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PhD DISSERTATION

Binnaz ÇOBAN



T.C.

ANKARA YILDIRIM BEYAZIT UNIVERSITY
THE INSTITUTE OF SOCIAL SCIENCES

**THE ROLE OF SOCIAL EXPENDITURE IN
REDUCING INCOME INEQUALITY: A
COMPONENT-BASED ANALYSIS FOR SELECTED
OECD COUNTRIES**

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BİNNAZ ÇOBAN

DEPARTMENT OF PUBLIC FINANCE

PROF. HÜSEYİN ŞEN

SUPERVISOR

Ankara, 2025

APPROVAL PAGE

The thesis, prepared by Binnaz ÇOBAN, titled “The Role of Social Expenditure in Reducing Income Inequality: A Component-Based Analysis for Selected OECD Countries” is accepted as a doctoral thesis at Ankara Yıldırım Beyazıt University, Institute of Social Sciences, Department of Public Finance by unanimous vote.

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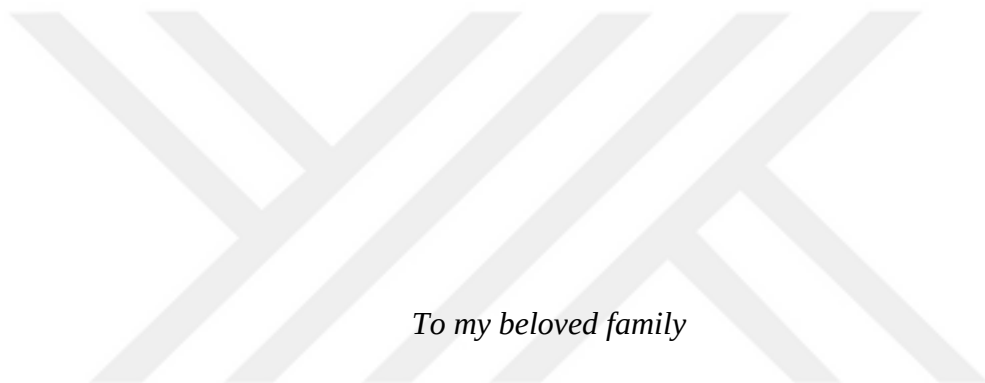
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DECLARATION

I hereby declare that all the information in this thesis has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and codes of conduct, I have fully cited and referenced all material and results that are not original to this work; otherwise, I accept all legal responsibility (09.05.2025).

Signature
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To my beloved family

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ABSTRACT

The Role of Social Expenditure in Reducing Income Inequality: A Component-Based Analysis for Selected OECD Countries

Disparity in income levels is a critical measure of societal welfare, reflecting disparities in individuals' ability to meet basic needs. This disparity is a complex issue arising from various sources, including individual capabilities, inherited wealth, and unequal distribution. Addressing such inequalities necessitates robust fiscal policies. Despite attributions solely to government policies, income inequality is multifaceted. Recognizing income inequality as a global concern, efforts to comprehend and alleviate it persist. At this point, social expenditures, encompassing health, education, and social protection, emerge as pivotal tools. Driven by the intricate dynamics of income inequality—a persistent issue affecting both industrialized and developing nations regardless of their economic strength—this thesis seeks to analyse the connection between social expenditures and income distribution. This study focuses on 26 chosen member nations of the OECD during the span between 1995 and 2021. For empirical analysis, a relatively new method known as the Augmented Mean Group (AMG) coefficient estimator is deployed, which incorporates both panel and country-specific coefficient estimations while considering CD and heterogeneity. Furthermore, five different models are established based on the COFOG and various additional control variables are incorporated into these models. The findings of the thesis are threefold. First, when total social expenditures are examined without disaggregation into sub-components these expenditures can positively affect income distribution, or the coefficients are statistically insignificant. However, when expenditures are analysed according to their sub-components, they can distort income distribution in some countries. Second, income inequality significantly increases in some countries during crisis periods, while in others, a positive effect on income distribution is observed. More importantly, during non-crisis periods, some countries fail to rectify income distribution, whereas effective reforms and robust fiscal policy enable them to achieve a positive effect on income distribution. Lastly, social expenditures, both collectively and as sub-components, can contribute to improving income distribution. These effects can be achieved through the policy recommendations outlined in the thesis conclusion.

Keywords: Augmented Mean Group (AMG) coefficient estimator, income inequality, OECD countries, social expenditures

ÖZET

Gelir Eşitsizliğini Azaltmada Sosyal Harcamaların Rolü: Seçilmiş OECD Ülkeleri için Bileşen Temelli Bir Analiz

Gelir eşitsizliği, toplumsal refahın önemli bir ölçüsüdür ve toplumdaki bireylerin temel ihtiyaçlarını karşılama becerilerindeki farklılıkları yansıtır. Bu eşitsizlik bireysel yetenekler, nesiller arası miras alınan varlık ve eşitsiz gelir dağılımı gibi birçok kaynaktan beslenen kompleks bir konudur. Eşitsizliğin giderilmesi ise güçlü maliye politikalarını gerektirir. Yalnızca hükümet politikalarına atfedilmesine rağmen gelir eşitsizliği çok yönlü bir konudur. Gelir eşitsizliğini küresel bir sorun olarak kabul ederek, konuyu anlama ve eşitsizliği düşürme çabaları halen devam etmektedir. Bu noktada sağlık, eğitim ve sosyal korunmayı kapsayan sosyal harcamalar önemli bir araç olarak karşımıza çıkmaktadır. Ekonomik güçlerinden bağımsız olarak sanayileşmiş ve gelişmekte olan bütün ülkelerin ortak sorunu olan gelir eşitsizliğinin karmaşık dinamiklerinden motive olarak hazırlanan bu tez, 1995 ile 2021 arası dönem için seçilmiş 26 OECD üyesi ülkeye odaklanarak sosyal harcamalar ile gelir dağılımı arasındaki etkileşimi açıklamayı amaçlamaktadır. Ampirik analizde yatay kesit bağımlılığı ve heterojenliği göz önünde bulundurarak hem panele hem de ülkeye özgü katsayı tahminleri yapabilen ve nispeten yeni bir yöntem olan AMG katsayı tahmincisi kullanılmıştır. Ayrıca kamu harcamalarının fonksiyonel sınıflandırmasına dayalı olarak beş farklı model oluşturulmuş ve bu modellere çeşitli kontrol değişkenleri eklenmiştir. Tez üç farklı sonucu ortaya koymaktadır. Birincisi, toplam sosyal harcamalar alt bileşenlerine ayrılmadan incelendiğinde, bu harcamaların gelir dağılımını olumlu yönde etkileyebildiği veya katsayıların istatistiksel olarak anlamsız olduğu ortaya çıkmaktadır. Ancak harcamalar alt bileşenlerine göre incelendiğinde bazı ülkelerde bu harcamaların gelir dağılımını bozabildiği görülmektedir. İkincisi, kriz dönemlerinde bazı ülkelerde gelir eşitsizliği ciddi oranda artarken bazılarında ise gelir dağılımı üzerinde olumlu bir etki yaratılabilmektedir. Daha da önemlisi, kriz olmayan dönemlerde bazı ülkeler gelir dağılımını düzeltmekte başarısız olurken, etkili reformlar ve güçlü maliye politikası sayesinde gelir dağılımı üzerinde olumlu etki yaratmayı başarmışlardır. Son olarak, sosyal harcamalar hem bir bütün olarak hem de alt bileşen bazında gelir dağılımını olumlu yönde etkileyebilmektedirler. Bu etkilere ulaşmak için tezin sonuç bölümünde özetlenen politika önerileri dikkate alınmalıdır.

Anahtar Kelimeler: Augmented mean group (AMG) katsayı tahmincisi, gelir eşitsizliği, OECD ülkeleri, sosyal harcamalar.

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LIST OF ABBREVIATIONS

AMG	: Augmented Mean Group
CADF	: Cross-Sectional Augmented Dickey-Fuller
CD	: Cross-Section Dependency
CD _{LM}	: Scaled Lagrange Multiplier Cross-Section Dependency
CIPS	: Cross-Sectionally Im-Pesaran-Shin
COFOG	: Classification of Functions of Government
EU	: European Union
GMM	: Generalized Method of Moments
IMF	: International Monetary Fund
IPS	: Im-Pesaran-Shin
LM	: Lagrange Multiplier
LM _{adj}	: Adjusted Lagrange Multiplier
N	: Cross-section Dimension of Model
OECD	: Organization for Economic Co-operation and Development
OLS	: Ordinary Least Square
PD	: The Pigou-Dalton Principle
T	: Time Dimension of Model
UK	: United Kingdom
USA	: United States of America
n.e.c.	: not elsewhere classified

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1. INTRODUCTION

This thesis focuses on the empirical investigation into how social expenditures affect income disparity using data from a panel of selected 26 member states of the Organisation for Economic Co-operation and Development (OECD) over the period from 1995 to 2021. The thesis comprises five chapters in total. The first chapter contains the motivation of the thesis, research questions, and the statement of the research problem of empirical analysis. The concluding part of this chapter presents a detailed explanation of this thesis's contribution to the existing literature.

1.1. Motivation of the Thesis

Income disparity is characterized by the unequal allocation of overall income among individuals residing within a nation, who either directly or indirectly contribute to its growth, or are unable to contribute due to various barriers. Income inequality has been widely studied with economic growth, particularly by Simon Kuznets, who became popular for his research on the cause-and-effect relationship between income gap and economic expansion. Historically, income inequality has existed since human civilization first emerged, with instances of people rebelling against authority due to heavy taxation and deprivation, thereby playing significant roles in transitions among regimes. Therefore, it can be contended that the origins of inequality trace back to the earliest chapters of human history, emerging alongside the transition to communal living and the formation of organized governance systems.

Today, income inequality has transcended beyond being solely a problem at the national scale and has become a major and concerning international issue, largely due to globalization. At an academic level, the discourse on income inequality has been going on for decades, particularly in the social sciences. Studies in this field indicate that while the effects and extent of income inequality differ among countries due to their distinct socioeconomic and policy contexts, there has been a widening gap between the top earners,

often referred to as the wealthy, and the lower-income individuals, who are considered as part of the poor segment of society within time. The top earners have obtained significant increases in their incomes, while those in the lower-income brackets have experienced slower wage growth in nearly all countries of the world (Cingano, 2014: 8), and this disparity continues to fluctuate over time, occasionally decreasing and increasing as a persistent trend. This trend is frequently attributed to factors influencing income inequality, apart from globalization, such as technological advancements, macroeconomic factors like inflation as well as the tax system, shifts in labour markets that favour high-skilled workers, and the declining trend in income mobility.¹

The results drawn from the historical trajectory of income inequality underscore its potential to significantly disrupt social order. This degradation will be elaborated further in subsequent sections to provide a brief example, high levels of income inequality can have negative social consequences, like ascending social tensions, reduced social cohesion, feelings of resentment, social divisions, and political instability. Because of these mentioned deteriorations, governments and policymakers make an effort to explore different policy approaches to address this inequality, like progressive taxation, social safety nets, minimum wage adjustments, investment in education and skills training, and promoting inclusive economic growth. These efforts are closely centred on social expenditures.

Social expenditures represent a cornerstone of the welfare state, which aims to ensure income security and support individuals' consumption needs across different life stages, including retirement, employment, and periods of unemployment. Additionally, the welfare state provides essential social provisions, including education and healthcare, designed to address the changing needs of society. The overarching goal is to alleviate poverty, ensure the well-being of society at large (Lindbeck, 2003: 2), and reduce income inequality. General speaking, although these expenditures focus on the social and economic orders and human necessities, the importance of social expenditures during a crisis has been understood in the last decades, especially to eliminate the negative consequences of crises, the 2008-2009 financial downturn and the COVID-19 pandemic outbreak, they are used as the main tool.

¹ Income mobility refers to the ability of individuals to progress upward on the income ladder over time.

