads to an increase in international trade, further reducing inequality and boosting growth. Yet, Heidenreich and Wunder (2008) obtained the results that the economic liberalisation of the EU, such as removing trade barriers and reducing welfare programs, is challenging the ability of governments to provide social support and share resources among their citizens, causing increased regional inequalities in especially the former socialist countries. On the other hand, the EU has managed to create a more unified political, social and economic space, which has helped reduce spatial inequalities within Europe, through supranational distribution, coordination of national policies, a common legal space for economic activities and legal harmonisation (Heidenreich and Wunder, 2008).

3.1.3 The Impact of Technological Change on Income Inequality

Furthermore, Lee (2006) highlights the importance of technological change and its impact on income inequality, through increasing the demand for skilled workers and reducing the demand for low-skilled workers, resulting in job polarisation and income inequalities as high-skilled workers wages rise whereas low-skilled workers wages stagnate or decline. Van Stolk et al. (2011) also raise this matter, explaining how the development of technology has led to higher inequality within groups of people with the same education, age, gender and occupation. Malerba and Spreafico (2014) found in their study that economic growth along with globalisation can have effects on income distribution, through, among other factors, skill-biassed technological change, which can result in great wage differences. But as opposed to Van Stolk et al. (2011), Malerba and Spreafico (2014) explain how the skill-biassed technological change favours highly educated individuals, creating a wage gap between higher and lower educated, and not within groups. Another key point is the so-called race between education and technology, mentioned in section 2.1.2. This race makes it difficult to have both growth and equality, since technological progress is a significant component of a nation's economic growth (Goldin & Katz, 2007). Goldin and Katz (2007) explain how technological change and innovation develop societies, and as the world strives to develop, they become increasingly difficult to impede. The scholars however highlight that inequality is avoidable if the society increases education along with providing workers with adaptable skills, making the supply of skills increase simultaneously with demand,

connecting to the part in 2.2.1 regarding skill-biassed technologies and the importance of human capital.

3.1.4 The Impact of Integration on Income Inequality

According to Beckfield (2006), the EU has exerted significant effort to achieve European integration and promote economic growth to create a more prosperous and united Europe. Likewise, Van Stolk et al. (2011) highlight that the EU has made it a longstanding goal to address income inequality, poverty and integration. Since 1957 and the creation of the European Economic Community, the precursor to the formation of the EU, the union has implemented several measures to foster integration (Beckfield, 2006). These include the adoption of a shared currency, the elimination of numerous internal border controls and the establishment of a supranational governing body (Beckfield, 2006). However, as Beckfield explains, it remains uncertain whether these endeavours have effectively mitigated income inequality. The author addresses that certain economists claim that the EU has exacerbated inequalities by reducing the scope of the welfare state (Boje, van Steenbergen & Walby, 1999), while others argue that integration will lead to increased inequality in the future (Kosonen, 1995). On the other hand, other scholars believe the impact of regional integration may help the EU resist the potential negative impact of globalisation on equality (Moses, 1995).

As discussed by Beckfield (2006), the main aspects of EU integration are political integration and economic integration. Political integration refers to the establishment of a regional government and the spreading of regional rules, whereas economic integration involves the promotion of regional economic exchanges like trade and investment (Beckfield, 2006). The author argues that both of these aspects impact income inequality negatively, but in different ways. Political integration affects the welfare state which is important for dampening income inequalities, whereas economic integration weakens labour through international wage and employment competition (Beckfield, 2006). Beckfield (2006) however sheds light on the fact that empirical evidence on the impact of European integration for increased income inequality is scant.

In essence, there are numerous aspects of growth affecting income inequality in the EU, including education, labour market institutions, technological change and integration.

Moreover, the welfare state and social models of member states play a significant role in upward social mobility and job polarisation. The effects of globalisation and trade liberalisation however remain inconclusive, with some scholars finding it to increase wage disparities, whereas others conclude that it reduces income inequality. Overall, the findings of these studies show that income inequality is a complex issue influenced by various factors. Therefore, a multifaceted approach is required to effectively address the unequal distribution of income in the EU.

4. Research Design

4.1 Data Collection

The aim of this thesis is to investigate the relationship between two variables; the dependent variable *income inequality* and the independent variable *GDP per capita.* To achieve this, the study will draw upon the World Bank's World Development Indicators as the primary data source to analyse recent trends in these two variables across the EU countries. This secondary data source provides comprehensive and relevant information on economic indicators that are essential for this study.

GDP per capita is calculated through dividing GDP by the mid-year population. GDP is an important measure of an economy's scale and performance, as it reflects the total value of all final goods and services produced within a country's borders during a specified time period (Callen, n.d.). However, it has its limitations, such as difficulties in measuring the services industry, accounting for technical progress and estimating informal economic activities. Furthermore, rebasing national accounts can affect data consistency over time (World Bank, 2023). The GDP per capita data used in this study is expressed in constant 2015 U.S. Dollars, which is the most suitable measure for comparing the output value of different countries with different currencies, as it adjusts for inflation and currency fluctuations (Callen, n.d.).

The variable *income inequality* will be measured using the Gini coefficient, a widely used metric ranging from 0 to 1, with higher values indicating greater inequality (OECD, 2021). A Gini coefficient of 0 signifies perfect equality, where each person receives the same income, while a coefficient of 1 indicates perfect inequality, where one person in the country receives

the entire national income (Van Stolk et al. 2011). The Gini coefficient however also has its deficiencies. For instance, it measures relative, not absolute wealth, meaning the coefficient of a developing country could rise even as poverty declines (World Bank, 2023). Moreover, the World Bank (2023) highlights that the coefficient cannot be combined across different groups, implying that it cannot be used to aggregate country-level coefficients into regional or global ones. Comparing data across countries or even across years within a country is challenging due to differences in household surveys and welfare measures collected (World Bank, 2023). Surveys can differ in many aspects, including whether they use income or consumption expenditure as the living standard indicator, and households and individuals differ in size and consumption needs (World Bank, 2023). The World Bank has attempted to make the data as comparable as possible by using consumption rather than income.

It is important to note that there is a lack of data available regarding the Gini coefficients for every year in the period between 1991 and 2019, for many of the countries. For that reason, the time series data created for the various nations will differ, with some beginning in 1991 and others later on, particularly for Eastern European countries.

4.2 Methodology

In order for the research question to be answered, a quantitative method utilising descriptive statistics and a graphical approach evaluating the bivariate relationship between GDP per capita and Gini coefficient will be employed. Additionally, a regression analysis will be applied to evaluate the effect of entering the EU on income inequality for the Eastern European nations. The method is suitable for this study as it allows me to identify potential relationships and correlations between variables. A quantitative method is focused on measurable and quantifiable, numerical data, and is commonly used for explanation purposes. As the research question regards the relationship between two variables, a methodology used for identifying trends and relationships between phenomena is the most fitting for answering the question.

To understand the relationship between economic growth and income inequality, it is crucial to examine trends in inequality measures over time. To achieve this, I will construct time series data using Microsoft Excel, allowing for observation and interpretation of the data collected. After downloading data from the World Bank's World Development Indicators on

Gini coefficients and GDP per capita for all of the core and Eastern EU countries, I will use a graphical method to test whether the bivariate relationship between GDP per capita and Gini coefficient follows the inverted U-shaped pattern of a Kuznets curve. I will plot an average Kuznets curve for each of the two blocs, which will allow me to visualise and compare the trends in income inequality and economic growth between the two groups. As there is lacking data regarding Gini coefficients, especially for the Eastern nations, the average curve for the core countries will begin in 1991, and the one for the Eastern nations will begin in 2004. To gain more insights, I will further plot the GDP per capita against the Gini coefficient for each individual Eastern EU country, in order to understand how the EU memberships and integration affected the specific nations. This approach will enable me to compare the impact of an EU membership on equality and growth. Thereafter, I will create individual Kuznets curves for a select few core EU countries as well, in order to be able to make a comparison with the Eastern nations. The countries chosen for this are Sweden, Denmark, France and Germany. France and Germany are selected due to their influential status in the EU, and Sweden and Denmark are included to provide insights into the Scandinavian region.

In order to optimise the clarity of the curves, customised ranges will be employed for each graph in the analysis. This approach involves adjusting the scales of the x-axis (GDP per capita range) and y-axis (Gini coefficient range) based on the characteristics of the specific countries being analysed. Specifically, for nations with higher levels of economic growth, a broader range will be applied to the x-axis. Similarly, for nations with higher levels of income inequality, a wider range will be utilised on the y-axis, allowing for a more accurate representation of their relative inequality levels. Conversely, the corresponding ranges will be smaller for the nations with lower GDP per capita or Gini coefficient. Through applying these customised ranges, the graphs will effectively highlight the patterns and relationship between the variables within each specific country. Moreover, as every graph will be a scatter plot, I will add an order 2 polynomial trendline to be able to more easily visualise the Kuznets curves.

The next step is to conduct a fixed-effects panel regression model, in order to examine the impact of an EU membership on the relationship between income inequality and economic growth. This analysis employs panel data, controlling for country-specific and time-specific effects, and is performed using the econometric software package Stata. Panel data provides insights into entities over time, addressing omitted variable bias and includes entity fixed

effects for variations across entities and time fixed effects for changes over time (Torres-Reyna, 2007). While panel data offers valuable insights into the dynamics and heterogeneity of entities, it has drawbacks such as data collection issues and cross-country dependencies (Torres-Reyna, 2007).

New variables will be created in order to classify the countries into either core or Eastern EU nations, and a variable indicating the year of EU entrance will be generated. Moreover, I will create a squared GDP and thereafter lagged GDP variables; one variable which contains the previous year's GDP value for each observation in the dataset, and one with the squared GDP, containing the previous year's squared GDP value for each observation in the dataset. These variables are useful as there can be a time lag regarding the changes in economic growth and its effect on income inequality. It is essential to include a squared independent variable in regression analysis in order to capture potential nonlinear relationships between variables. When conducting a linear regression, the relationship between the variables is assumed to be linear, which might not always be the case. Through squaring the independent variable, a new variable representing the squared values of the original independent variable is created, allowing the regression model to capture potential nonlinear patterns in the data. The lagged GDP variable will also be expressed in thousands, in order to make the coefficient more readable in the regression table.

The regression equation will be estimated using the Stata "reg" command, and the model will include the lagged values of GDP and squared GDP, along with EU entrance. To focus on the impact of EU membership on the Gini coefficient and GDP per capita, this regression analysis is limited to the sample of Eastern EU countries. However, Bulgaria will be omitted as an outlier, due to exhibiting a pattern strongly contradicting the general one of the Eastern EU nations. I will manually add to the regression the mean values of GDP per capita and Gini coefficient for these Eastern EU countries, in order to help understand the general dynamics along with using the numbers for calculating the average effect of entering the EU on income inequality. Moreover, I will calculate and add the magnitude of the effect of EU entry on income inequality in the Eastern European countries. Thereafter, to achieve a graphical representation of the regression analysis, the Stata "avplot" command will be used to create an adjusted variable plot of the relationship between lagged GDP and Gini coefficient, stratified by the EU membership variable.