Considering the fundamental functions of social expenditures in promoting income equality as well as combating destitution, this thesis aims to understand the connection between social expenditures and income disparity by elucidating whether these expenditures affect income equality positive way. Contrary to other studies, social expenditures will be examined not as a unified, but rather by disaggregating them into their components, utilizing the Classification of Functions of Government (COFOG) public expenditure classification system. The main motivations of this research are centred on enhancing policy efficacy, fostering evidence-driven decision-making processes, and optimizing the effectiveness of social welfare programs. These aims are driven by the need to know the complexities associated with income inequality within a society and aspire towards the realization of a fairer society with increased equality of opportunities. Additionally, the research seeks to contribute to fostering social stability and peace by addressing these complexities, while also striving to develop policies that promote economic growth alongside a fairer allocation of income resources. As known social expenditures not only aim to address income inequality but also have implications for poverty reduction and social mobility, the thesis can explore how social expenditures affects poverty rates, and the ability of individuals to move up the socioeconomic ladder. With examining this relationship, it is intended to inform policymakers about the probable positive impact of specified social expenditures and social policies on a more equal income distribution.

The thesis, motivated by these reasons, will cover the period from 1995 to 2021. The reason for this is that the COFOG began to classify public expenditures in 1995 for the first time; as of the writing date of the thesis, accessible data according to this classification can only be obtained for the latest year, 2021. Therefore, the econometric analysis is limited to 27 years. The OECD is generally regarded as an organization comprising economically powerful countries. These countries are known for having addressed many social problems due to their economic strength. Consequently, the thesis focuses on OECD member states because of their potential effectiveness in addressing income inequality through social expenditures. The countries included in the analysis are also considered since they strive to fulfil the functions of the welfare state. COFOG extensively categorizes public expenditures into 10 different types of expenditures. However, not all member countries of the OECD can provide COFOG data for the studied period. Therefore, econometric analysis will be conducted on 26 member countries with no data deficiency.

1.2. Main Research Questions of the Thesis

Social expenditures are usually divided into three categories in the literature. These are: i) expenditures on health, ii) expenditures on education, and iii) expenditures on social protection. Expenditures allocated to health and education are commonly referred to as investments in labour force potential, also referred to as human capital, too. The notion of human capital denotes the economic value generated from an individual's accumulated knowledge, experience, and abilities, including factors such as education, training, intelligence, skills, and health. These components are crucial contributors to economic stability and growth. Based on these categories of expenditures, our main research question is "What is the optimal level of social expenditures to avoid the negative effects of these expenditures on growth in the selected OECD countries? May social expenditures contribute to achieving a fairer income distribution? Are there potential differences in the impact on income distribution between social expenditure policies during crisis periods and those during non-crisis periods in countries?" Some other potential research questions, which will be scrutinized in the thesis and be aimed to find answers, can be itemized as follows:

- ❑ Do the individual sub-components of social expenditures exert a different effect on income allocation compared to the overall effect of total social expenditures?
- ❑ Which type of social expenditure is more successful in rectifying income distribution?
- ❑ Is it possible to suggest that social expenditures play a more significant role in enhancing income equality in nations with higher per capita income?
- ❑ What other factors play a crucial role in the connection between social expenditures and income allocation?
- ❑ What guidelines should be adhered to enhance the impact of social expenditure in addressing income distribution?

1.3. Statement of the Research Problem

As stated earlier, the thesis aims to explore the potential for a beneficial connection between public expenditures and income equality. By doing this, the present thesis will test whether a link exists between public expenditures and income inequality for selected OECD member countries during the period 1995-2021. To achieve this goal, appropriate proxy measures for certain control variables and available data are utilized in the econometric

models. While income inequality will be specified as the dependent variable, social expenditures according to the COFOG will be utilized as the independent variable. Additionally, different important control variables, which can influence income inequality except for social expenditures, will be added to these econometric models. Given the potential variance in the effect of different social expenditures on income disparity, the hypotheses of this thesis are outlined as follows:

Hypothesis 1: Social expenditures are negatively associated with income inequality.

Hypothesis 2: Targeted social expenditures have a stronger negative association with income inequality than general social expenditures.

Hypothesis 3: The most impactful form of social expenditures in reducing income inequality is investment in human capital.

Hypothesis 4: Social expenditures disproportionately benefit lower-income groups, reducing overall income inequality.

Hypothesis 5: Structural barriers weaken the influence of social expenditures on income inequality.

1.4. Potential Contribution of the Thesis to the Literature

This thesis focuses on social expenditure allocations that may be needed to address inequality issues more effectively and it can shed light on potential gaps or areas for improvement in social expenditure policies. Being a comparative analysis, this thesis executed on social expenditures and income disparity in selected nations belonging to the OECD can provide valuable insights into best practices and policy approaches. Analysing the experiences of different countries can provide successful strategies to policymakers and identify potential pitfalls creating income inequality to avoid.

Unlike previous studies focusing on the same issue, this thesis scrutinizes the connection between social expenditures and income disparity by utilizing second-generation econometric tests that consider cross-sectional dependency (CD) and homogeneity of coefficients among the cross-sections and variables. Because the second-generation tests are relatively new approaches than the first-generation tests, we expect that the findings of this

thesis will be more current and valid. Moreover, unlike prior studies, this thesis will incorporate social expenditures into the econometric analysis by disaggregating them based on their sub-components according to the COFOG public expenditure classification, rather than treating them as a singular entity. This approach enables the evaluation of the potential impact of individual components of social expenditures on income allocation. Furthermore, the impact of different social expenditures executed during the crisis period on income distribution will be interpreted by utilizing a dummy variable. Thus, the outcomes provided by this thesis give conceptual, theoretical, and empirical lenses through which social expenditure policies can be analysed, evaluated, and understood. By considering these findings, researchers, politicians, and policymakers can gain a current understanding and perspectives that can inform social expenditure programs and shape their results.

Naturally, this thesis also has certain limitations. In a broader context, these limitations can be outlined as follows: First and foremost, the study period starts with the year 1995 because the classification of social expenditures according to the COFOG began in 1995. The thesis uses the last date as 2021 due to data availability constraints. Because of these mentioned limitations, the time interval of the study is determined between 1995 and 2021. Additionally, this examination will be restricted to the limited OECD member countries, based on data availability in these nations as per the COFOG classification. Despite the existence of numerous social and economic variables influencing income inequality, not all of these variables could be included in the analysis due to data limitations and computational constraints. Instead, the study focuses on the most significant variables and those that provide a balanced dataset suitable for econometric analysis. Lastly, while this study aims to conduct a long-term analysis, the time span being restricted to only 27 years has necessitated the inclusion of only balanced variables, which has emerged as a key constraint of the research.

The structure of this thesis is organized in the following manner: Chapter 2 outlines the conceptual as well as theoretical framework surrounding social expenditures, while Chapter 3 offers an overview of income inequality. Chapter 4 provides an in-depth review within the empirical body of work examining the connection between publicly provided social spending and income disparity, formulates the hypotheses, and conducts an empirical analysis using second-generation econometric tests. Finally, Chapter 5 presents and interprets the econometric findings, accompanied by a summary and concluding remarks.

2. SOCIAL EXPENDITURES: CONCEPTUAL AND THEORETICAL FRAMEWORK

This chapter establishes the conceptual and theoretical foundation for understanding social expenditures, which has been one of the most discussed topics in countries with varying levels of economic power in recent decades due to many factors such as economic crises, a changing understanding of the welfare state, and, above all, increasing income inequality.

2.1. Conceptual Framework of Social Expenditures

The conceptual framework of social expenditures encompasses various critical considerations that facilitate the comprehension and examination of the nature, objectives, and impacts of such expenditures. These issues are intricately linked to government resource allocation towards programs and policies aimed at addressing social welfare requirements. This framework is generally guided by several foundational principles and concepts, including the historical and contemporary context of the welfare state with the dynamics of public welfare initiatives, the increasing demand for social expenditures over time, the impacts of social expenditures on both social and economic cycles, the identification of target populations, strategies for securing sustainable resources to fund these expenditures, and projections of future trends in social policies and expenditures. To better detect the importance of social expenditure this sub-section will clarify the conceptual framework of social expenditures and argue why they become necessary in the modern world and will be indispensable in tomorrow's world.

2.1.1. Social Expenditures, Welfare State, and Social Policy: A Historical and Contemporary Nexus

Primitive societies went through certain stages. Initially, humans can be characterized as inherently free, but this freedom becomes constrained and altered as they enter society. When individuals join society, they enter into a social contract to establish a government

aimed at ensuring social order (Rousseau, 1762). This contract caused them to become politicized and created the formalization of the states. The power struggle and economic factors are also said to be effective in the emergence of these states. In this framework, while the family serves as a small-scale model of the state, the state operates as a magnified version of the family (Eberhard and Berk 1944). According to the new order, people started to live collectively in the same communities and this lifestyle required meeting collective needs like defence and justice at the same time individual needs like nutrition and shelter. While the collective needs were addressed by income obtained from individuals depending on some rules, individual needs were left to personal effort. However, over time, some people living in these communities were understood to remain not capable of their demands because of some deficiencies like mental or physical handicaps and these unmet needs could harm the whole of these societies. Thus, with the inception of the initial premise of the social expenditures concept, the needs of certain individuals began to be collectively addressed by society.

The growing need for social expenditures over time has given rise to welfare states. The welfare state emerged not only to support disadvantaged groups but also to mitigate social inequalities and guarantee that every individual can live a life consistent with human dignity. Therefore, social expenditures were seen as a key component of the social welfare system and viewed as a tool to promote societal justice and preserve social equilibrium. In the context of social welfare systems, Esping-Andersen (1990) examines the different political strategies regarding public spending and defines the welfare state as a framework, where the state actively intervenes to safeguard economic and social rights while enhancing citizens' overall well-being. The author characterizes social expenditures as financial allocations aimed at safeguarding economic and social rights while promoting citizens' well-being. These expenditures are typically focused on essential sectors including education, healthcare, and social protection and they help individuals meet their basic needs and access better living conditions, while also having the potential to reduce societal inequalities and balance social class differences. In essence, social policy serves as the driving force behind the allocation and utilization of these expenditures.

Social policy encompasses government actions and interventions designed to address social challenges, enhance social welfare, and improve the overall well-being of citizens. Social expenditures serve as the financial backbone of social policy, enabling the

implementation of various welfare programs and initiatives. Through strategic allocation and management, social expenditures translate policy objectives into tangible benefits for individuals and communities. Social policies primarily concentrate on objectives such as regulating income distribution, enhancing equal access to education and healthcare services, combating unemployment, and supporting disadvantaged groups. While striving to diminish social inequalities by utilizing various means to promote justice and welfare in society, social policies also develop new objectives to enhance overall societal well-being per contemporary demands. In this context, social expenditures and social policy are fundamental elements for societal development and human welfare, profoundly impacting the social structures and dynamics of society. As social policy is a tool to realize social welfare standards the policies should aim that every person has a minimum norm and opportunities (Hagenbuch, 1958: 205). Inspiring by the social policy and welfare state concepts Briggs (1961) identifies the welfare standards as minimum income for all, social protection against illnesses or old age, and the provision of a certain range of social services. To serve these standards, social policies should contain at least three objectives: i) the social policies should be directed to the beneficent, ii) they should include economic and non-economic targets like minimum wages and sustainability, iii) they should redistribute income from rich to poor (Titmuss, 1974: 144). According to the writers' arguments, when these standards and social policies are implemented, the concept of the welfare state can be fully realized.

When social policies are examined today, the general approach of contemporary policies in practice is seen to be focusing on families since there is a joint expectation between states and families. States expect families to provide necessities for their members like food and shelter and to direct their young persons to comply with the laws and norms of communities. On the other hand, families expect their states to provide education and healthcare facilities to realize their anticipated functions. So, both families and states are intimately involved in the achievement of social welfare (Dinitto, 2009: 21) with the implementation of social policies and social expenditures. In modern contexts, social expenditures are carried out by both governments and the private sector through benefits and financial contributions, such as direct payments for specific goods or services (in-kind provision) and/or individual transfers. These expenditures aim to provide support to these persons during circumstances that adversely affect their welfare (OECD, 2019: 8). Besides its social effects like the aid for those in need and/or redistribution of income among persons,

the social expenditures have also economic effects like growth in gross domestic product (GDP), crowding-out, or crowding-in. These effects depend on the phases of the economic cycles (Furceri and Zdzienicka, 2012: 148-149). Especially during economic downturns, both effects of social expenditures can be observed strongly and apparently. Therefore, in today's context, social expenditures should be carefully analysed within the framework of social policies and their economic effects and contributions. Based on these analyses, they need to be continuously revised and adjusted.

2.1.2. Growing Need for Social Expenditures in Today's Societies: Positive and Negative Impacts on Trends and Prospects

The world has changed over time and almost all the conditions, which are related to humankind living, have experienced this change. Keeping up with this alteration is important for the development of countries and to hinder social upheavals, the administrations have been on the alert, by reviewing all kinds of standards frequently and updating the necessary regulations according to this change.

When conducting sociological and economic analyses, a conceptual gap between subjectivities and socio-structural processes becomes apparent, which poses many difficulties in determining social change and diversity. At the beginning of the analysis, the exploration of significant alterations in the family structure like fertility, gender relations, and childcare, moreover, changing norms like social relations, and perception of fairness should be investigated elaborately (Irwin, 2005: 2-9). When the root of the alteration is scrutinized, firstly it can be mentioned technological advancements. Fundamentally, everything is claimed to be derived from the new situation created by technological phenomena in society (Ellul, 1980: 220). Majorly, the advancements coming from this technology have a crucial impact on changing living standards like increased efficiency, productivity, convenience for access to information, learning platforms, educational resources, collaboration, sharing knowledge, and cultural exchange. With these new standards, individuals can empower themselves, promote their knowledge, and enhance their intellectual development. In addition, the improved healthcare provided by this technology, which enables better diagnosis, treatment, and prevention of disease, can lead to increased life expectancy and quality of life. Increased productivity can drive economic growth, generate new employment opportunities, and elevate income levels.

Aside from these positive impacts of technological advancements, it is worth that socioeconomic factors can obstruct access to mentioned above-mentioned convenience and this creates disparities in the distribution of these benefits among the citizens. Many countries, especially developing ones are susceptible to the adverse conclusions of technology. For example, economic growth depending on digitalism can cause diversified social costs like higher unemployment, wage reduction, and ecological problems (Popkova et al., 2022). At this juncture, a critical issue that governments must address is ensuring equitable access for citizens to the benefits derived from technological advancements. Disparities in the allocation of these benefits can intensify existing social and economic inequalities. The role of social expenditures arises from the aim, which is the elimination of the probable existence of inequality in society. Especially, education expenditures will close the gap between those who easily reach technological opportunities and those who have difficulty in reaching these opportunities. In this case, since the demand for the unqualified labour force will decrease, the preparation of this unqualified labour force for new work fields through retraining programs will prevent the increase in the unemployment level. Furthermore, excessive usage of technology, such as smartphones and computers, can pave the way for physical and mental health problems. Sedentary lifestyles and social isolation with technology addiction are among the negative health consequences associated with technology overuse. These adverse effects will increase health spending. Nevertheless, if the increase in health expenditures is designed in a targeted and strategic manner, it may yield positive outcomes in terms of labour productivity. In particular, increasing health expenditures—especially those directed toward preventive health services—are expected to enhance labour productivity. Empirical research points to a short-term causal relationship between preventive health expenditures and labour productivity. For instance, a Granger causality relationship has been identified between expenditures on preventive health services and labour productivity in Denmark, France, Norway, Luxembourg, and the Netherlands (Şen Toprak and Çoban, 2025). This finding highlights the importance of healthcare spending not only in improving public health but also in boosting economic productivity.

Ascending living standards and life expectancy over time can also create more expectations from government services. Citizens interacting with each other, and foreign people, can claim new facilities. Unmet needs can lead to social upheaval. As the aging population grows, it places greater strain on the working population, which can negatively affect economic growth. Over time, population aging intensifies the upward pressure on

social expenditures, driven by the rising demand for healthcare and income support for retired individuals.

The other root of the alteration is globalization, specified as another conclusion of technological advances. Globalism is a relatively recent term, often characterized as an ambiguous and multifaceted concept. It is often described as the transformation of the global order and a historic revolution at the dawn of the 21st century. This shift lays the foundation for the reformation of social, political, economic, and cultural institutions (Bell, 2003: 801). On one side, globalization is a trend related to many desirable outcomes, on the other side, it is a concern particularly the distributional effect of it. Mitigating the inequality of economic globalization is important (Bergh et al., 2020: 105). From an economic perspective, globalization fosters trade activities by promoting the movement of goods, services, and capital among countries, thereby contributing to economic growth and prosperity. However, globalization also comes with challenges. One of these challenges is the rapid spread of crises among countries. Due to increased interconnectedness, economic shocks in one country can quickly transmit to others, leading to contagion effects and global economic instability. Furthermore, globalization can increase the vulnerability of economic agents, such as businesses and individuals, to various risks and uncertainties, including financial market volatility, supply chain disruptions, and currency fluctuations.

A crisis that broke out in any part of the world has begun to easily affect a country in another part of the world due to the tight interconnection of commercial networks. The possibility of a sudden and unexpected outbreak of a crisis has forced governments to be on the alert because the negative conclusions of the crisis mostly deteriorate income inequality and increase social expenditures. The crises experienced micro or macro level are periods when many indicators related to current debt and banking system deteriorate, and the country's economy is hit by entering this dead end. In these periods, while the states tried to eliminate risks caused by this deterioration in economic indicators, the people struggled with poverty, which led to the loss of income and welfare. The means that the state uses to protect society and keep it alive in this struggle is social expenditures (Öksüz and Aydın, 2022: 97). When a downturn breaks out, the social expenditures on unemployment and social assistance payments tends to be a rising trend, and generally, a peak in social expenditures is recorded. For instance, during the 2008-2009 financial crisis, social expenditures in OECD countries averaged 21% of GDP, despite a decline in GDP in many member countries. Similarly,

during the COVID-19 pandemic, increased demands for healthcare and a broad range of social support measures were implemented to address the negative economic impacts of the crisis (OECD, 2020a: 2). Although the prevalence of the virus causing the epidemic is decreasing day by day, the economic deterioration caused by this epidemic is expected to spread for many years.

Thus, mostly the results of the profound change in technological advancements creating globalization, ascending expectations of citizens for living standard from welfare states, aging population, and injustice in the social and economic lives, changing job structures, and transitivity of crisis among the economies have led to a great increase in the social expenditures over the time. To cope with these main problems, the administrations will produce social policies. When these social policies are implemented in line with the objectives of these policies will probably be effective in problem-solving. However, this will also require extreme financial resources.

2.1.3. Contribution of Social Expenditures to Reducing Income Inequality

Social expenditures play a crucial role mainly in addressing social inequalities and promoting the well-being of citizens. Governments allocate substantial resources for various social programs targeting specific populations within the social policy context. Social policy is defined as a context of expedient objectives by examining the social problems and their specific solutions and goals of social spending policies like poverty alleviation, income redistribution, and social protection. In addition to these objectives, this spending is intended to improve social mobility, reduce social inequality, promote economic growth, and strengthen social cohesion. This context will point to the volume of social expenditures. Meanwhile, the political and economic considerations that are accepted by the governments, economic conditions, and public opinion about well-being standards will also be effective in the selection of the amount and types of social spending determined in this context.

Some services encountered by governments are specified as being essential by the literature and policymakers because their presence increases the well-being of the whole community. These essential services encompass a range of activities, primarily focused on health, education, and housing. Considering these essential activities, the literature divides social expenditures mainly into three categories covering health, education, and social protection spending. The benefits served by the expenditures and focusing on these three

categories target selected persons, who are vulnerable and incapable of meeting their basic needs. They could be low-income households, the disabled, the elderly, the unemployed, the sick, or young people (OECD, 2023). Improvement in the access of these people to the services thoroughly designed and funded will reduce the economic vulnerability of persons in need.

In addition to allocating the proper amount of appropriation from the government budget for social expenditures, the extreme challenge to be overcome by the policymakers is to determine whether targeted citizen accepts benefits without disturbing the social order. Over the years many different approaches have been used by authorities. Some of them can be listed as follows (Mackay, 2001: 1-10):

- ❑ The first approach involves means testing, a method used to assess the income and assets of applicants to determine their eligibility for benefits. As a common tool for identifying the target population, means testing is widely employed in numerous countries, especially within the social assistance framework.
- ❑ The second approach involves targeting through categorical classification. Assessing the income, assets, and needs of individuals can often be complex. To simplify this process, the target population is instead grouped into specific categories, such as individuals with disabilities, the elderly, the unemployed, or those living alone. The items are the proxies to indicate the higher level of needy persons in the community.
- ❑ The third approach, which is the combination of the mentioned two approaches, targets the needs by detailed examination in addition to the assessment of their assets and income, their statutes like accommodation cost, health status, and disability level that is an obstacle to work are also investigated.
- ❑ The fourth approach is geological targeting instruments called the socio-economic decomposition scrutinizing the openly visible characteristics of living like electricity and drinkable water. This system divides neighbourhoods and rural areas into different classes based on the external traits of houses and neighbourhoods in a country. The subsidies can be served by local and central government (Castañeda, 2005: 1-4).

Evaluating the efficiency and effectiveness of social expenditures within the policy framework presents a complex and multifaceted challenge. There can be many problems during the implementation of the spending process. Initially, services should focus on the target population, and errors arising from exclusion or inclusion should be minimized.

Contrary to what was intended by social expenditures, these errors increase inequality and deteriorate social justice in society. The sustainability of spending is just as important for the provision of social services. Some challenges rooted in funding can cause social disorders. Robust evaluation and control mechanisms can assess the real impact of social expenditures and this evaluation can lead to appropriate evidence-based policy adjustment.

A variety of factors leads to a profound increase in social expenditures. The steep increases in recipient numbers can be determined to be a dominant factor underlying this growth in these expenditures (Saunders, 2009: 299). This climbing trend come to the point of pushing the budget limits. While this budget is exposed to decreasing per capita income due to unexpected global negative effects, it is also responsible for those in need, which increases with the negativity of these effects. Given this reality, it is not surprising that, over the past decades, many social expenditure programs have undergone revisions aimed at narrowing their beneficiary scope. These revisions often emphasize means testing, income assessments, diagnostic criteria, and tax relief measures (Gilbert, 2001: 18). With tax and education reforms, vocational training, and retraining programs, governments struggle with this trend.

Targeting populations in need within the policy context of social expenditures is vital for addressing social disparities, increasing income equality, and improving the overall well-being of citizens. By determining the characteristics of target populations, within the social policy context, and evaluating the impact of social expenditures, policymakers can design more effective and inclusive social expenditure programs. Proper monitoring and evaluation are critical to achieving the desired long-term results for both target groups and society.

2.1.4. Resource Allocation for Social Expenditures

The government budget has a profound importance to the executive body. Without dispute, accountability of budgetary practices is the primary and essential mechanism of stable, democratic, and economically powerful societies. Ideas, decisions, and actions of authorities can be understood from the budget allocations, and they are meaningful and visible to society (Wanna et al., 2000). It is widely recognized that the proportion of public social expenditures in GDP serves as a crucial indicator of a country's commitment to the principles of a welfare state. This share also reveals the welfare level of the citizens living in that country (Öksüz and Aydın, 2022: 98). In terms of social expenditures, funding, and

resource allocation refers to the process of allocating financial resources and other assets to support social programs and services. This encompasses key sectors such as healthcare, education, housing, social security, and diverse forms of social assistance and services administered by governmental bodies or non-profit organizations. To realize these expenditures efficacious funding of resources is critical for the sustainability of optimum contribution to the persons in need. Typically, the required fund is attained from tax revenues, borrowing, and the reserve created with the voluntary and/or compulsory participation of beneficiaries. Before the attainment of this fund, the planning and programming actions related to social policy come forward during the budgeting process.