4.3 Limitations

Possible limitations to this methodology would be the risk of failing to take into account other factors that could affect income inequality, and relying solely on economic development, measured by GDP per capita, as the causative factor, consequently leading to incorrect conclusions. Income inequality can be influenced by several factors, including government policies, demographic factors and labour market conditions (Van Stolk et al. 2011). Additionally, environmental and macroeconomic shocks will be important to consider. Therefore, it is of great importance to identify and control for the influence of other factors that might affect the dependent variable.

Furthermore, it is crucial to distinguish between causality and correlation when examining the relationship between economic growth and income inequality and realise the possibility of the two variables being correlated, but not causally related. Endogeneity is also a potential risk, which occurs when two variables affect each other, creating difficulties in determining which variable is influencing the other (Başer, 2011). Meaning, there is a possibility of economic growth and income inequality affecting each other in ways that are difficult to ascertain. Establishing the nature of this relationship and determining whether economic growth causes income inequality or vice versa can be a challenging task.

Another potential obstacle is data availability and the risk of facing limitations in accessing sufficient, accurate and reliable data on economic growth and income inequality in the EU. This issue is particularly relevant in the case of the former socialist nations, where data collection and reporting might have been less developed in the past. Inaccurate or incomplete data can significantly impact the findings of the study and compromise its validity. Therefore, it is crucial to ensure that the data used in the study is reliable and valid. For this reason, the primary source of this is the World Bank's World Development Indicators, which is a reputable and reliable data source, drawing from credible and esteemed sources.

5. Empirical Analysis

5.1 Results

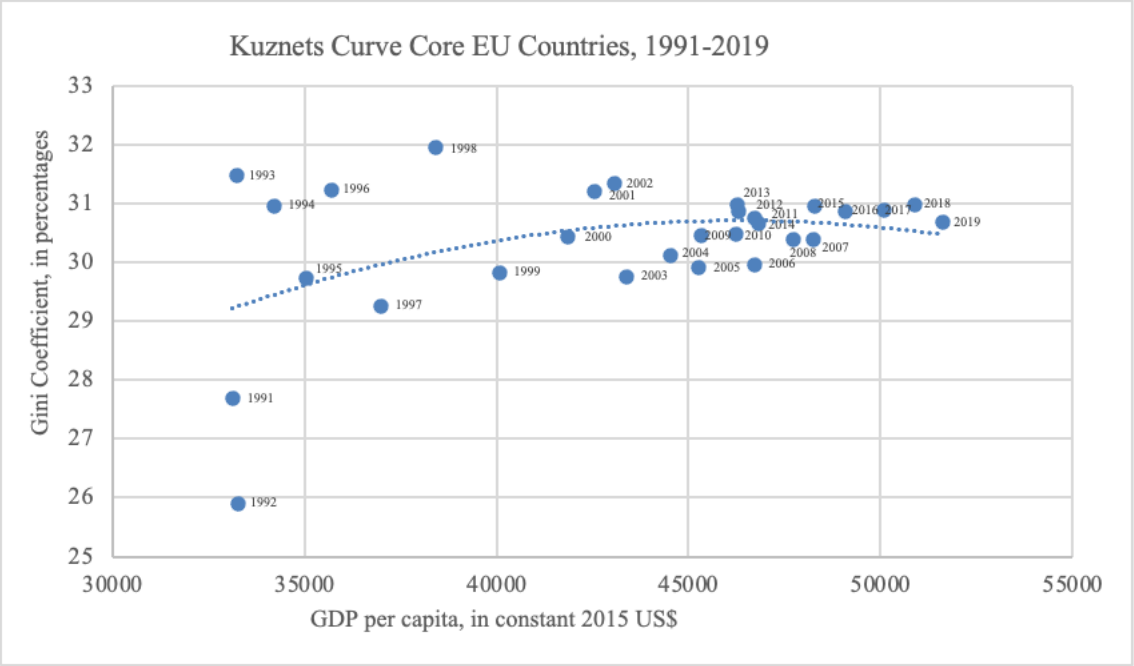

Figure 1. (World Bank, 2023)

Note: Each point on the graph represents an average value computed for the sample of core EU countries.

Figure 1 presents an average trend for all the core EU countries, and shows a mild Kuznets shape. As the GDP per capita increases, so does the Gini coefficient, up until a peak in 2002, after which the GDP continues rising while the Gini coefficient experiences a decrease. The Gini coefficient rises again, but never to the point of 2002. Moreover, in 2019, the Gini coefficient is lower than its previous years. This observation partly supports the Kuznets theory, yet it is important to note that the Kuznets relationship shown in this graph is very subtle.

The reason for the Gini coefficient decreasing after 2002 could be attributed to the implementation of key policy initiatives promoting sustainable economic growth and social cohesion. As explained in part 1.2, the Lisbon Agenda established in 2000 laid the groundwork for these efforts, and was followed by the Europe 2020 program in 2010, further

emphasising the importance of addressing inequality (Malerba & Spreafico, 2014; European Parliament, n.d.). The changes observed in the Gini coefficient are however relatively modest, indicating the pressing need for more ambitious and progressive programs to effectively address income inequality.

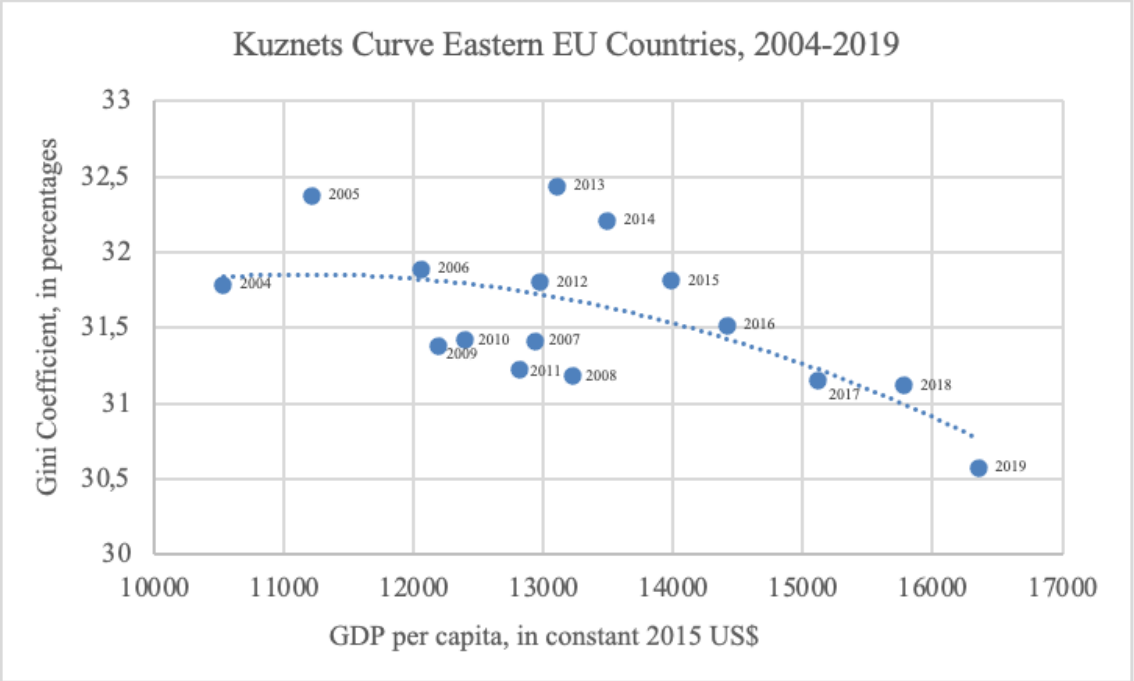

Figure 2. (World Bank, 2023)

Note: Each point on the graph represents an average value computed for the Eastern EU countries.

Figure 2 depicts an average curve for the Eastern EU countries, and clearly shows how the Gini coefficient has declined since 2004. While the graph is informative, it would have been intriguing to see the years prior to 2004, which could reveal a potential first half of a Kuznets curve, as well as EU pre-expansion. There does however seem to have been a steady rise in GDP per capita together with a decrease in the Gini coefficient since the EU memberships of 2004, 2007 and 2013 (European Commission, n.d.b).

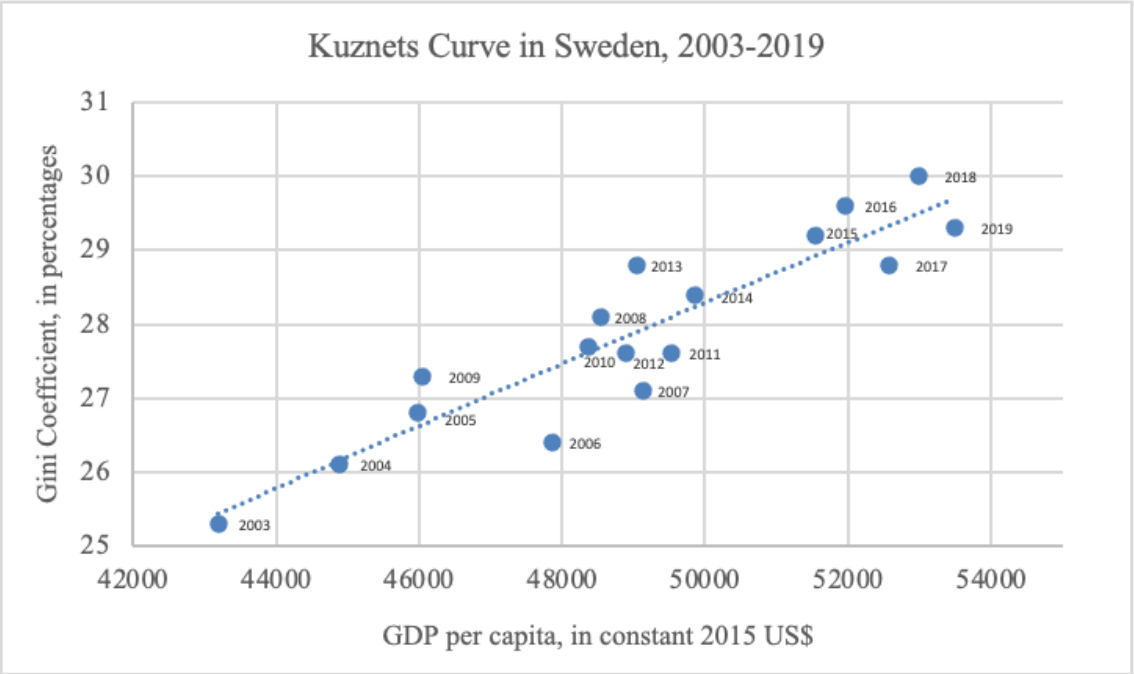

Figure 3. (World Bank, 2023)

When analysing the Kuznets Curve in Sweden, a nearly linear relationship between GDP per capita and Gini coefficient is observed, whereby income inequality grows in parallel with the nation's economy. This is noteworthy as many scholars, including Van Stolk et al. (2011) and Beckfield (2006) argue that a strong welfare state that benefits the poor is important in order to combat income inequality. Sweden is renowned for having a robust welfare state, which has been highly regarded for its ability to promote economic growth while providing generous social protection (Thakur, Keen, Horváth & Cerra, 2003). Therefore, it would have been expected to see a lower Gini coefficient or at least a declining trend in Sweden. This contradiction between the expected relationship of the variables and the actual findings prompts further investigation regarding factors influencing income inequality in Sweden, such as the effectiveness of welfare policies, dynamic labour markets and the relationship between economic growth and social factors.