Social expenditures include both cash benefits and direct in-kind aids like services and goods that are accessible freely as well as reliefs for social aims. These benefits and aids can be public and private. While if they are served by a government budget that can be local and general level, it is called public social expenditures, if they are provided by a particular partnership, it is specified private social expenditures (OECD, 2023). The spending process planned by different government levels requires accurate discipline. Firstly, before the beginning of this process, policy priorities, the overall economic situation of countries, and political considerations should be considered together. To serve adequate support to persons in need, equity, and fairness values should be borne in mind. Secondly, the effective and efficient usage of resources should be united to maximize the impact of social expenditures. Thirdly, monitoring of the expenditures during the implementation process and evaluation of programs after the spending can give exact information to the policy-makers about to influence and sustainability of the social programs.

However, reaching desired social expenditures cannot be possible every time because there are many hindrances affecting the level and amount of funding for these expenditures. One of the most prominent hindrances is the crises that lead to procyclical trends in government spending growth (Lewis and Verhoeven, 2010). These crises are so harmful that they limit budgetary inputs and cause a tremendous increase in social expenditures. In other words, from one side they decrease the budget inputs, from the other side, increase the budget outputs by causing large budget deficits.

The limited financial resources in the non-crisis period can be cited as a further major obstacle. Governments often face budget constraints and competing priorities that can restrict the amount of funding available for social expenditures. In this circumstance, the

funding policy based on evidence and experience for social expenditures gives a greater chance of achieving the objectives of social policies. Many factors can be specified that may influence the potential size of the revenue side of the budget. At a fundamental level, these factors can be identified as political structures, economic activity, demographic dynamics, environmental conditions, external pressures, and societal values. For example, any shift in a country's political economy can significantly affect the structure and functioning of social health insurance systems. Additionally, the technical, and institutional capabilities of governments will detect the ability of revenue collection (Mossialos et al., 2002: 13). If there is an absence of accurate and reliable data on social indicators and outcomes, this deficiency can create a challenge to allocate resources effectively.

To overcome these hindrances, governments search for and utilize different options (Fritz, et al., 2019: 922-930) like i) investing in robust data collection systems to gather accurate and relevant data on social indicators, ii) collaborating with research institutions and academic organizations to analyse and interpret the conclusion of expenditures effectively, and to produce empirical evidence on the effectiveness of social programs and to gain a deeper understanding of societal needs and priorities, iii) enhancing the skills and expertise of staff working for the government to improve the quality and reliability of expenditure process, iv) leveraging technology and innovative solutions to improve the efficiency of data collection, analysis, and reporting processes.

By adopting these strategies, governments can address the challenges related to the social expenditure budgeting process and enhance the accuracy, reliability, and usability of social indicators and outcomes. This, in turn, can enable more effective resource allocation and decision-making in social expenditures.

2.1.5. Future Directions of Social Expenditures and Challenges

The extraordinary growth in social expenditures in advanced countries gives a new name to the time interval from 1960 to the first part of 1980, the Golden Era of the welfare (social) state. With the political consolidation of the social state, social expenditures surged to unprecedented levels in the 1960s. Even, the allocations of social expenditures were doubled in Western countries from 12.3% of GDP in 1960 to 23.3% of GDP in 1980. This expansion was slowed down by the oil crisis considerably (Gilbert, 2001: 15) but since that time there have been fluctuating increases and decreases. Considering these fluctuations, the

future directions of social expenditures can be said to be varied over time and influenced by various factors. These factors can be briefly summarized as main titles like evolving social needs, technological advancements, changing demographics, and fiscal sustainability.

It is an undeniable fact that the social needs of citizens follow a constantly changing and increasing process. Because of this mentioned fact, the administration of social expenditure will be a crucial matter in the future. The preconditions for the governance of social expenditures are to determine what the actual level of expenditure is, for what and for whom the fund is expended, what are the unmet needs, how should be the overall social expenditure, and their financial burden on the budget. To do this, reviewing different social scenarios under different economic conditions with related reform options can be important. At this point, social budgeting including understandable social accounting and substantive projection for social policies should be developed. At its core, social budgeting involves two key components: the compilation of expenditures and revenues associated with the social protection system, organized within a methodological framework based on statistical analysis. Additionally, it includes the forecasting of these expenditures and revenues over a medium-term horizon, along with simulations under varying financial, legislative, and demographic assumptions. This will constitute a significant component of overall government budgeting and long-term planning in the future. The revenues for this budget will primarily derive from economic agents, including tax and contribution payments made by individuals, enterprises, employees, and employers. The funds obtained from these agents will be allocated as cash and in-kind benefits to defined recipients (Scholz et al., 2000: 4-8) like today. This budgeting approach will give a deeper understanding and predictive power to policymakers for the possibility of unexpected changes in the social order and economic cycles.

Advanced production capability of technology, automation, and advancements in artificial intelligence can lead to job loss for certain occupations and the creation of new jobs requiring more qualified employees in the future. Thus, employees having low levels of education can begin to be jobless day by day. The other potential problem expected from technology is the further deterioration of existing economic inequality as the income obtained from technology disproportionately accrues to those who are already wealthy (Whitehouse, 2022: 16). The problem will be eliminated by governments by using social

expenditures increasing proportionally with the advancements. A frequent increase in unemployment benefits is expected in the future, but this cannot be sustainable.

As the changing demographics have a profound impact on social expenditures, understanding these demographic shifts is crucial for planning and adapting social welfare programs in the next time (Duchin and Hubacek, 2003: 67). Many countries are encountering a growing proportion of elderly populations, a consequence of rising life expectancies and declining birth rates. This demographic trend introduces considerable challenges for social expenditures, particularly within healthcare, long-term care, and pension systems (Boz and Özsarı, 2019: 162). In the future, social expenditures will need to be adjusted to address the specific needs and challenges of an aging population. Additionally, migration patterns contribute to demographic changes, as countries experience shifts in population composition due to international migration. International migration means that people from a foreign country come to live and work in another country by causing a population with different languages, values, and religions to contrast with native inhabitants. This changing demography can exacerbate existing social inequalities and disparities. In the short run, this immigration will create additional finance to provide new houses, teachers, civil servants, and language courses. For example, Sweden's refugee-related cost was 0.9% of GDP as of the year 2016 (Spies, 2018: 2-3). Continuous monitoring, data analysis, and collaboration with relevant stakeholders on population determinants, as well as critical limits and rules to be set at the international level when admitting immigrants, will be a solution to respond to the unique needs and challenges of the population.

With regard to fiscal sustainability, the constricted budgetary options coupled with the escalating demand for social welfare signal a looming crisis within the economy. Numerous nations find themselves grappling with the mounting aggregate costs associated with social expenditures, particularly those earmarked for social protection programs, in light of prevailing social policies. These expenditure levels have reached a point where they strain the bounds of economic viability, and it comes as no surprise that they are poised to surpass the economy's capacity shortly. While some countries have opted to scale back their social security provisions to minimal levels, prioritizing personal or private forms of security, others have resorted to restricting social protection only to individuals deemed to be in not a better financial position within the formal economy (Scholz et al., 2000: 3). Consequently, these restrictions inevitably result in a growing segment of the population being left without

any form of social security net. This trend raises critical concerns regarding the equitable distribution of resources and the long-term resilience of social safety nets amid prevailing economic challenges.

2.2. Theoretical Consideration of Social Expenditures

In this part of the thesis, to understand the underlying principles, theories, and perspectives of social expenditures, the theoretical framework of social expenditures including health, education, and social security spending, will be explained according to the literature. Although the welfare state concept is explained as a definition in the previous section, it will be covered and discussed as the theoretical base in this section.

2.2.1. Welfare State Theories and International Framework

When we think about where we have come from as a welfare society and where we should go, we can start by looking at the Beveridge Report (1942), which was introduced by William Beveridge, founder of designer of the British welfare state. Secondly, we can find out the approaches of Giddens (1998), who was a central figure in progressive politics from the 1990s to the 2000s. According to Beveridge, five giants are negative and need to be overcome to achieve societal progress. They are want, disease, ignorance, squalor, and idleness. Otherwise, Giddens gives five positive giants and suggests the need for increased reflexivity in today's modern world. These five giants related to positive welfare are linked and contrasted to Beveridge. They are described by him as autonomy instead of want, active health instead of disease, lifelong education instead of ignorance, well-being instead of squalor, and initiative instead of idleness (Greener, 2022: 3-4). Despite the varied approximations of the welfare state, it is a recent phrase, and firstly it was used to define Britain's labour in 1945. As a term, the agreed declaration can be defined as the state's commitment to eliminate poverty through immediate and direct intervention in the market aimed at reducing the influence of market forces (Briggs, 1961: 221).

Besides these fundamental approaches, as a term the welfare state has been labelled since the 1980s and the phrase was described roughly the same way by the Germans, the French, the Dutch, and the Swedes. In a word, welfare is openly related to poor relief and social security. Yet, in the social sciences, the term is frequently utilized for higher degrees of government intervention proposing to increase public well-being. According to Esping-

Anderson, the concept shows a relationship like “politics against markets” and is a need-driven expansion of social formation including budgetary soundness with affordability (Leibfried & Obinger, 2000: 277-278). Hence, social science and economic frameworks have conceptualized the welfare state in various ways, yet all aim to achieve the same fundamental objectives of promoting social welfare, reducing inequality, and ensuring economic security.

Intrinsically, “The Welfare State” was never created by the authorities, it emerged as a demand. Moreover, it was never an establishment yet is seen as an energetic concept and takes into consideration the changes in miscellaneous fields over time. It stems from the period following the aftermath of the Second World War, and it gradually expands, differentiating from its initial conception. It is also differentiated according to the administrative manner of governments. For example, democratic governments are determined as more efficient at being welfare states than the other administrations because of their sensibility to the shifting needs of citizens. If the trend of welfare state expenditures like health spending is scrutinized within twenty years, the converting process is specified to be expansion. This expansion is particularly comprehensible. Between 1980 and 1998, there was no decline in social expenditures, and the proportion of social expenditures in overall public spending grew substantially (Ringén, 2006: 9-10).

Like its different definitions, understandings, and approaches, the utilities of the welfare state are also different. Although countries declare in their constitutions to be the welfare states, when they are examined in terms of social services provided by them, different comprehension is observed. Due to the varying interpretations of welfare states, classifying them based on their similarities and differences is crucial for advancing social research. The criteria used to categorize welfare states can be divided into three main categories: the logic of industrialism, society-centred, and political class struggle (Myles and Quadagno, 2002: 35-37). Depending on these categories many writers have separated welfare states’ different types according to their common traits, but the main distinction of welfare states in the literature is recognized as the classification of Esping-Anderson². According to the writer, some of the welfare states are defined as generous about their

² For further information, see Esping-Anderson (1990)

welfare standards although others are specified as having limited welfare regularities and welfare states are commonly classified into three distinct categories: liberal, conservative, and social democratic. When examining what degree of generosity of the welfare states, this is understood from their social expenditures used as a tool for the distribution of welfare. For the reason explained, the debates in social science have focused on how social expenditures should be designed to be a comprehensive welfare state (Korpi and Palme, 1998: 661). Besides the discussion on the designation of social expenditures, the limitation of this expenditure to sustain economic growth and order is the other specific topic frequently focused on.