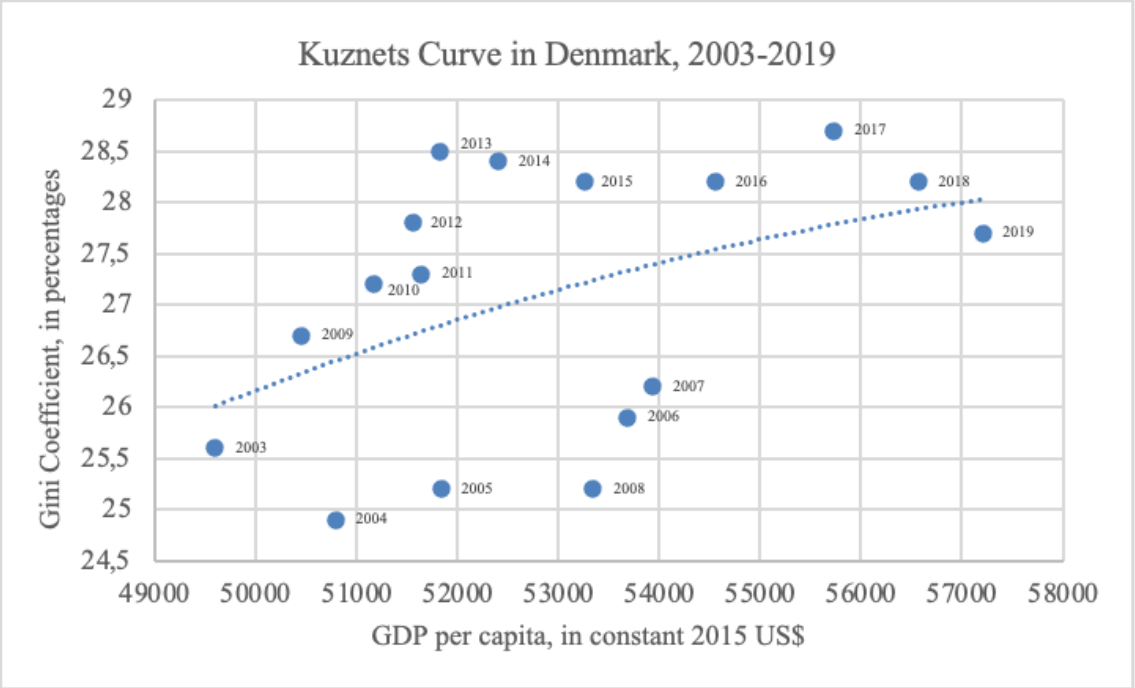

Figure 4. (World Bank, 2023)

Denmark's curve looks somewhat similar to the curve of Sweden, albeit it is a bit more dispersed, not showing as clear of a pattern. Also, Sweden's Gini coefficient has been growing at a more rapid pace, from 25.3 per cent to 29.3 per cent whereas the one of Denmark has only risen with almost exactly 2 percentage points. Worth noting, however, is that the economy of Sweden has been growing faster as well, as it has grown with 10295 U.S. dollars in GDP per capita in the 16 year-period as Denmark has grown with 9603 U.S. dollars in GDP per capita. These differences in income inequality dynamics between Sweden and Denmark raise questions regarding the interplay between economic growth, social policies and income inequality. Despite its more rapid economic growth, the faster pace of Gini coefficient growth in Sweden indicates the presence of unique factors contributing to income inequality in the country. It could therefore be interesting to explore these factors in depth in order to receive significant insights regarding the effectiveness of various policies, institutions and other socio-economic factors influencing income distribution patterns in Scandinavia.

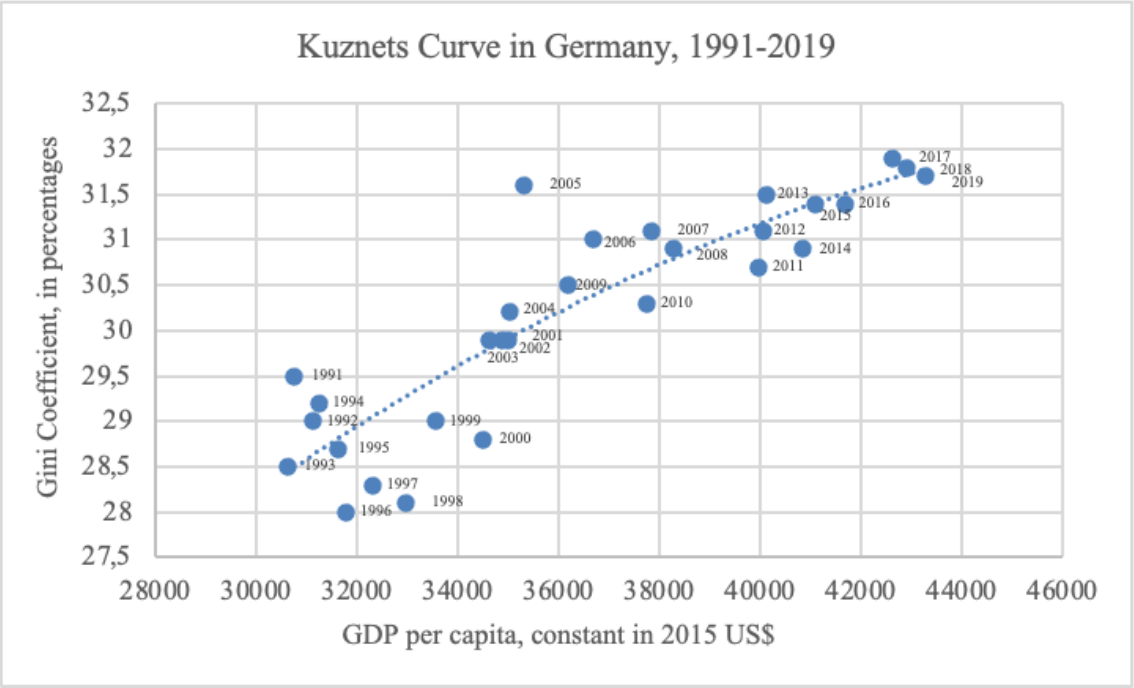

Figure 5. (World Bank, 2023)

The Kuznets curve of Germany depicts a relationship quite similar to the one of Sweden, with a rather linear trend, indicating that the two variables rise together. What is interesting about Germany is that in this country there is data for the entire period, yet it is still very similar to the two Scandinavian curves starting from 2003. These three nations' curves can be connected to the argument of Bowman (1997), addressing that economic growth in certain cases leads to inequality. Further, the scholars arguing that globalisation (Lee, 2006; Beckfield, 2006; Wood, 2000; Heidenreich & Wunder, 2008) and technological advancements (Lee, 2006; Van Stolk et al., 2011; Malerba & Spreafico, 2014; Goldin & Katz, 2007) often result in increased inequality can also be supported by these results, as these countries have become more and more globalised, more technologically advanced and evidently less equal. In addition, these positive and almost linear relationships contradict the theory of Galor and Zeira (1993), which discusses a self-reinforcing process where richer economies become more equal.

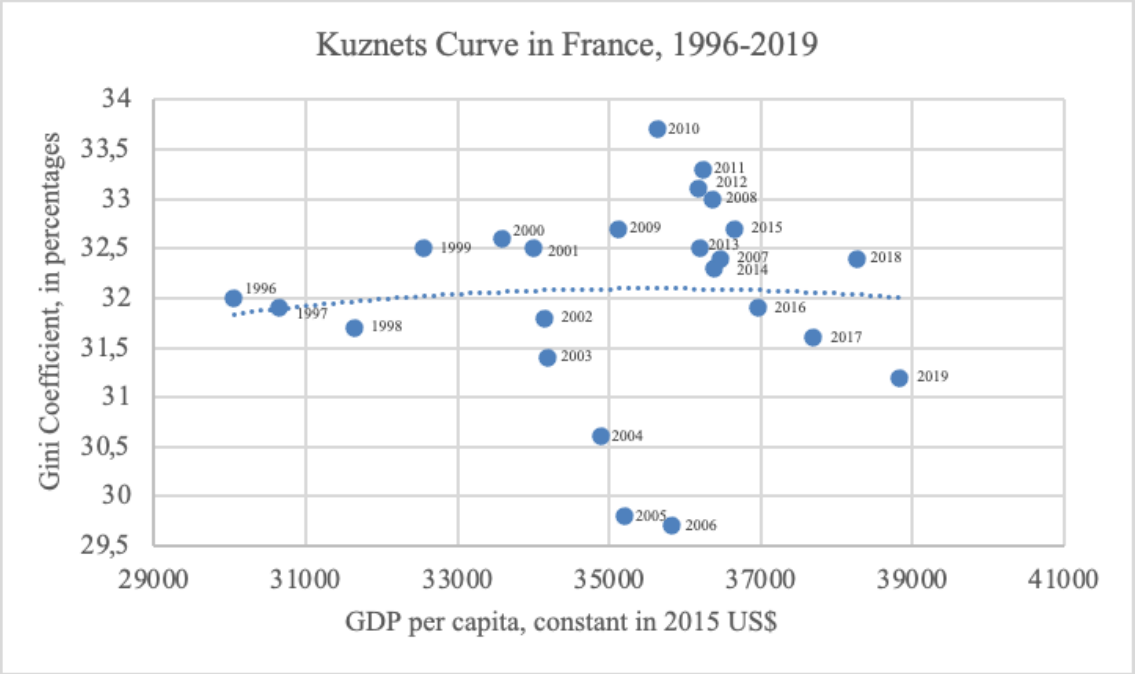

Figure 6. (World Bank, 2023)

The fourth and last core country to analyse, France, has a slightly different curve. Starting from 1996, both the Gini coefficient and GDP per capita has increased. The income inequality has experienced certain fluctuations, but following its peak in 2010, the Gini coefficient has experienced a steady decline, corresponding with its rising GDP. This curve displays a pattern similar to that of a Kuznets curve, but the very scattered data points makes it difficult to draw a firm conclusion. It is possible that a more visible Kuznets curve will emerge with more consistent data over time. The clear difference between the curve of France and the other core countries supports the arguments of Barro (2000), explaining that the relationship between economic growth and income inequality is complex and context-dependent.