The fundamental purpose of the welfare state is determined to guard vulnerable persons from economic troubles especially those created by unexpected events like crises. Eliminating the crises created in the existing system by state intervention in social and economic affairs, and ensuring a more significant involvement of the state in these domains through the deployment of various policy instruments, constitutes the core actions of a government embracing the principles of a welfare state (Akman, 2017). To reach these objectives, a welfare state pursuing prosperity policies and programs distributes economic resources disproportionately to vulnerable persons in society (Brady, 2009: 71). Of course, since a society consists of different segments, firstly the basic building block of this society should be specified as family.

Budget constraints and the theorem of meeting unlimited needs with limited resources in economics put pressure on social expenditures. Many social policy scholars in political science, sociology, and economists have grown increasingly pessimistic about the future viability of the welfare state. Interdisciplinary consensus shows the probable hard times will be experienced in the welfare states. When the conditions of the present are revealed along with the past circumstances, a great number of OECD countries are seen to have faced ascending unemployment, public debt, and inflation with decreasing economic growth since the mid-1970s. Although these problems seem to be under control, the deterioration of the economic performance appears to be tremendous and this situation has decelerated welfare state expansion by causing debates on the future of welfare states (Bonoli et al., 2000). There is a good deal of proposed solutions in this debate. According to Kaufmann (2000), the primary welfare state dimensions should focus on personal services, income distribution, and labour protection. The main contrasts between faith and order in the market and

confidence in the state should be built in the way of justice in the social welfare sector. Welfare production should be expanded by including the perspective of households, but the high expansion of welfare standards can degenerate economic growth by deteriorating the working will. Thus, the welfare standards should be increased without eliminating the will to work. As the renowned philosopher Heraclitus once stated, “*The only constant is change.*” Given the ongoing transformations in social and economic life, it would be a highly pragmatic approach to anticipate further peaks in social expenditures.

2.2.2. Theories on Social Justice and Equity

Theories on social justice, equity, and social expenditures explore the connection between public spending and the efforts to create a more just and equitable society. These theories explore how the allocation of resources through social expenditures can address systemic inequalities and promote social well-being. The basis of social injustice in societies is the disregard for equity. After years of this disregard, economic inequality has come to the centre of policy debate eventually. The debate created by the apparent impact of technological change and globalization raising concern in advanced countries. Inequality is very high level in emerging countries and whether this creates an obstacle to growth rate and poverty level is an issue. In this position, the redistribution of income should be on the agenda not only for greater equality but also for faster growth and, poverty reduction. The precautions for the elimination of the problems are argued by policymakers. To reduce the disparity between the wealthy and the impoverished, it is proposed better education access for poor children and new taxes for affluent citizens. However, knowing more equal distribution is one thing, using the right instruments for this aim is another thing. There are different utensils from progressive taxation, investment in human capital, and cash transfers to inclusive growth strategies with regulations, yet they are seen to be vastly useless, especially in emerging economies (Bourguignon, 2018: 22). The idea under redistributive policies is that through income transfers or wealth taxes, society can mitigate the effects of economic disparities and create more equality. However, the opinion that only progressive taxation and targeted social expenditures would narrow the income gap and provide equal opportunities for individuals can be a restricted idea.

As the welfare state based on equal distribution of income and relevant social expenditures play a key role in social life, rather than the debate on the used utensils,

discussions can be about how and to what degree the intervention should be acceptable in the market and civil societies. Because of the changes in the demographic structure, global financial markets, and perception of state actions, policymakers are forced to more active role (Greve, 2015) in the social area. To achieve stronger equality, defining the target population is a critical process because of the restricted budget supply and the aims of effective, efficient, and economic usage of sources. To accomplish these goals, analysing the process of identifying the beneficiaries of social expenditures necessitates the establishment of criteria and characteristics that define specific groups in need. The beneficiaries can be the elderly, individuals having low incomes, or disabled citizens. But equality among these groups should be under consideration.

2.2.3. Human Capital Theory

The notion of human capital theory, a part of knowledge theory, emphasizes the importance of investing in education, skills development, and vocational training as a means to foster social justice and equity. Contrary to human dignity and the known definition of it, management of human capital goes back to early 1750, the slave plantation owners in West India. At that time the value of slaves was measured according to their production capacity (Huus, 2015: 2-3). But, after this implementation, the term has been rehabilitated and began to be pronounced in human patterns. If it is examined when the most accurate definition seen in the economy, 1962 comes to the fore. The theory was first developed by Schultz (1962) and Becker (1962). According to Schultz, the capabilities of humans can be developed through activities called investment. Such investments have the potential to significantly alter traditional patterns of savings and capital formation. They can also profoundly influence wage structures in relation to income from property, stimulate economic growth and influence the distribution of individual income through investments in education, healthcare, job training, job opportunity information, and migration. These changes are a direct result of human capital. Alternatively, Becker further developed the concept of human capital to encompass various other domains, including marriage and family dynamics. Schuller (2001) further defined it as an investment in education, healthcare, nutrition, vocational training, and acquiring knowledge about the economic system. Such investments enhance both the physical and mental capacities of individuals, thereby improving their real income potential.

This theory proclaims that social expenditures should be directed toward enhancing individuals' capabilities and opportunities for social mobility. By providing access to quality education based on knowledge and skills, vocational training, and lifelong learning opportunities, societies can empower individuals, increase productivity and a higher wage, and reduce inequality (Robinson and Pope, 2023). Though the theory is known to focus on investments in education, the services on healthcare and social facilitate are seen in that theory as the driver that contributes to the development and productivity of individuals, ultimately benefiting society. The exploration of the social expenditures that align with human capital has profound importance in raising potential long-term economic and social benefits of investing in human development. The capital includes different contents in business. It encompasses factors of production that can be natural and physical capital. While natural resources are land, water, or air, physical resources are building, capital, machinery, etc. Human capital is only a form of these contents and, as above-mentioned defined as the knowledge, skills, and experience of workers. These are seen as a value for the production (Huus, 2015: 2). To use human resources effectively, like other values, it should be measured. There are varied approaches to measuring it. To systematically analyse, measure, and evaluate the human resources' capacity, some writer argues that human capital can be rated quantitatively and qualitatively. Others propose that the measurement of it is not possible as it is intangible, and human is not owned by a company. According to them, the important thing is administration capacity in terms of human resource policies and practices to add value to an organization. This approach advocates the assessment of the contribution of human resources rather than measuring it with figures (Baron and Armstrong, 2007: 5-13). Although the measurement of human capital's feasibility continues to be a subject of debate, the investment of time and resources by both governments and private companies in human capital development has significantly risen. This upward trend appears to be persistent across numerous countries (Nordhaug, 1993: 178). Thus, human capital will remain on the agenda because of its potential to boost growth and reduce income inequality with social mobility caused by education. For this reason, social expenditures have an inevitable increase to support human capital.

2.2.4. Social Investment Approach

The social components of investment are confusing issues. Many terms cannot be separated from one another in economics in that concept. At first glance, social investment

and social expenditures have a different meaning. While investment means spending on goods, which are not consumed but utilized for future production, and delayed consumption in economic theory, social expenditures are directly related to current individual utility, and they may or may not affect the production capacity. Human capital and social investment are not the same, otherwise. The advocates of human capital strongly argue that since skills increased with education and training can enhance the production capacity, human capital should be understood as a physical means of production. This can be true from a microeconomic perspective because the earnings of individuals can be enhanced via education. Yet, from a macroeconomic perspective, an educated and skilled workforce can have a central role in promoting economic growth. In this sense, education can represent a type of investment, which is different from spending on physical items like factories and machinery, yet it represents a quantifiable return in terms of extra income. It is also related to consumption because it produces enjoyment and fulfilment. Thus, the distinction between human capital and social investment is not a clear issue (Nolan, 2013: 463) but social investment is a broader concept than human capital.

According to Schuller (2001), capital exists in three forms: human, social, and cultural. Human capital is a well-established and widely employed concept in both theoretical and empirical research, with its origins tracing back to Schultz and Becker in the 1960s. The standard measures of human capital include the level of qualifications and the duration of schooling. Cultural capital, on the other hand, is a more academic term, first identified by Bourdieu (1986). The author interprets cultural capital as the cultural resources held by citizens and their ancestry. This form of capital is often used to explain the reproduction of social hierarchies—elite families, for instance, pass down cultural capital to their children, helping them sustain and succeed in elite positions. However, the term is also applied to explain how some individuals use education to move from non-elite positions to elite ones. As for social capital, its definition can be somewhat ambiguous due to its overlap with other concepts. Most scholars define it as a form of networks, trust, and norms that enable individuals and institutions to achieve common goals more effectively. While measuring social capital is challenging, the most common approach focuses on trust levels and looks at indicators such as participation in civic activities, including membership in voluntary associations or political parties. Social capital is used to explain a wide array of social phenomena, including economic performance, employment among immigrants, health

trends, and rates of crime and disorder. As such, social capital is often seen as a matter of relationships, reflecting the characteristics of groups rather than individuals.

In summary, social investment is related to human capital but they are not the same concept. While they share some similarities in their focus on investing in individuals and their development, they have distinct underlines and origins. Human capital theory focuses on the individual perspective, positing that expenditures on education, training, and alternative types of human development can enhance individuals' economic potential and, in turn, foster overall economic growth. On the other hand, social investment broadens the perspective beyond purely economic returns and encompasses a more comprehensive understanding of investment in individuals and social welfare associated with social policy frameworks. Thus, it expands the concept to include a broader range of social policies and objectives beyond economic considerations alone.

2.2.5. Political Economy Perspectives

Political economy, a combination of two terms in economics (politics and economics), emerged from a debate based on the authority's responsibilities concerning the economy. This debate continues since society has many necessities in terms of economics. Political economy answers the questions that which necessity should be satisfied, for this satisfaction, how much resources should be mobilized, and which bodies should be responsible for this resource mobilizing private or government. Different approaches answer these questions in distinct ways (Caporaso and Levine, 1992).

Jevons (1871: 5) contends that Adam Smith, widely acknowledged as the founder of modern economics, provided the foundational framework for political economy. In the years that followed, scholars such as Malthus, Anderson, and Senior contributed specific doctrines, with Ricardo and Mill further refining and expanding the field by adding significant details to its theoretical underpinnings. In his eminent book³ published in 1776, Smith mentioned the role of government in addressing social issues and advocated for certain types of social expenditures. He believed that the role of government in a society should be limited but well-defined. The main roles should be protecting citizens from external

³ An Inquiry into the Nature and Causes of the Wealth of Nations.

and internal shocks and supplying goods that are not provided by private sectors. Moreover, Smith (1776) emphasized the prominence of education. According to him, a well-educated population will be more productive by contributing to economic growth. He also specified the significance of public infrastructure, like roads, bridges, and canals, which are essential for commerce. Additionally, he acknowledged the importance of providing public assistance for the poor, including provisions for healthcare and necessities. After this writing, government expenditures on the welfare state have increased at a larger share in the budget and this trend has been evident at state, national, and local levels (Lipford and Slice, 2007: 486). Although Smith was influential in laying the foundations of political economy by discussing social expenditures, the concept and understanding of social expenditures have evolved significantly over time. Subsequent economists have further developed this idea and proposed miscellaneous approaches to addressing social issues through public expenditures.

Political economy falls within the realm of sociology, but it is not considered a social science in its broader context. It handles society as a whole not individual level and it sees the human being as an organization, determining the common tie in humanity. Society manifests its desires in various ways, primarily through government but not exclusively, and it discovers means to implement its objectives (Ely, 1889: 13-14). According to Macleod (1858: 10-11) “*Political economy is to discover the laws that regulate the Exchangeable Relations of Quantities.*” This means that political economy aims to explore the value and exchange relationships between different quantities, determining how their values relate to one another.