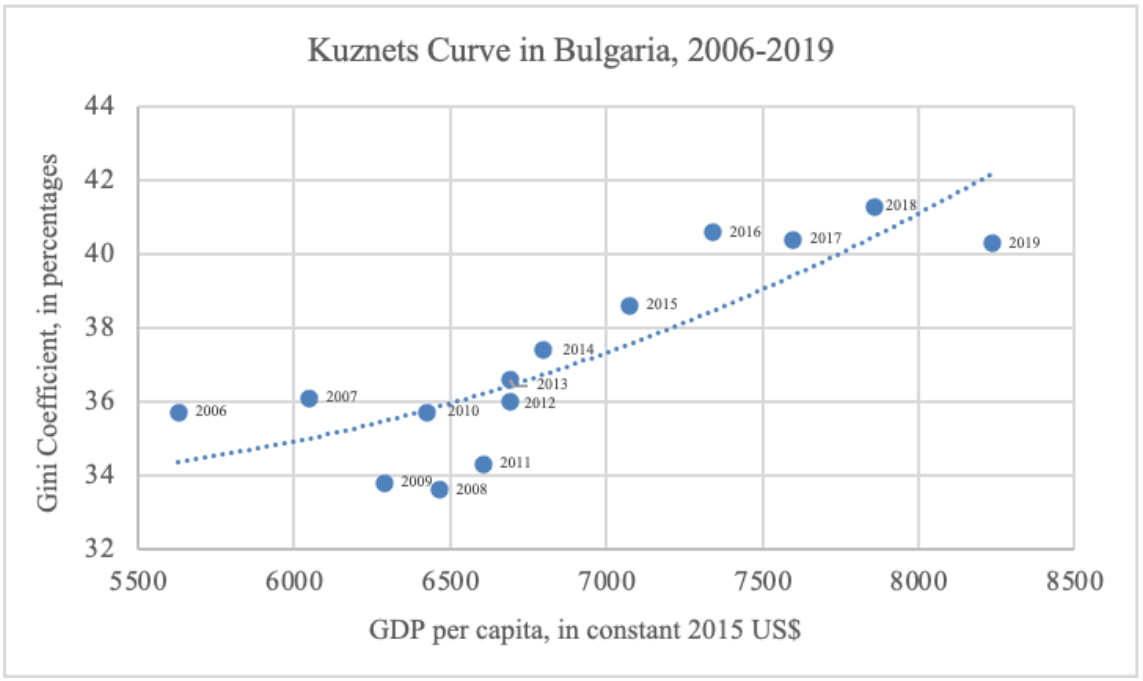

Figure 7. (World Bank, 2023)

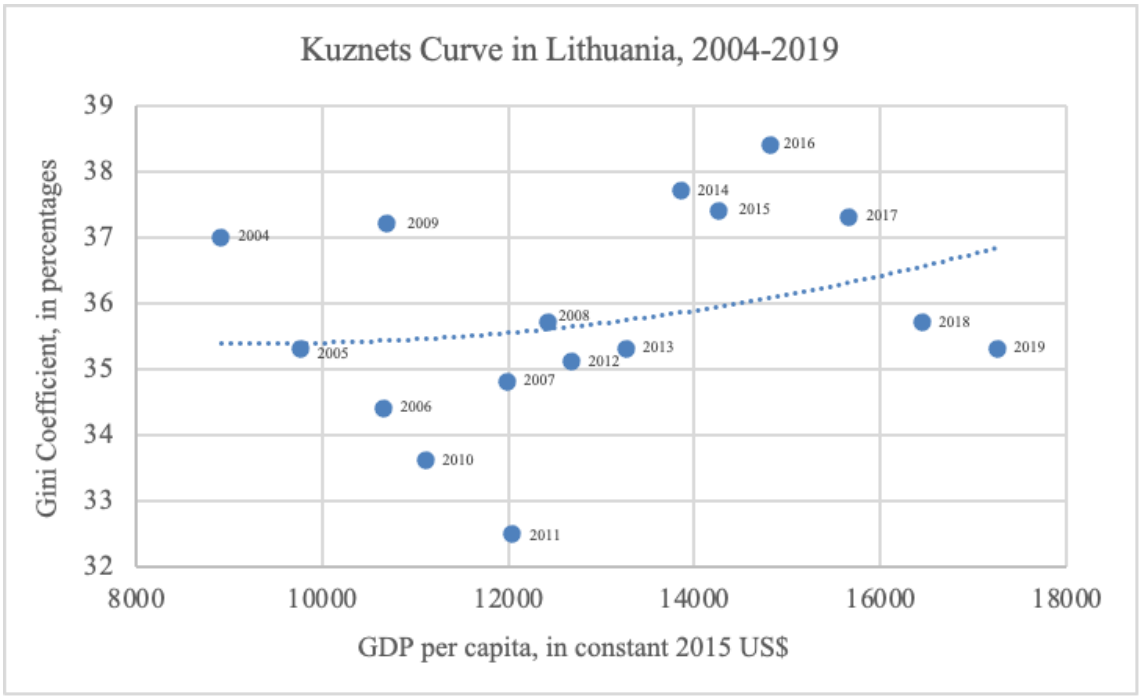

Figure 8. (World Bank, 2023)

Continuing with the Eastern nations, the graphs of Bulgaria and Lithuania are the ones most similar to Sweden, Denmark and Germany. The curve of Bulgaria is rising exponentially, whereas Lithuania is similar, but significantly flatter. These graphs show how the economies of the two nations changed after joining the EU. Especially in the case of Bulgaria, who

joined the union in 2007, has had a vast increase in both their Gini coefficient and especially their economy. It is due to Bulgaria's unusually rapid rise in income inequality the nation has been omitted as an outlier in the regression later on in this section.

When it comes to Lithuania, at first sight, it seems that income inequality has risen alongside GDP per capita. However, a closer examination reveals significant fluctuations in income inequality, and since 2016, there has been a noticeable decline of approximately 3 percentage points in the Gini coefficient, despite ongoing economic growth. The change after EU membership is difficult to ascertain, as the nation entered the union in 2004, the same year as the start of the curve. Yet, it is clear that even though the economy has grown, the growth of income inequality seems to have stalled, even though there is no consistent downward trend.

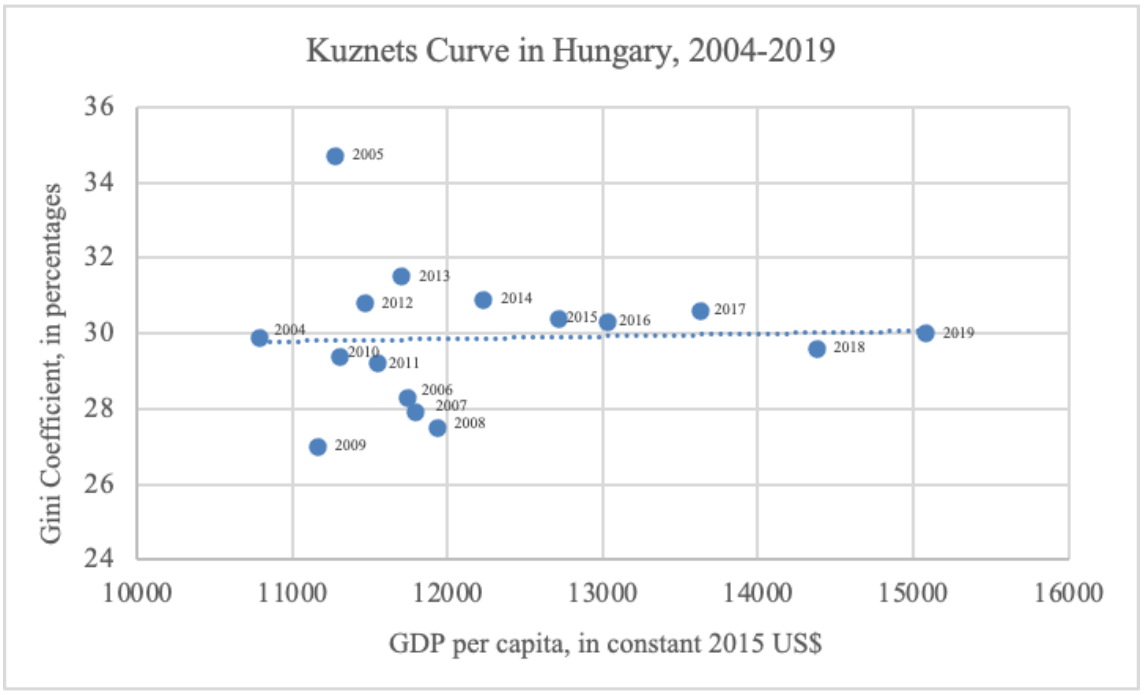

Figure 9. (World Bank, 2023)

The graph of Hungary depicts a remarkably flat curve. Despite a rise of approximately 4000 US dollars in GDP per capita, the difference in the Gini coefficient between Hungary's entrance into the EU in 2004 and 2019 is a mere 0.1 percentage point. It is worth noting that there has been certain fluctuations during the time period, but overall, the trend remains relatively stable. This demonstrates that economic growth does not necessarily have to affect income inequality.

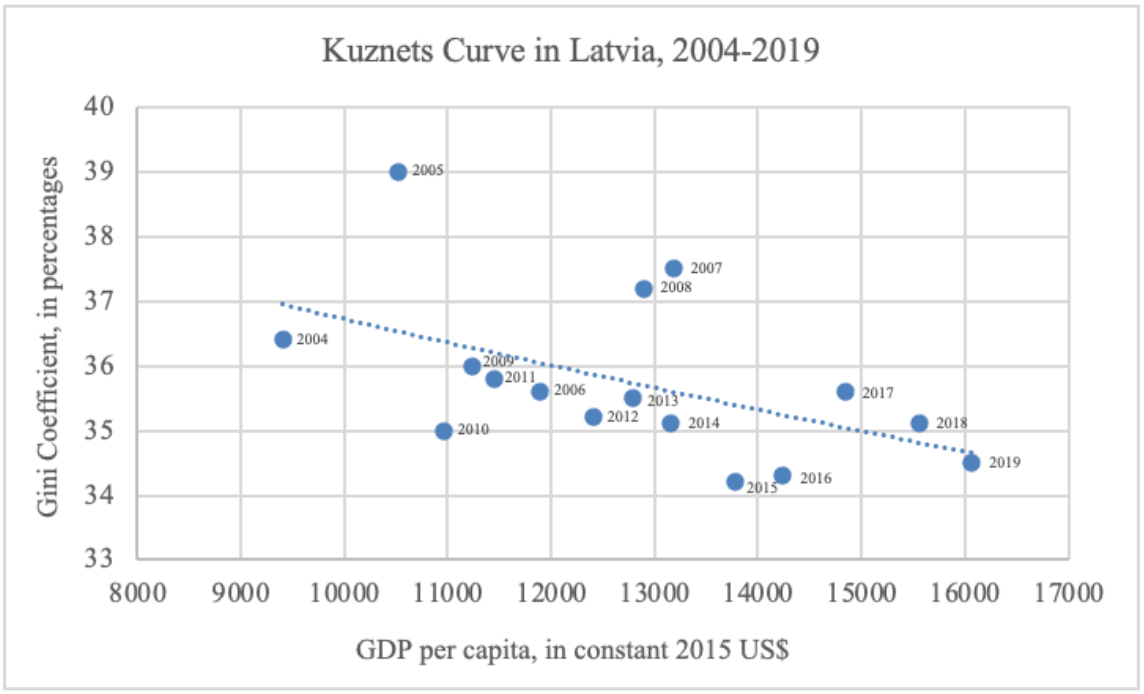

Figure 10. (World Bank, 2023)