It examines the connections between individuals, governments, and public policies as well as investigates how economic theories, such as capitalism, socialism, and communism, operate in practical contexts. Economic theories serve as frameworks for allocating limited resources in a manner that maximizes benefits for a larger segment of the population. Political economists analyse these theories both in theoretical terms and in their practical application. They explore the origins of public policies based on economic theories and assess their outcomes in real-world scenarios (Kenton, 2023). Governments have a crucial role in facilitating economic development, and one of their primary tools for doing so is public expenditure. When appropriately targeted, public spending can address market failures that restrict large sections of the population from accessing economic opportunities. These market failures may include limited borrowing options for the poor to invest in

education, insufficient information about preventive healthcare, or external factors that worsen public health risks. However, the misallocation and distortion of public expenditure can limit the development process. Even, this misallocation disproportionately affects the poor, who stand to gain the most from increased access to quality public services (Keefer and Khemani, 2003). Political economy analyses the political forces, interests, and power dynamics that shape social expenditure policies. It can explore how factors such as political ideologies, electoral considerations, interest groups, and social movements influence the design, allocation, and sustainability of social expenditures.



3. A GENERAL VIEW OF INCOME INEQUALITY

Income equality refers broadly to the fair sharing of income among people or families within a community, holds significant importance in discussions concerning social and economic well-being across both emerging and industrialized economies. To understand income inequality, one needs to look at various economic, social, and political dimensions. At its essence, income inequality signifies the uneven allocation of resources and opportunities among society's members. This phenomenon can exert significant effects on social stability, economic growth, and individual well-being. Accordingly, this chapter establishes a conceptual and theoretical framework aimed at comprehensively understanding the dynamics and implications of income inequality. To underscore the significance of income inequality more effectively, this section also explores the critical reasons why reducing it remains a fundamental priority in the contemporary world.

3.1. Definition of Income, Distribution, Inequality, and Redistribution

There is a close relationship among the terms, income, income inequality, income distribution, and income redistribution. Income serves as a fundamental determinant of a society's living standards. Income inequality, however, reflects an unequal and unjust distribution of this income among individuals or households. While income distribution reflects how these earnings are shared among individuals or groups, income redistribution entails the reallocation of income from individuals or groups with higher incomes to those with lower incomes, facilitated by economic agents, to curb excessive disparities in income among individuals or groups within a society. When these concepts come together, they significantly show and influence a country's economic well-being, social equilibrium, and sustainability. Furthermore, the extent to which income inequality is addressed often depends on the effectiveness of redistributive policies and their alignment with broader socioeconomic goals. Thus, understanding these interrelated terms is critical for designing policies that aim to promote inclusive growth and long-term societal cohesion. This subsection presents a comprehensive outlook on these terms to illuminate their intricate interrelations and implications for policy design and societal progress.

3.1.1. Conceptual Framework of Income

The concept of income is a cornerstone for many economic issues like evaluation of tax and its rules, economic inequalities in a community (Thuronyi, 1990: 45), distributing financial aid, and addressing more extensive matters of fairness and ethics. Although as a term, income is a straightforward question, its answer is challenging. Policymakers, economists, and scholars have struggled with this concept for hundreds of years. There are many different income definitions for different purposes like as taxes, transfers, national production, individual revenue, students' subsidies, or health care aid. So, a unanimous understanding of income has not been defined, even within the Code (Brooks, 2018: 253). Despite the existing ambiguity, it has become increasingly crucial to establish a shared definition, at least to some extent, within the realms of economic and social literature.

In its literal sense, "income" refers to what is received or "comes in" particularly concerning monetary or monetary-equivalent value. However, this broad literal definition falls short of meeting the customary demands for everyday communication. More specific terms like gross income, net income, and total income are often used, or income might be categorized by its origin, such as earned income or investment income. Definitions from dictionaries and other sources commonly depict income as the profit, gain, or economic benefit arising from specified sources (Labrie, 1953: 23). Income is frequently determined as a proxy for economic well-being. If an individual-centred welfare perspective is embraced in the context of social economics, it becomes logical to prioritize individual welfare or utility. While income, to some extent, reflects this notion, there is a contention that consumption could serve as a more fitting gauge in terms of economic outlook. Furthermore, it is crucial to acknowledge that an individual's sense of well-being is shaped not solely by their total earnings level but also by the relative comparison of their income to others (Cowell, 2007: 1-2). In this context, careful attention must be given to both the distribution of income and the degree of equality within this distribution.

3.1.2. Conceptual Framework of Inequality

Diversity is a natural aspect of any society and often enriches it, but it becomes problematic and undesirable when it escalates into issues that disrupt social harmony and create tensions among people. In this evolving discourse, the conceptualization of diversity undergoes a transformation, wherein it becomes inequality. Differences or inequality observed in education, health, and psychological well-being among individuals stem from

intricate processes influenced by both genetic makeup and socio-demographic variables. These elements intertwine, making it challenging to pinpoint singular causal mechanisms driving variability (Selite and Kovas, 2019). In addition to the causal mechanisms underlying inequality, factors such as ethnicity or gender, which individuals may not be able to change, may also contribute to the inequality in question.

In academic inquiry, inequality is frequently examined within the context of comprehensive analyses encompassing poverty and welfare, called economic inequality, yet it's crucial to discern that these terms are distinct. Unlike poverty, which typically focuses on individuals or households falling below a designated poverty threshold, inequality pertains to the entire distribution, encompassing variations across all strata of society (Litchfield, 1999). So, there exist various forms of inequality.

Social inequality encompasses factors such as status, power, and opportunities, while political inequality pertains to unequal access to political power and influence. Health and educational inequality involve disparities in access to quality services, hindering social mobility. Environmental inequality refers to uneven exposure to environmental hazards or uneven access to clean environments within a geographic area. Spatial inequality denotes differences in development, infrastructure, and resources between regions or urban. From a broader perspective, global inequality denotes the disparities that exist between countries or regions concerning income, development, and access to resources. Furthermore, discrepancies in opportunities, resources, or treatment among groups sharing similar status or characteristics are termed horizontal inequality, whereas if such disparities occur between individuals or groups occupying different levels within a hierarchy, it is referred to as vertical inequality. As discussed, numerous forms of inequality pervade social, economic, and political domains, each contributing to significant disparities in the well-being and quality of life experienced by individuals.

3.1.3. Income and Income Distribution

The income is fundamentally created in production factors like labor, land, capital, and entrepreneurship in a closed economy. Various businesses and government entities engage in production, leading to the creation and allocation of income to different individuals or groups. This results in a consistent distribution pattern of income that remains relatively constant across different periods and geographical locations. This characteristic

of income distribution has prompted the emergence of several alternative theories that seek to elucidate the process of income generation (Kakwani, 1980: 1). The distribution of income, even national income and wealth holds significant economic and societal implications, making them crucial economic indicators (Lieberknecht and Vermeulen, 2018: 3). Inequality in this income refers to the degree to which there are variations in incomes among individuals or households. Unjust income distribution fundamentally signifies the uneven apportionment of earnings among individuals within a particular region, society, or economy, often enforced by an authoritative entity. There are different approaches to explaining the income distribution.

Functional income distribution refers to how income is divided between labor-related sources of income such as wages, salaries, and daily wages, and non-labour sources like profits, interest, and rental income. This distribution involves allotting the income generated through the production process among the various contributors to production, including labor, capital, land, and enterprise (Akin, 2015: 11). Functional distribution is a concept used to analyse income distribution, especially between labour owners and other production factor owners. This is because the primary income source for dependent workers, who constitute the majority of society, is labour income, while nearly all high-income earners derive their income from non-labour sources. By comparing these income groups, the aim is to highlight disparities in income distribution (Çalışkan, 2010: 93). Factors negatively affecting the functional income distribution have openly undesirable impacts on this income distribution. In recent decades, there has been a notable transformation in the functional distribution of income. This shift is primarily driven by the globalization of production and trade, which has redefined economic structures and labour dynamics on a global scale. With the support of other factors, globalization has contributed to diminishing the portion of income allocated to labour in advanced economies. However, the bigger effects of rapid technological advancements have been particularly felt by less-skilled laborers (IMF, 2007: 161).

Individual income distribution is the concept revealing how the national income is distributed among persons or households within a society. In this distribution, it is irrelevant whether an individual or a household's share of the national income arises from wages, profits, rent, or interest. A person might possess any combination of these sources or even all of them (Öçal, 1990: 352). Based on this income distribution, income is categorized into

five different percentages, and inequality is examined by assessing the portion of national income attributed to each group.

Sectoral income distribution elucidates the portions acquired from the national income by economic branches such as industry, agriculture, construction, and services. It serves the purpose of illustrating how each production sector contributes to the national income, as their contributions are not uniform. Certain sectors have more influence on income generation than others. Sectoral income distribution reflects the differing contributions of various production sectors—namely agriculture, industry, and services—to the overall composition of national income. This distribution highlights the economic significance and relative productivity of each sector within a country's economic structure. The benefit provided by sectoral income distribution is its ability to facilitate comparisons of countries' developmental stages. It also offers insights into the sectors that require more investment to foster economic growth and development within nations (Kuştepelı and Halaç, 2004: 147).

Regional income distribution pertains to the allocation of national income across various regions within a country. This distribution highlights disparities between industrialized and emerging regions, serving as a valuable resource for both regional development researchers and policymakers. Variations in economic development, fluctuations in labour market conditions, and diverse socioeconomic factors serve as key drivers of regional disparities. The composition of industries within a region significantly influences its income distribution. Regions with substantial manufacturing activities usually exhibit lower inequality levels, whereas regions dominated by tertiary services, arts, entertainment, and knowledge-intensive business services often exhibit higher levels of income inequality (Marchand et al., 2020: 83) due to the significant wage premiums associated with specialized skills, advanced education, and expertise required in these sectors. In the shed light of these different income distribution types, inequality, and income distribution are used typically to understand how income is distributed within an economy or society and assess the fairness or inequality of this distribution.

3.1.4. Redistribution of Income

The paramount responsibility of states is to establish an environment of peace and trust within society, ensuring that citizens can prosper under equitable conditions. Individuals' welfare levels are often directly linked to their income. However, achieving equal distribution

of income in society without intervention can be challenging for various reasons. States engage in income redistribution efforts to promote greater equality in income distribution. Therefore, income redistribution refers to governmental policies and initiatives aimed at modifying the allocation of income across a society to ensure greater fairness. The aim is typically to decrease income inequality by transferring resources from wealthier individuals or households to those with lower incomes. There are various tools for income redistribution. Nevertheless, the effectiveness and outcomes of these policies can differ based on factors such as the structure of the programs, prevailing economic conditions, and political dynamics.

The most recognized mechanism of income redistribution is progressive taxation, which entails imposing higher tax rates on greater incomes compared to lower ones. The objective of this system is to collect a larger share of income from individuals with higher earnings, thus redistributing wealth to finance government programs and services that support lower-income populations or provide social safety nets.

Welfare programs serve as additional instruments for redistribution, encompassing government-implemented initiatives such as unemployment benefits, food assistance, housing support, and healthcare subsidies, which aim to provide financial aid to individuals and families with low incomes. Subsidies and transfers are part of welfare programs. Governments may provide subsidies for certain goods and services such as education, childcare, or direct cash transfers to low-income individuals or families to help improve their standard of living.

As democratic governance, political stability, and governmental moderation tend to flourish in societies characterized by higher levels of equality, policies focused on redistributive measures and investments in human capital hold the potential to promote greater societal equity (Glaeser, 2005). By employing various instruments such as taxation, welfare programs, public services, and monetary policies, governments intervene to facilitate a more equitable allocation of income, thereby contributing to the advancement of social and economic equality.

3.2. Main Drivers of Income Inequality

Examining the factors behind income inequality reveals a complex interaction among various elements that shape the distribution of earnings within a society. Income inequality

is a multifaceted issue. Its roots come from a combination of economic, social, global, and institutional factors. Understanding this combination and the main causes behind income disparities is essential for creating effective policies to aim and foster a more equitable distribution of resources. This detection sheds light on how disparities arise and persist, ultimately influencing the overall well-being and cohesion of a society. Moreover, analysing historical trends in income distribution can provide valuable insights into the evolution of income inequality over time. Moreover, historical analysis allows us to discern patterns and shifts in income distribution, offering crucial context for contemporary debates on inequality. By tracing the trajectory of income inequality, we can identify recurring themes and pivotal moments that have shaped socioeconomic dynamics. For these mentioned aims subsequent part of the thesis will elucidate the fundamental reasons underlying income inequality.

3.2.1. Economic Growth

Economic growth is a critical driver in improving living standards, encouraging technological innovation, and advancing socio-economic development at both national and global levels. Economic growth increases per capita income as long as population growth remains constant. It follows that an increase in per capita income increases people's welfare either directly through their income or indirectly through government income redistribution. However, it is controversial whether economic growth increases income inequality or not. Numerous empirical investigations indicate that the factors propelling rapid economic growth often coincide with increasing inequality. The pivotal examination of the connection between economic growth and income disparity is outlined through Kuznets' (1955) landmark study. The study proposes a hypothesis that as countries developed, the inequality level would first rise and then decline. This pattern is often referred to as the Kuznets' inverted-U curve. However, this relationship has exhibited mixed outcomes in various studies. Over the decades, particularly in Asian nations, there has been a simultaneous occurrence of elevated growth rates and heightened inequality. Beyond the growth rate, additional economic elements are implicated in driving income disparities. Weaknesses of fiscal policy, particularly a tax structure heavily reliant on consumption taxes that disproportionately burden lower- and middle-income households, constitute one of these factors. Similarly, a tax framework that predominantly targets labour income instead of capital gains and the assets of higher-income groups can potentially contribute to amplified income inequality. Another key factor contributing to the exacerbation of inequality is the

unequal availability of essential human services, including education and healthcare. Institutional deficiencies, social exclusion stemming from religious and cultural factors, inflation, exchange rates, and government debt all play pivotal roles in delineating this disparity (Deyshappriya, 2017: 1). In summary, while economic growth can lead to increased welfare and per capita income, its relationship with income disparity is multifaceted and shaped by various economic and social elements. Addressing these factors comprehensively is crucial for mitigating inequality and fostering more inclusive growth.

3.2.2. Technological Advancements

Technological advancements and automation serve as primary drivers of economic growth. Additionally, the rapid and continuous progress in technology is a defining feature of the current era, alongside the capital accumulation. Technology holds a vital position in enhancing the quality of life by advancing automation, opening new opportunities for the creation of innovative goods and services, lowering transportation costs, and improving the efficiency of information and communication systems. This, in turn, enhances labour productivity, either directly or indirectly, while also opening up fresh markets both geographically and through the diversification of products. The combined effect of raising productivity and increased sharing of labour facilitated by expanded international trade amplifies the potential for individual and social advancement (Kharlamova and Stavytskyy, 2018: 78). The positive impact of technology is undeniable in growth as it streamlines daily tasks and enhances convenience, ultimately leading to a more efficient and interconnected world.

Alongside the aforementioned advantages brought about by technological advancements, it's important to acknowledge the presence of negative impacts on social interactions and relationships. Essentially, the fundamental premise factor of the integration of technologies is the demand for a significant amount of human capital but its resource is frequently limited. Due to this scarcity and thanks to technology, there is a discernible ascend in the earnings of skilled laborers, whereas the wages of other employees remain stagnant or even decline, leading to a disparity in wage distribution. The widespread adoption of this technology underscores the interrogation of the positive role of technology in both economic expansion and the equitable distribution of wealth (Mnif, 2016: 4). The prevailing agreement asserts that recent technological advancements disproportionately benefit highly skilled workers,

leading to the substitution of tasks formerly carried out by less skilled individuals, thereby intensifying inequality. This perspective is primarily influenced by the events of the last few decades, during which significant technological transformations occurred, such as the widespread integration of computers into workplaces and daily routines, coinciding with a pronounced surge in wage disparities (Acemoglu, 2002: 7). As a result, one might contend that technological advancement exerts a detrimental influence on income distribution. Nonetheless, a thorough review of the literature reveals that the outcomes vary across studies conducted at the national level. Hence, it becomes apparent that the specific economic circumstances prevailing within each country may significantly influence the manifestation of this effect. Since reducing educational inequalities plays a crucial role in preventing income inequalities, comprehensive education policies and social assistance measures are important instruments for equalizing income inequalities. In this way, the negative effects of technological progress can be minimized, leading to a more balanced distribution of income.

3.2.3. Globalization

Globalization, by fostering economic integration and facilitating the unrestricted movement of capital, goods, and services, has also exacerbated income inequality. The integration into global markets often leads to a higher demand for skilled labor, while simultaneously exerting downward pressure on wages for low-skilled workers. Moreover, global capital flows and financial liberalization can lead to financial crises and the rapid movement of capital between countries, threatening economic stability and disproportionately affecting lower-income groups. While wealthier segments of society often benefit more from the opportunities created by globalization, lower-income groups are frequently further deepening disparities in income distribution. In this section, the economic and financial effects of globalization will be examined separately.

3.2.3.1. Economic Globalization

The onset of globalization can be traced back to the migration phenomenon in the early 1980s. This was driven by the faster aging of industrialized nations compared to emerging economies, prompting a flow of labour from the former to the latter. While industrialized countries possessed financial power, they lacked young workers for certain jobs; conversely, emerging nations had a youthful workforce but lacked employment opportunities to utilize them. Therefore, by establishing a balance between labour supply

and demand through population flows between countries, the world began to experience globalization through the migration phenomenon. Over time, technological advancements, particularly the discovery of the internet, have revolutionized various aspects of communication, transportation, and postal services. These advances have shifted globalization into another realm and presented the world's governments with an undeniable reality. Alongside the benefits that have gradually emerged over time, the reality of globalization has also brought forth deep-seated harms, sparking diverse debates.

There are ongoing discussions about the precise boundaries and interpretation of globalization. Scholars propose that present-day globalization entails an increasing economic openness of nations to trade, foreign direct investments, financial capital movements, and the movement of labour (Held et al., 1999: 1-2). The majority of empirical studies utilize proxies only for trade and capital movements to understand the extent of openness (Dreher, 2006: 1091) but a comprehensive set of proxies that precisely quantify the extent of globalization remains elusive. Mentioned the existence of multiple forms of globalization, it's evident that economic globalization, also known as economic openness, occupies a prominent position among them.

Economic globalization signifies the deepening interconnectedness and mutual dependence of national economies on a global scale, primarily facilitated through the trade of goods, services, technology, and information. This phenomenon is underpinned by significant advancements in technology, transportation infrastructure, communication systems, and the proliferation of international trade agreements. In the 1990s, when globalization emerged as a central topic in the social sciences, a spirited debate ensued regarding its actual occurrence. However, by 2007, accumulating evidence strongly indicates a notable increase in economic globalization, particularly within affluent democracies. In light of this reality, recent scholarly research has shifted focus towards examining the consequences of this globalization (Brady et al., 2007: 313).

Contemporary research offers divergent theoretical perspectives on the influence of economic globalization regarding the allocation of income, yet these analyses often fall short of providing robust empirical evidence to validate their claims. Broadly speaking, economic globalization produces both winners and losers within a society. The extent and nature of its impact on income distribution are largely contingent upon the socio-economic characteristics and structural positions of these advantaged and disadvantaged groups. For

instance, countries tend to export products that heavily rely on their abundant production resources and import ones that use their limited resources. Consequently, trade boosts the income of abundant resource owners while diminishing that of scarce resource owners (Reuveny and Li, 2003: 578-580).

Economic globalization possesses the capacity to significantly influence income inequality by deepening the interconnections and mutual dependencies among national economies. This process can amplify wage disparities, particularly by accentuating differences in skill levels and educational attainment among workers, thereby contributing to a more polarized income distribution. It has the propensity to widen the income disparity between industrialized and emerging nations, notably accelerating less development in regions where free trade and investment opportunities are scarce. Additionally, globalization can shape labour markets, leading to increased unemployment or reduced wages in certain sectors, while simultaneously presenting opportunities in others through competitive advantages (Lall et al., 2007). Consequently, the impacts of economic globalization on income inequality are complex and multidimensional, shaped through a variety of economic, social, and institutional aspects that engage within dynamic and context-specific ways. This issue sparks significant debates on both domestic and international fronts concerning income distribution. The one indisputable reality is that economic globalization often reshapes global income distribution to the advantage of wealthier nations, thereby amplifying existing disparities and posing challenges to achieving equitable economic outcomes on a global scale.

3.2.3.2. Financial Globalization

Economies need growth to increase their level of prosperity. Growth requires new investment, and this includes the need for capital. In cases where domestic capital is insufficient, capital is raised from the international capital markets. The capital market is highly sensitive to political, social, and economic events. For instance, subsequent to the conclusion of the Second World War, financial markets in many countries remained largely closed and insulated. However, in the subsequent decades, numerous nations progressively dismantled barriers to cross-border trade in financial assets. This gradual liberalization facilitated the global mobility of capital, enabling the seamless flow of financial resources across national boundaries and fundamentally transforming the dynamics of international financial market. So, with the help of technology, the process of liberalizing trade in

financial assets is commonly labelled as financial globalization. While foreign capital inflow, particularly from industrialized countries to high-income yielding emerging nations under the name of direct foreign investment, initially contributes to economic growth in these economies, over time, the potential for rapid capital outflows poses significant social and economic challenges in these countries.

Foreign direct investment, often via multinational corporations, has debated impacts on income inequality. Some experts contend it might increase inequality; multinational corporations might persuade host countries to slash welfare spending and suppress labour unions, thus reducing wages and primarily affecting the lower and middle classes. Such corporations are often criticized for extracting profits from less industrialized nations, perpetuating their underdevelopment and further impoverishing their populations. Additionally, their preference for capital-intensive methods can lead to higher unemployment rates among less skilled workers, skewing income distribution by promoting a dual economy. Multinationals are also noted to offer low wages in labor-heavy industries like clothing, pressuring local vendors to adopt similar pay scales to decrease costs. The existing tax structures aren't optimized for taxing these corporations, leading to reduced government revenues, subsequently impacting welfare spending, and disproportionately affecting the poor compared to the affluent (Reuveny and Li, 2003: 578-580). Furthermore, multinational corporations often utilize tax havens to shift their profits and minimize their tax liabilities. This practice not only deprives countries of essential public revenues but also deepens income inequality by limiting the state's capacity to fund redistributive social programs. The use of offshore financial centres enables large firms and wealthy individuals to avoid their fair share of taxes, placing a disproportionate burden on middle- and lower-income groups and undermining the progressive nature of the tax system (Leenders et al., 2020). Due to the mentioned drawbacks, there is a significant risk of income distribution being severely disrupted through direct investments made by multinational corporations.

Financial globalization provides the opportunity to obtain capital from abroad if there is insufficient domestic capital available for large-scale investments planned within a country. However, this often results in higher investment costs, potentially undermining the efficient utilization of resources. The banking sector is also vulnerable to adverse effects from global finance. Banks that accept foreign capital are exposed to the risk of a significant portion of their capital fleeing abroad during any financial or economic crisis. This situation

can exacerbate social tensions within the country by turning minor economic crises into more severe financial crises.

In summary, the influence of globalization on income distribution is inherently intricate and multidimensional, shaped by a range of economic, social, and political factors. It manifests differently across regions, income groups, and sectors, creating both opportunities for economic advancement and challenges related to inequality and uneven wealth distribution. Trade and foreign direct investment have the potential to exacerbate inequality through various mechanisms, including factor intensities, labour pressures, and deficiencies in taxation systems. Understanding these dynamics is crucial for devising effective policies to address inequality under the influence of globalization. Moreover, the wide-reaching influence of globalization can go beyond income distribution and also encompass social and cultural dimensions, further complicating the overall picture. Consequently, comprehensive strategies that consider the interrelations between financial, communal, and cultural elements are crucial for tackling the challenges posed by globalization and reducing its adverse impact on income distribution.