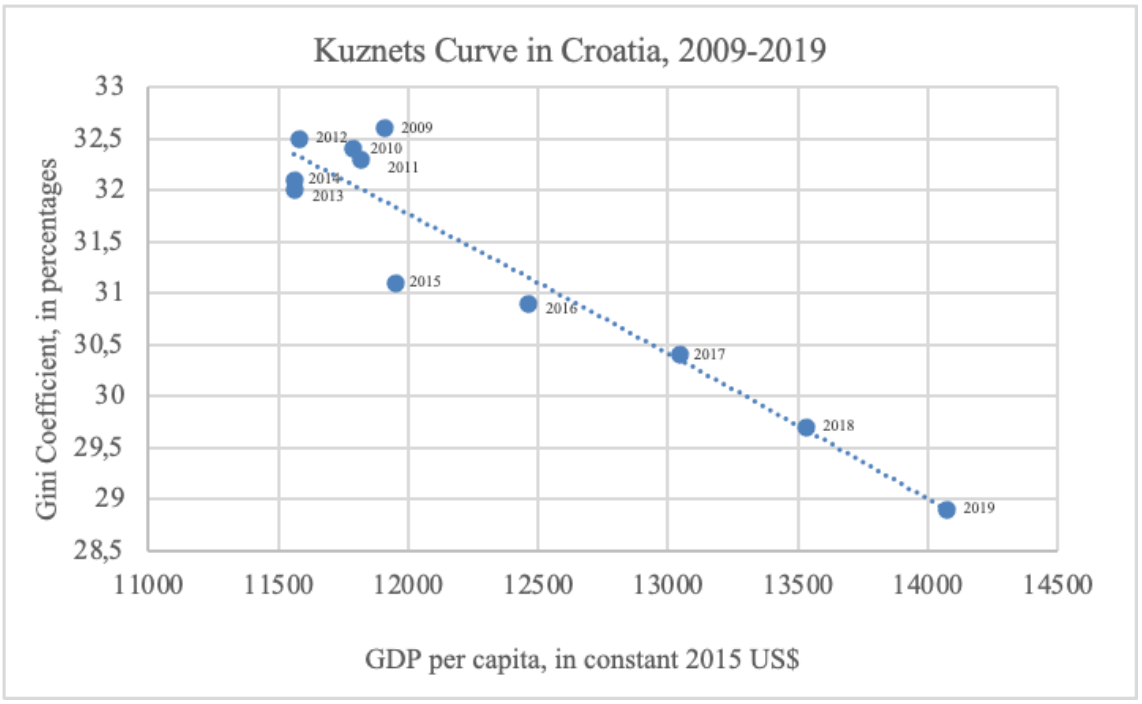

Figure 11. (World Bank, 2023)

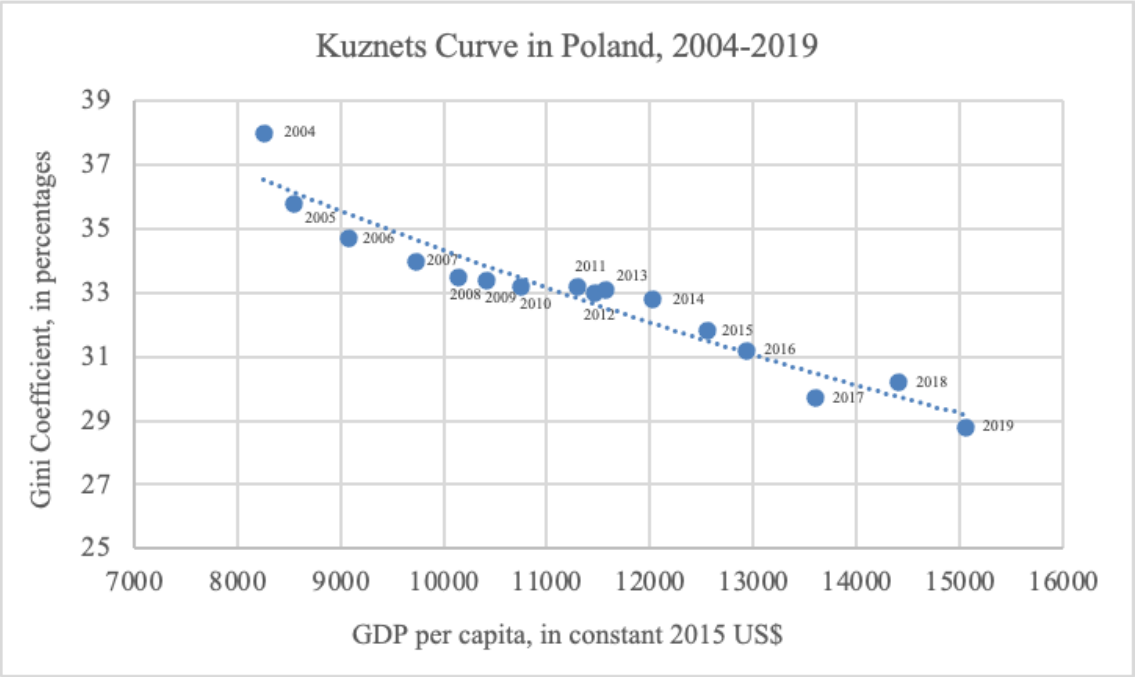

Figure 12. (World Bank, 2023)

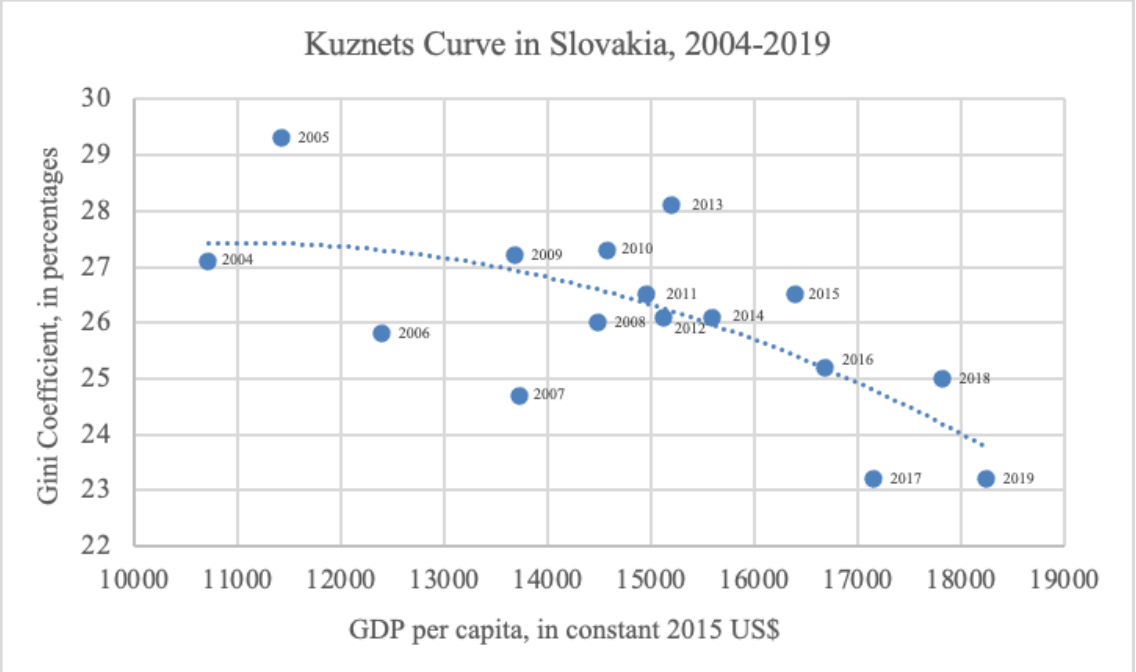

Figure 13. (World Bank, 2023)

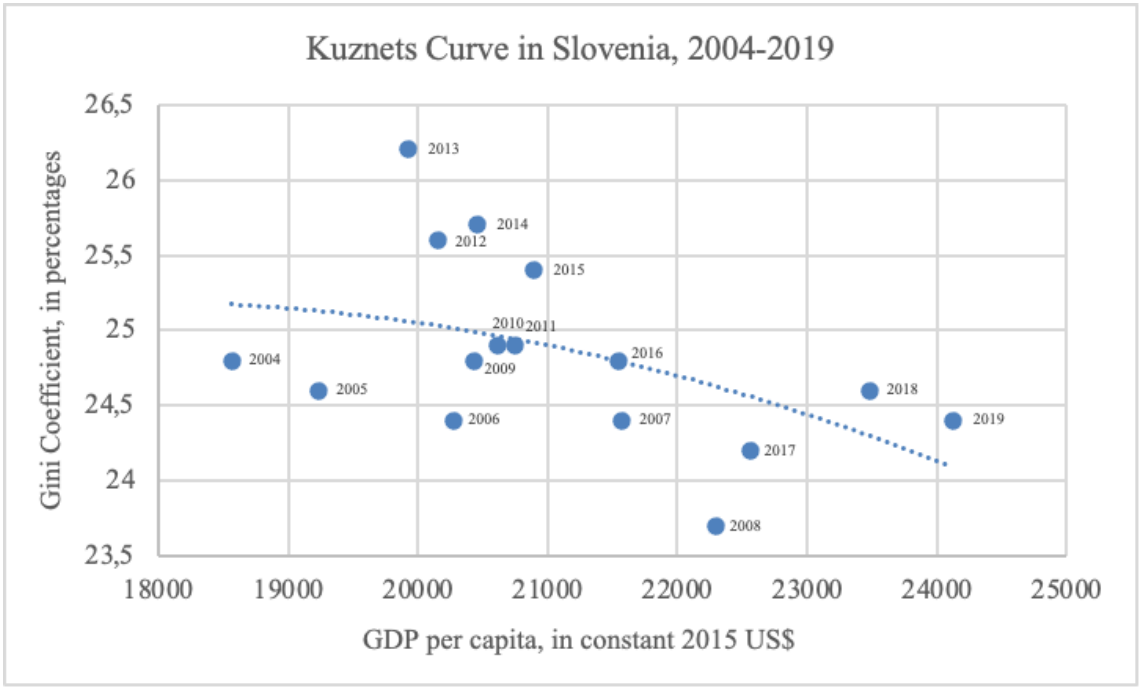

Figure 14. (World Bank, 2023)

The graphs of Latvia, Croatia, Poland, Slovakia and Slovenia all depict a negative relationship between economic growth and income inequality, which is not evident in any of the core EU countries. Except for Croatia, all these nations became members in the EU in 2004, and following their entrance into the union, their economies have risen, while the income inequality has declined. Figures 13 and 14 depict a curve that could be the latter half of a Kuznets curve, but without having data for the earlier years, it is difficult to ascertain. Figure 11 is particularly illustrative of the effect of EU membership. Croatia's membership in the EU occurred in 2013 (European Commission, n.d.b), and the data points for the years preceding this, starting from 2009, remained relatively constant, with a Gini coefficient of approximately 32 and a GDP per capita of 11500-12000 US dollars. However, in 2015, just two years after the nation's entrance to the EU, a clear negative relationship emerged between economic growth and income inequality. Consequently, it demonstrates how the EU membership allowed for a rise in the economy as well as income equality. These five graphs could all be linked to the theory of Galor and Zeira (1993), where a growing economy boosts demand for skilled workers, increasing their wages, alongside education investment expanding the skilled labour pool, diminishing wage inequalities.

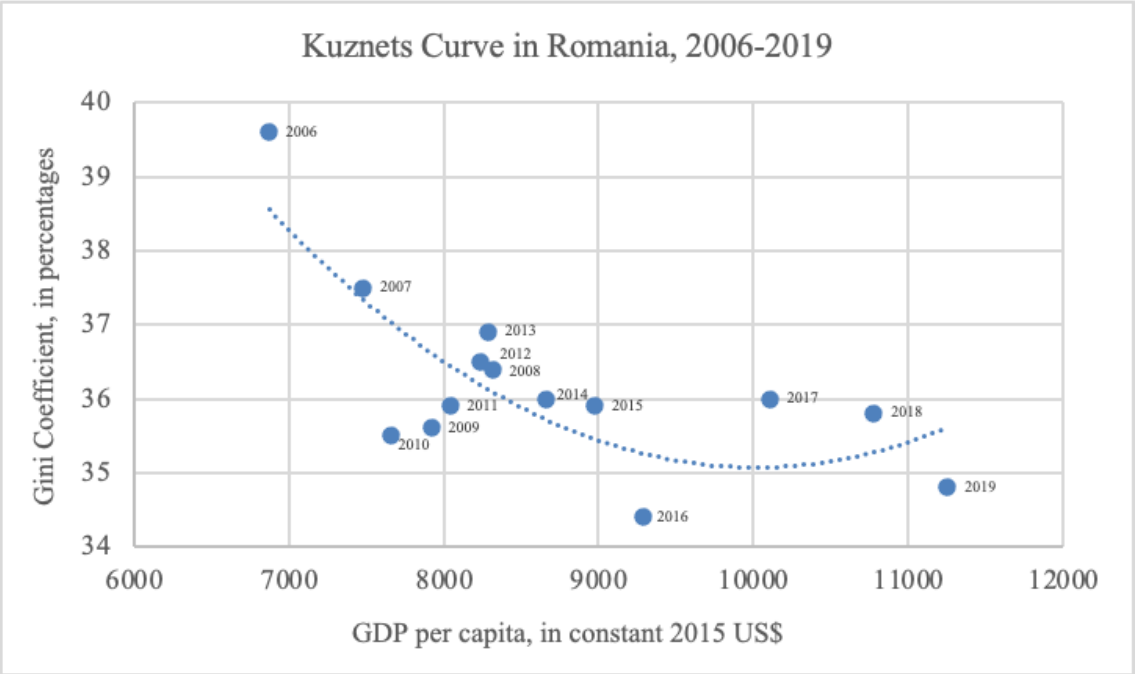

Figure 15. (World Bank, 2023)

Figure 15 illustrates a graph almost resembling an inverted Kuznets curve. Romania entered the EU in 2007, and the curve shows a declining Gini coefficient and increasing GDP per capita since 2006. However, after EU membership, the data points become less variable and more clustered, regarding both GDP per capita and Gini coefficient. The increase in GDP per capita nonetheless begins to rise more significantly again after 2014, and after a dip in the Gini coefficient in 2016, income inequality starts rising again. Yet, the Gini coefficient in the last years is fluctuating, making it interesting to observe future developments. These fluctuations may be the effect of various socio-economic factors, and further analysis is warranted to understand these underlying factors influencing the unique trajectory of Romania's income inequality dynamics.

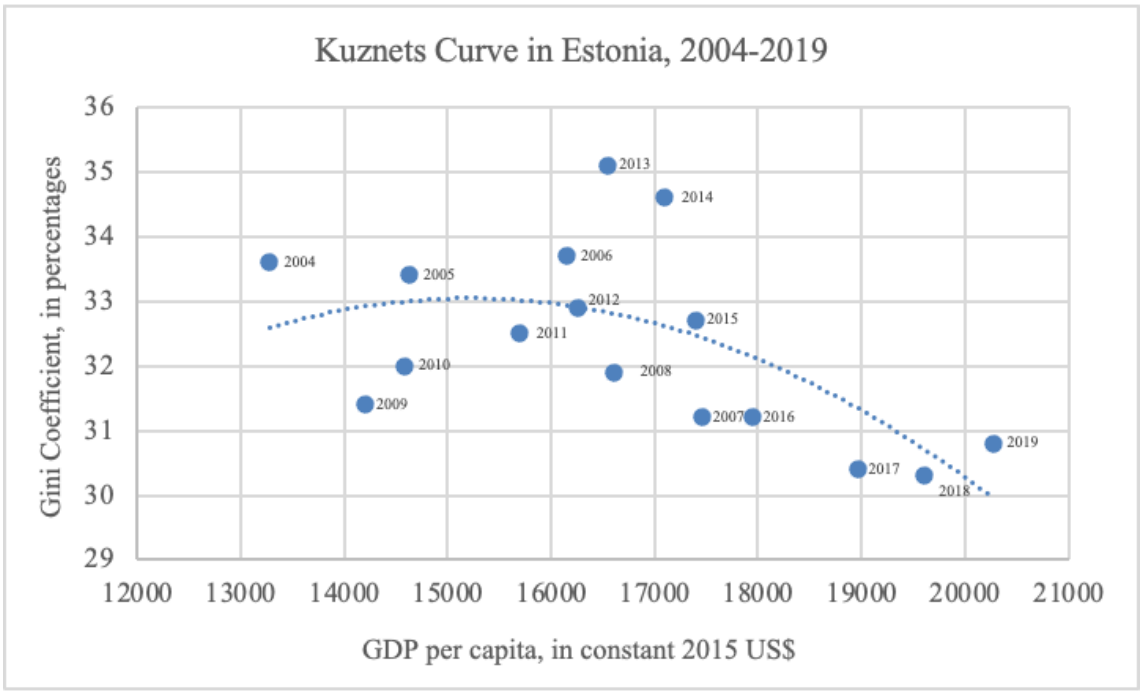

Figure 16. (World Bank, 2023)

The curve of Estonia demonstrates a slight Kuznets curve, although it is challenging to ascertain, due to the lack of data in earlier years. It is evident, however, that the values have been considerably fluctuating since the EU entrance of Estonia in 2004. But, after a spike in the Gini coefficient in 2013, income inequality began to decline alongside a continued rise of GDP per capita.

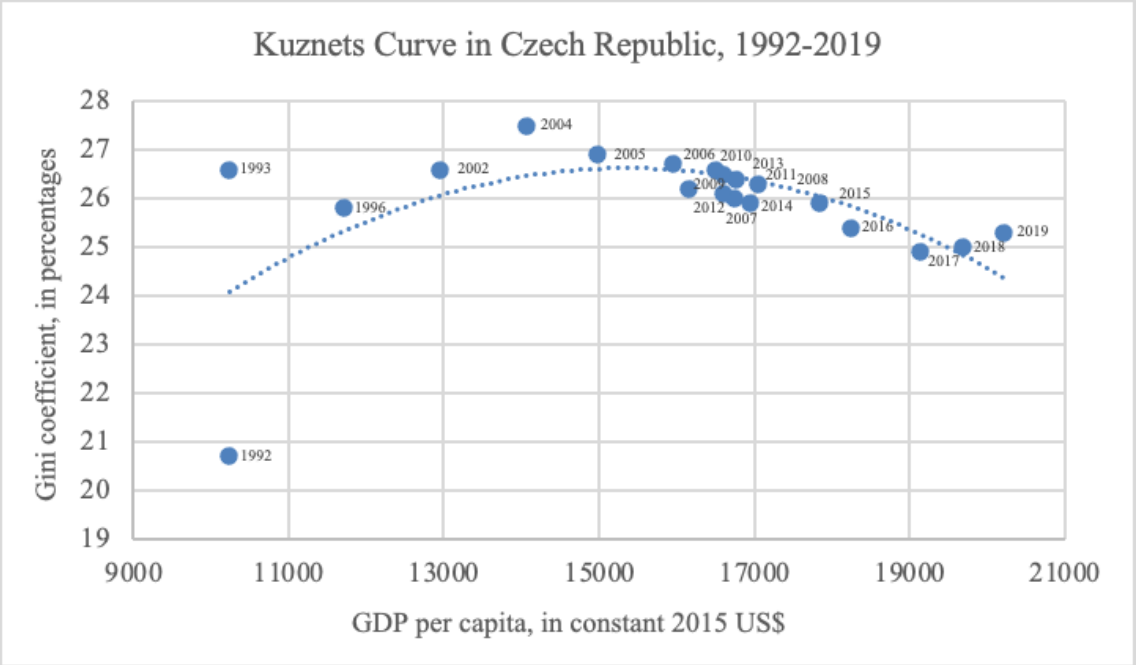

Figure 17. (World Bank, 2023)

Figure 17 is a pivotal representation as it starts from 1992, thus demonstrating a longer-term relationship than the other Eastern EU countries. This graph displays a clear Kuznets curve, where GDP per capita and Gini coefficient have been increasing simultaneously until a peak in 2004, whereafter a negative correlation between the two variables took place instead. Most interesting about this graph is that the turning point of the curve coincides with the exact year when the Czech Republic joined the EU. This EU membership likely played a significant role in promoting economic growth and income equality through institutional changes. As mentioned in part 1.2, because of the membership, the nations became able to attract foreign investment and expand their economic opportunities through access to the single market (Berend, 2009). Moreover, the policies in the EU that regards labour laws, education and social policy likely contributed to promoting social inclusion and combating inequality. Presumably, these factors resulted in the decline in income inequality in recent years, displaying the positive impact of EU membership for the Czech Republic. It thus seems that despite differing opinions on the EU's integration efforts mentioned by Beckfield (2006), it appears that these measures implemented have had a considerable positive impact on the Czech Republic.

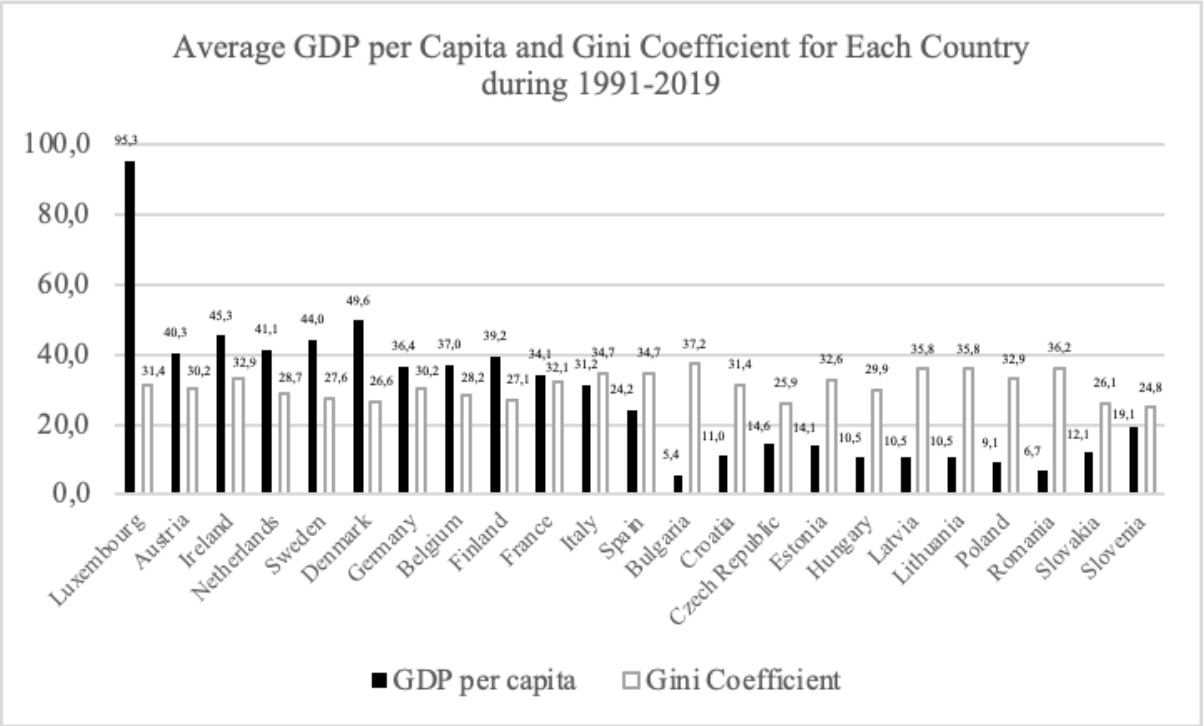

Figure 18. (World Bank, 2023)

Note: GDP per capita is measured in constant 2015 US dollars and divided by 1000 in order to facilitate easier analysis. The Gini coefficient is written in percentages.

Figure 18 is created in order to get a comprehensive overview of the general dynamics related to the variables, countries and time period. The chart depicts the average GDP per capita and Gini coefficient of the different nations during the entirety of the time period.When analysing it, it is evident that the nation with the highest average GDP per capita is Luxembourg, while Bulgaria exhibits the lowest. Strikingly, Bulgaria also holds the highest average Gini coefficient, indicating a strong correlation between a weak economy and high income inequality. It is logical that Bulgaria holds the highest Gini coefficient, considering figure 7 which depicts Bulgaria's rapid rise in income inequality. Slovenia however stands out with the lowest Gini coefficient, despite being one of the nations with the lower GDP per capita. Yet again, showing that the impact of economic growth on income inequality is situation-specific and multifaceted.

Table 1. (World Bank, 2023)

Linear Regression, Change in Relationship Between GDP per Capita and Gini Coefficient after EU Membership						
					Number of obs = 158	
					F(27, 124) = .	
					Prob > F = .	
					R-squared = 0.9403	
					Root MSE = 1.2247	
Gini	**Coef.**	**Robust Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
GDP_lag	.2471246					
1.EU_entrance	1.417948	.3829247	0.65	0.520	-.5107907	1.00504
		2.144987	0.66	0.510	-2.827583	5.663479
EU_entrance# c.GDP_lag						
1	**-.639431**	.3023234	-2.12	**0.036**	-1.237814	-.0410483
GDP_sq_lag	2.39e-08	1.16e-08	2.05	0.042	8.25e-10	4.69e-08
_cons	16.36129	4.620257	3.54	0.001	7.216503	25.50607
Mean GDP per capita in thousands = 11,72549177						
Mean Gini coefficient = 30,93481013						
Average effect of entering EU on income inequality = -20%						

Note: The countries under analysis in this regression are the Eastern EU nations, excluding Bulgaria. Marked in bold are the numbers of most importance for the analysis.

Table 1 presents a linear regression analysis examining the impact of entering the EU on the relationship between economic growth (GDP per capita) and income inequality (Gini coefficient). The coefficient represents the change in the dependent variable (Gini coefficient) associated with a one-unit change in the corresponding independent variable (GDP per capita), while holding all other variables constant. The coefficient and P-value of interest in this regression is *EU_entrance#c.GDP_lag*, as it shows the association between the country's GDP and Gini coefficient *after* entering the EU. The regression table declares a negative coefficient (-.6394) which indicates a negative relationship between the variables. This suggests that entering the EU alters the association between GDP per capita and the Gini coefficient. This relationship is also visually represented in figures 10-14 where there is a clear negative relationship between the variables. Nevertheless, as visualised by the curves on the core countries, this alteration can also be a positive relationship.

On the last row of the table, it is revealed that the average effect of EU entry on income inequality in the Eastern bloc is -20 per cent. The magnitude of the effect is calculated by taking an average GDP per capita in the sample and multiplying it by the coefficient on

interaction term *EU_entrance#c.GDP_lag*. Following, the coefficient from the first row (EU entrance) is added, and thereafter the sum is divided by the average Gini coefficient. The calculation yields an approximate value of -0.196, which equals to 20 per cent relative to the Gini average value in the sample. This means that on average, EU entrance has decreased inequality with 20 per cent in the Eastern European countries.

The statistical significance of the coefficient is determined by the p-value (P>t); an index measuring the strength of evidence against the null hypothesis, which assumes no relationship between the variables (Torres-Reyna, 2007). Values near 0 suggest an unlikely chance occurrence, while values closer to 1 imply no significant difference, with the standard level for concluding the significance being at 0.05 (Torres-Reyna, 2007). In this regression, the p-value is 0.036, which is below this significance level. Consequently, the null hypothesis can be rejected, and a significant correlation between the variables can be established. As a statistically significant coefficient indicates that the relationship between the independent variable and the dependent variable is unlikely to occur by chance, and the coefficient is negative and significant, it suggests that an EU membership could alleviate the problem of rising inequality in Eastern Europe. This observation indicates the importance of institutional factors in implementing policies and mechanisms contributing to greater equality, social cohesion and fair distribution of resources. Noteworthy examples of such factors, as mentioned in parts 1.2 and 3, include the EU's facilitation of access to a larger market, trade liberalisation efforts and increased economic opportunities for the Eastern nations, measures aimed at fostering integration and the presence of labour market institutions alongside social institutions such as the role of the welfare state. Moreover, the long-standing objective of the EU to combat income inequality and improve living standards across all member states underscores the importance of these factors in promoting equality and well-being.

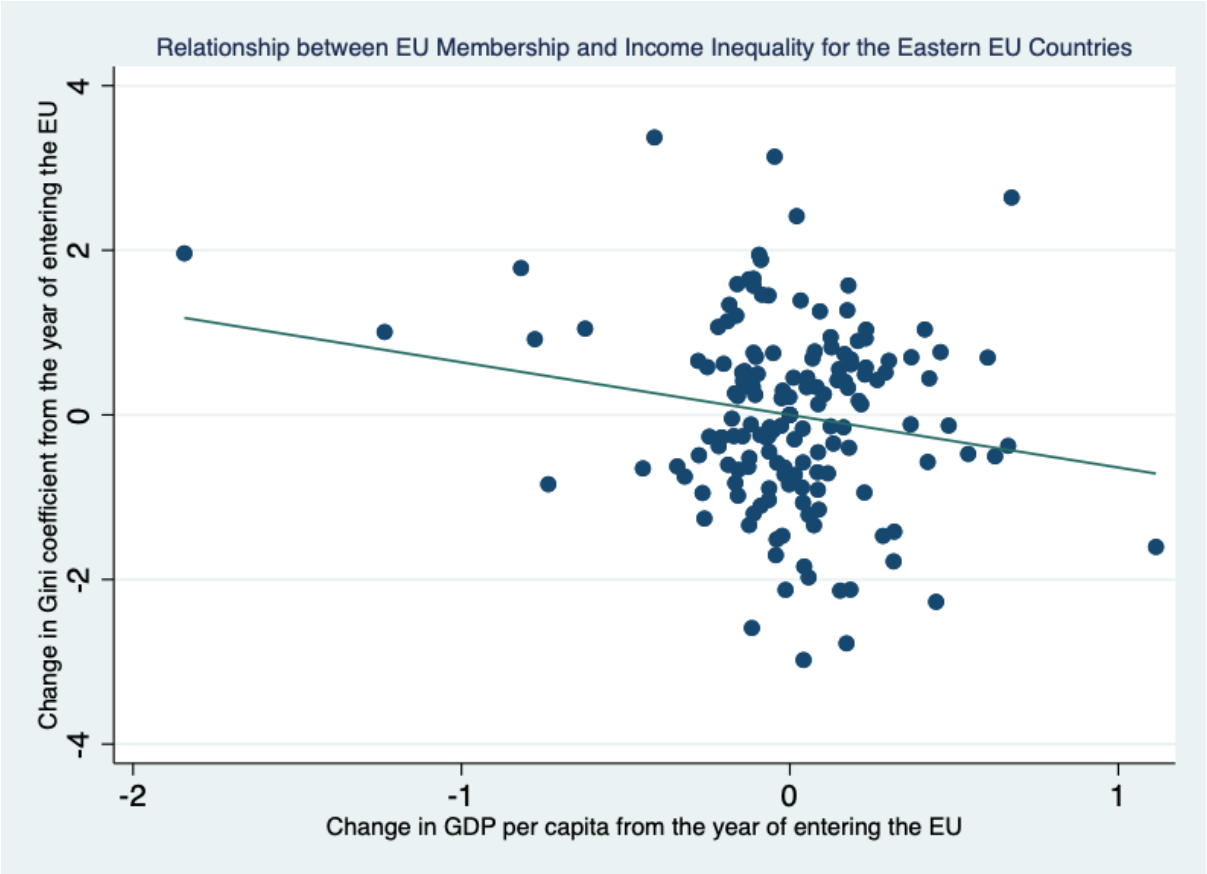

Figure 19. (World Bank, 2023)

Note: The x-axis displays the joint effect of entering the EU and GDP per capita. The y-axis shows the Gini coefficient. The line illustrates the estimated average effect of entering the EU on the relationship between GDP per capita and the Gini coefficient. Each scattered point on the graph demonstrates the actual observations.

Figure 19 provides a graphical representation of the regression analysis. The graph shows how different values of EU entrance and lagged GDP are related to the outcome of income inequality, through calculating the predicted values of the Gini coefficient for various combinations of values of the two other variables, while considering the influence of other factors. The line on the graph demonstrates how much the Gini coefficient changes when there is a change in GDP per capita. The effect of an EU membership is represented by the slope of the line, which indicates how the relationship between economic growth and income inequality has changed after entering the EU, for the Eastern nations. As the graph displays a negative trend, it means that as the independent variables (EU entrance and GDP per capita) increase, the Gini coefficient decreases. This suggests that an EU membership has a negative

effect on the relationship between GDP per capita and the Gini coefficient, where higher GDP values are associated with lower income inequality.

5.2 Discussion

The findings presented in this thesis shed light on the complex interplay between economic growth and income inequality in the examined nations. The fact that most Eastern nations exhibit a negative relationship between economic growth and income inequality align with the theory of Galor and Zeira (1993), explaining a sort of self-reinforcing process where economic progress results in an increase in both demand and supply of skilled workers, fostering income equality. In contrast, the nations depicting a positive relationship between the two variables contradict this theory, and instead connect to the many other theories and notions regarding how skill-biassed technological change (Milanovic, 2016; Galor & Moav, 2000; Lee, 2006; Van Stolk et al., 2011; Malerba & Spreafico, 2014; Goldin & Katz, 2007), globalisation (Heidenreich & Wunder, 2008; Lee, 2006; Beckfield, 2006; Wood, 2000) and integration (Beckfield, 2006; Boje, van Steenbergen & Walby, 1999; Kosonen, 1995) negatively affect income inequality. On the other hand, the scholars arguing for positive outcomes in income inequality due to these factors can be linked to the nations demonstrating the negative relationship between the two variables. For instance, Van Stolk et al. (2011) addressing the positive consequences of globalisation on inequality, and Moses (1995) advocating that integration can help globalisation resulting in more favourable outcomes. Moreover, in general, this thesis provides validation to the many scholars emphasising the potential for positive outcomes in addressing income inequality, regardless of the specific circumstances. It demonstrates that when appropriate policies and institutions are in place, favourable results can be achieved.

Regarding the Kuznets theory, various Kuznets curves can be found within the sample countries. Figure 1, illustrating an average for the core EU countries, and figure 6, representing France, both demonstrate subtle Kuznets curves. Figure 16, which regards Estonia, exhibits a slight Kuznets curve, while figure 17 of the Czech Republic clearly depicts a pronounced Kuznets curve. Several other graphs display lines that could be a Kuznets curve, if there would have been more data for the earlier years, as they resembled a latter half of a Kuznets curve. Examples include figure 2, illustrating an average curve for the Eastern EU nations, along with figure 13 and 14, depicting Slovakia and Slovenia,

respectively. Thus, it can be concluded that a Kuznets curve is present in the examined countries, albeit not in all of them. Nevertheless, the significant finding lies in the fact that both average curves demonstrate a resemblance to a Kuznets curve. Seemingly, the Kuznets theory can hold true, but as highlighted by Barro (2000), it is not the sole explanation for all observed inequality differences.

When considering the effect of an EU membership on income inequality, the regression analysis reveals that for the Eastern nations, entering the EU has a positive impact on wage disparities. This trend is further visualised not only on figure 19, but also by the presence of a Kuznets curve in the average Eastern nations (figure 2). In addition, figures 10-14 depicting Latvia, Croatia, Poland, Slovakia and Slovenia further illustrate this pattern. Notably, figure 17, which showcases the Czech Republic and aligns the turning point precisely with the year of EU entrance, serves as a compelling example emphasising the correlation. The EU membership can have contributed to this increased income equality through institutional changes and policies. As explained in part 1.2, upon joining the EU, Eastern nations received access to a larger market, greater economic opportunities, and the adoption of EU policies (Berend, 2009). Important to note is however that the EU membership did not affect income inequality positively in every Eastern nation, which can be seen for Bulgaria (figure 7) where the economy has continued increasing in tandem with the Gini coefficient, Lithuania (figure 8), with an absence of a clear downward trajectory, Hungary (figure 9), where the economy has increased but income inequality simply stagnated and lastly Romania (figure 15), demonstrating almost an inverted Kuznets Curve. This means that while EU membership generally correlates with decreasing income inequality, it does not guarantee a reduction in the Gini coefficient in every case.

In summary, the findings of this thesis align with certain theories while contradicting others, highlighting the need for a comprehensive understanding of the dynamics at play. The presence of Kuznets curves in some countries indicates the relevance of the Kuznets theory, however more data would be needed to confirm this pattern in more cases. Additionally, the impact of an EU membership on income inequality is generally positive, but does vary across countries, highlighting the importance of considering specific contextual factors.

6. Conclusion

6.1 Research Aim and Findings

This thesis aimed to examine the relationship between economic growth and income inequality in the Eastern EU countries compared to the core EU countries, alongside analysing the impact of EU membership on income inequality in the Eastern European nations. It provides a comprehensive analysis of income inequality and its relationship with economic growth in a sample of EU countries. The countries have been classified as core EU countries or Eastern EU countries and the findings highlight the complex interplay between the two variables, and have resulted in a deeper understanding of the potential contextual factors influencing wage distribution patterns. The investigation of the different nations have revealed both supporting and contradicting evidence for various theories and notions regarding income inequality. The presence of Kuznets curves in many of the graphs highlights the relevance of the Kuznets theory, although further research is needed in order to confirm this pattern for more cases. Moreover, the impact of EU membership on income inequality has been shown to vary across nations, but in general result in a positive effect, showing the importance of the right institutions and policies.

The thesis has illuminated the importance of considering various factors when analysing income inequality dynamics, such as technological change, globalisation and integration. The findings shed light on the need for nuanced and situation-specific approaches to combat wage disparities effectively. Furthermore, the study has illustrated the complex interplay between economic growth and income inequality, illustrating that the relationship is influenced by multiple factors, far beyond a simple linear connection. It is evident that income inequality is a multifaceted and context-dependent issue. Yet, by taking steps to reduce income inequality and promote inclusive economic growth, policymakers can help create a more equitable and prosperous future for Europe.

6.2 Implications

The findings of this thesis have important implications beyond the academic sphere, providing insights and recommendations for policymakers and practitioners in the field of

economics. The results of the research suggest that for the Eastern European countries, an EU membership could mitigate inequality along with increasing their economy.

From a theoretical perspective, this thesis contributes to our understanding of the relationship between economic growth and income inequality, particularly in the EU. It highlights the existing knowledge gaps and emphasises the need for further research, given the multitude of differing opinions and theories surrounding this intricate topic. It moreover challenges current notions and theories, by providing evidence that the institutions of the EU are actively alleviating inequalities in the Eastern nations. It counters arguments that attribute harmful effects on income equality to various factors, such as globalisation and integration, and other significant forces. The evidence presented in this study underlines the important role played by EU institutions in reducing these inequalities, thus providing fresh insights into the complex dynamics of wage inequalities within the union. Furthermore, the results reveal slight Kuznets curves for many of the nations in the study, supporting the arguments of scholars emphasising the importance of the Kuznets theory and how long-term economic growth diminishes income inequality. However, it is crucial to acknowledge that for certain nations, especially in the core EU sample, there is solely a positive relationship illustrated between GDP per capita and Gini coefficient. Conversely, a contrasting negative relationship can be observed in many of the Eastern nations. This underscores the arguments of scholars who have called attention to the context-dependent nature of this relationship and its complexity, thereby highlighting the absence of a singular definitive answer, but proving that economic growth does not have to lead to income inequality if the right institutions are implemented.

On a practical level, this research illuminates the importance of establishing appropriate institutions and implementing effective policies in order to combat income inequality. Policymakers should take steps to address income inequality, such as implementing progressive tax policies, increasing investment in education and skills training, and promoting job creation in sectors offering opportunities for social mobility. These proactive measures can help ensure that economic growth is both inclusive and sustainable, ultimately benefiting all members of society. The findings further hold implications for the design and implementation of economic policies within the EU. Policymakers need to conscientiously consider the potential repercussions of their economic policies on wage disparities and strive to create inclusive policies. This may require a shift in economic thinking, moving away from

the sole pursuit of economic growth and embracing a comprehensive approach prioritising the promotion of income equality.

6.3 Future Research

Further research within this field is of great importance in order to achieve a greater understanding of the relationship between GDP per capita and Gini coefficient, along with developing sustainable solutions to address wage disparities and promote social cohesion. To uncover a more pronounced presence of the Kuznets curve, it would be valuable to examine a broader range of countries and longer time periods. Secondly, it would be interesting to investigate the underlying causes behind the increase in income inequality observed in certain core EU countries, contrasting the negative trends in the majority of the Eastern EU nations. This could be done through more in-depth exploration of the role of different factors such as globalisation and skill-biassed technological change, in shaping income inequality dynamics. Thirdly, for policymakers, it would be beneficial to examine the effectiveness of policies and institutions in combating income inequality. Exploring the specific circumstances under which favourable results are achieved could provide important insights into effective strategies for mitigating income inequality. For this reason, examining the specific institutional changes and policies associated with EU membership would also be valuable in order to investigate the impact of EU entry.

6.4 Chapter Summary

In section 1, the paper provided background information on the subject, the research question, an overview of the research objectives along with the outline of the thesis. Section 2 presented the theoretical framework used in the study, such as the Kuznets curve, being the theoretical foundation of the thesis, but also other theories. Section 3 focused on reviewing literature and empirical studies regarding the relationship between income inequality and economic growth. In section 4, the research design employed in the study was presented. This included data collection, methodology and limitations. Section 5 presented the findings and results, and provided a discussion. The concluding section, section 6, summarised the main findings and highlighted the implications and areas for future research.

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Appendix

Stata Do-File

```
clear all

 *importing data from excel
import excel "/Users/sonjalangert/Desktop/eodse10/statadata2.xlsx", sheet("Blad1")
cellrange(A1:D668) firstrow clear

*fill missing strings values in Country variable, so all countries are named
ssc install fillmissing
fillmissing Country, with(previous)

*checking to see if all countries are named
bro Country

*create country id, to make it more amenable for analysis. Assigning a unique numeric
identifier to each unique value in the variable.
encode Country, gen(country_id)

*declare panel dataset, making each observation a country-year combination
xtset country_id Year

 *create create core and eastern country groupings
 gen core_eu = (Country == "Germany" | Country == "Austria" | Country == "Denmark" |
Country == "Finland" | Country == "France" | Country == "Ireland" | Country == "Italy" |
Country == "Luxembourg" | Country == "Netherlands" | Country == "Spain" | Country ==
"Sweden")
 gen eastern_eu = (Country == "Bulgaria" | Country == "Croatia" | Country == "Czechia" |
Country == "Estonia" | Country == "Hungary" | Country == "Latvia" | Country ==
"Lithuania" | Country == "Poland" | Country == "Romania" | Country == "Slovakia" |
Country == "Slovenia")
```

```
 *create EU entrance year groupings
 gen EU_entrance = (Year >= 2004 & (Country == "Czechia" | Country == "Estonia" |
Country == "Latvia" | Country == "Lithuania" | Country == "Poland" | Country ==
"Slovakia" | Country == "Slovenia"))
replace EU_entrance = 1 if (Year >= 2007 & (Country == "Bulgaria" | Country ==
"Romania" ))
replace EU_entrance = 1 if (Year >= 1995 & (Country == "Austria" | Country == "Finland" |
Country == "Sweden"))
replace EU_entrance = 1 if Country == "Germany" | Country == "France" | Country ==
"Denmark" | Country == "Italy" | Country == "Spain" | Country == "Ireland" | Country ==
"Luxembourg" | Country == "Netherlands" | Country == "Belgium"

*add GDP squared, to capture non-linear relationships between the variables
gen GDP_sq = GDP^2

*add time lag
gen GDP_lag = GDP[_n-1]

gen GDP_sq_lag = GDP_sq[_n-1]

*analyse the effect of EU entrance between GDP (lagged value) and Gini Coefficient. First,
scaling down GDP values to make them easier to work with and interpret.
replace GDP = GDP / 1000
replace GDP_lag = GDP_lag / 1000

reg Gini c.(GDP_lag)##i.EU_entrance GDP_sq_lag i.Year i.country_id if eastern_eu == 1 &
Country != "Bulgaria", robust

avplot 1.EU_entrance#c.GDP_lag, xtitle(E[Join EU*GDP_t-1 percapita | Country, Year FE])
ytitle(E[Gini_t | Country, Year FE])
```