3.2.4. Labour Market Dynamics

Changes in labour market dynamics are frequently associated with technological advancements. Technical innovation can be attributed to the growing demand for advanced technical skills, leading to an increased requirement for highly skilled labor. Consequently, this phenomenon exacerbates the wage disparity among workers. This occurs due to the inherent complementarity between technology and the expertise of labor, resulting in a situation where technology and skilled labour complement each other (Mnif, 2016: 4). Alongside these advancements, factors such as skill and education disparities, occupational segregation—where certain industries or occupations have been historically dominated by specific gender, ethnic, or racial groups—wage gaps resulting in different incomes for the same work, and working conditions characterized by limited job security, lack of benefits, and inadequate safety standards are important contributors to income inequality in the labour market. Moreover, technological change tends to displace routine manual and cognitive jobs, disproportionately affecting low-skilled workers and widening the employment gap. In contrast, those with higher education and adaptable skill sets are better positioned to benefit from new job opportunities created by innovation. These structural shifts underscore

the importance of inclusive labour market policies and equitable access to quality education and training.

3.2.5. Wealth Accumulation and Democracy

Wealth entails having financial freedom throughout all economic cycles; it encompasses much more than a mere sum of money and represents the cumulative worth of assets possessed by individuals, companies, communities, or entire nations (Napoletano and Adams, 2023). Individually, the distribution of top wealth shares is predominantly shaped by two main sets of factors. Initially, these shares are affected by the extent of income inequality within a society. When earnings are highly concentrated, wealth inequality tends to be more pronounced. However, it often takes a considerable number of years for alterations in income inequality to significantly influence the distribution of wealth. Secondly, the composition of top wealth shares is influenced by the process of wealth accumulation. This encompasses varying savings rates across different income groups, the rate of return on capital and its fluctuations, as well as families' capacity to transfer wealth to subsequent generations (Jones, 2015: 36-37).

Over time, it has become evident that a high concentration of assets within certain segments has led to the erosion of social equilibrium and the emergence of various economic issues. Heightened levels of income inequality have given rise to instabilities in the financial balance and the rising levels of debt. The increase in the concentration of wealth has also contributed to the crisis, as the escalating demand for assets from the affluent significantly propelled the expansion of the structured credit market. This, in turn, facilitated the accumulation of mounting debt by low- and middle-income households (Goda et al.,2017).

Another factor identified as a determinant of inequality is the lack of democracy. Diverse societal groups exhibit varying inclinations towards distinct political systems, driven by how these systems allocate political influence and resources. Among these systems, democracy, in contrast to dictatorship, advocates the majority of the population's preferences by fostering social stability but faces resistance from elites. The evolution of democracy relies on factors such as the robustness of civil society, the configuration of political frameworks, the response to political and economic challenges, the level of economic inequality, the economic landscape's structure, and the shape and extent of globalization

(Acemoglu and Robinson, 2006: 11). Therefore, based on this list, a strong correlation between democracy and economic equality can be established.

At the core of democratization lies a robust institutional framework designed to secure wealth and equitable income distribution. These institutional foundations allow democracy to operate effectively, as long as they operate under democratic laws. Though the link between democratic governance and income gap has gathered significant interest in recent literature, the evidence has not explored definitive results. Dorsch & Maarek (2019: 385) assert that the impact of democracy on inequality is contingent on the initial inequality levels. According to their perspective, the process of democratization tends to moderate initially high inequality levels through redistributive social policies or market-oriented reforms, moving it toward a middle ground. Conversely, Acemoglu et al. (2011) suggest that state capacity is a factor that shapes economic development and elucidates the relationship between democratic governance and inequality. So, the literature grounded in institutional analysis implicitly proposes that “inclusive institutions” not only foster development but also facilitate a more equitable distribution of income, particularly over the long term. According to Bahamonde & Trasberg (2021), inequality often exhibits a rising tendency following democratic transitions in autocratic countries. This occurs due to the shift of their policies toward a middle ground post-democratization. Conversely, in regimes that undergo democratization with limited capacity, initial inequality tends to be high. Consequently, this prompts a greater emphasis on addressing demands from the median voter for heightened redistribution, ultimately resulting in a reduction of income inequality post-democratization.

3.2.6. Social Structure and Cultural Factors

Social structure and cultural influences play a crucial role in shaping income inequality by determining access to opportunities, social mobility, and economic outcomes. Factors such as family background, educational attainment, social networks, and cultural norms influence an individual’s career prospects, earning potential, and overall economic status. Additionally, deeply rooted societal perceptions, stereotypes, and institutional biases can either reinforce or mitigate disparities in income distribution.

Assortative mating emerges as a significant social factor influencing income distribution. Fundamentally, assortative mating refers to the tendency of individuals with

similar backgrounds, such as education level or economic status, to choose partners with comparable traits (Greenwood, et al., 2014). Assortative mating has attracted significant attention in both biological and social sciences due to its role in shaping population characteristics. It influences family structures, resource distribution, and social mobility by determining parental traits and access to resources. So, it is studied across various disciplines. Sociologists focus on social boundaries like socioeconomic status, race/ethnicity, and religion, while psychologists examine personality traits alongside demographics. Additionally, in economics, it is scrutinized spouses' economic similarities to understand income inequality (Schwartz, 2013). According to Becker (1974,1981) Assortative mating can be categorized into two types: positive and negative assortative mating. Positive assortative mating refers to the pairing of individuals with similar characteristics, whereas negative assortative mating involves the pairing of individuals with contrasting or dissimilar traits. Naturally, negative assortative mating contributes to a more balanced income distribution by promoting economic diversity, whereas positive assortative mating exacerbates income inequality by reinforcing economic disparities. That is, when a well-educated individual marries someone with lower educational attainment, the less-educated partner is likely to experience an improvement in their economic status, thereby contributing to a more balanced income distribution.

Gender inequality, which restricts women's access to education and the labour market, along with regional, ethnic, and class-based disparities in access to quality education, constitutes a significant social factor that exacerbates income inequality. In particular, disparities in income distribution become even more pronounced when examined through the lens of regional differences, particularly in the urban-rural divide. Furthermore, social networks and nepotism, familial educational background, social mobility constraints, irregular migration patterns, and disparities in access to healthcare services all serve as additional social determinants that contribute to the widening gap in income distribution. The widespread proliferation of a consumption-driven culture through media, the increasing aging population, and the misallocation or ineffective targeting of social expenditures are key factors that contribute to the deterioration of income distribution.

In conclusion, social structure and cultural factors play a pivotal role in shaping income inequality by influencing access to resources, economic opportunities, and social mobility. Assortative mating, gender disparities, regional and class-based inequalities, and

systemic biases collectively contribute to the persistence of income disparities across societies. While certain social mechanisms, such as negative assortative mating, may help mitigate economic inequality, other structural barriers, including nepotism, uneven access to education and healthcare, and demographic shifts, further entrench economic divisions. Addressing these challenges requires comprehensive policy interventions that promote inclusive economic participation, equitable access to public services, and the dismantling of social and institutional barriers that hinder upward mobility. Without targeted efforts to reduce these disparities, income inequality will continue to widen, reinforcing existing social stratification and limiting economic growth and social cohesion.

3.3. Consequences of Rising Income Inequality

The impact of income disparity on macroeconomic phenomena continues to be a subject of ongoing policy concern. A prominent beginning of this concern was the escalation of income gap in several OECD members over the course of the 1980s and 1990s. Literature has investigated the primary drivers of income inequality for decades but the connection between income distribution and macroeconomic factors is intricate (Jäntti and Jenkins, 2001: 5). However, over the last decades, researchers have opened up many avenues for understanding the consequences of this inequality. Although it is recognized that the consequences of inequality are interconnected across economic, political, and social dimensions, the different problems arising from income inequality are explained under the main headings of this section.

3.3.1. Economic Consequences

Income inequality holds profound implications for the economic landscape, and it exerts multifaceted complex problems among various sectors. While the literature extensively explores these intricate issues from an economic perspective, the findings derived from these studies remain notably complicated. Yet, the adverse influence of disparity on economic growth is openly discovered. As pointed out by writers, there are several channels leading to this relationship. Some of these channels are determined as financial regulations, education, taxation, and land reforms, in the context of economic policy, especially in emerging countries (Furman and Stiglitz, 1998: 222-223). Rising income inequality has emerged as a significant concern in emerging countries. Notably, having these concerns China and India, are both rapidly growing economies. While these nations are often

known for their economic growth, at the same time, this growth leads to issues like escalating inequality and environmental challenges. It's worth highlighting that this problem extends beyond China and India, affecting other emerging countries as well (Urata and Narjoko, 2017: 1).

Previous International Monetary Fund (IMF) research has indicated that income disparity among the individuals exerts an undesirable impact on growth and its sustainability (see Dabla-Norris et al.-IMF 2015). Yet, to a certain extent, inequality might not pose an issue as long as it offers incentives for individuals to excel, compete, save, and invest, propelling them forward in their lives. For instance, disparities in education and variations in labour earnings can drive the amassment of human capital and promote economic progress, even during the occurrence of heightened income inequality. Furthermore, inequality may exert a constructive impact on growth by fostering incentives for innovation and entrepreneurship (Lazear and Rosen, 1979: 431-432).

Increased inequality also hampers growth by restricting the ability of households with lower incomes to preserve their health and accumulate both tangible and intellectual capital. This can result in inadequate investment in education, as impoverished children often attend lower-quality schools and face greater challenges in pursuing higher education. Consequently, labour productivity might be behind what would be achievable in a more equitable scenario. Additionally, nations characterized by higher income inequality often exhibit lower intergenerational mobility, where parental earnings hold greater influence over their children's earnings. The escalating concentration of income could also dampen aggregate demand and undermine growth (Dabla-Norris, et al., 2015: 8). Income inequality has the potential to establish a dead-end cycle. By exacerbating poverty and hindering social mobility, inequality can diminish economic growth and productivity. This decline in growth can subsequently lead to heightened financial instability, creating a new cycle that further restricts equitable access to quality education and healthcare, ultimately impacting consumer spending and aggregate demand.

3.3.2. Social Consequences

Excessive income inequality has consistently stood as one of the catalysts for social conflict and unrest. While it can serve as a motivation for individual human capital accumulation up to a certain threshold, pronounced differentiation fosters the rise of disparities in the

allocation of public goods, the potential for inequities in property redistribution, and the cultivation of unjust competitive advantages across various spheres. Ultimately, elevated income inequality becomes a factor that could potentially result in the infringement of human rights, which is an integral expression of injustice and a hindrance to human development (Mishchuk et al., 2018: 132). Furthermore, the social cost associated with deteriorated human rights can frequently be exceedingly steep.

Elevated and persistent levels of inequality, particularly in terms of unequal opportunities, can carry substantial social costs. Deep-rooted disparities can have the potential to greatly hinder individuals' decisions regarding education and career paths (Stiglitz, 2012). In such circumstances, individuals are motivated to channel their efforts toward acquiring unequal treatment and safeguards, resulting in the inefficient allocation of resources, corruption, and favouritism. This dynamic gives rise to detrimental social and economic outcomes. Notably, it can lead to a loss of trust in institutions among citizens, thereby undermining societal cohesion and trust in the future (Dabla-Norris et al., 2015: 6). While the social and economic implications of income inequality are highly interconnected, the social repercussions of this disparity encompass factors such as political polarization leading to social unrest, diminished life expectancy due to healthcare disparities, hindrances in social mobility stemming from unequal opportunities, concerns regarding public safety due to crime rates, and ultimately, erosion of social cohesion and trust in society.

3.3.3. Political Consequences

Similar concerns are shared by scholars and policymakers globally, just as those within the old world. Recent research indicates that excessive inequalities undermine the fundamental pillars of democratic political systems (Beramendi and Anderson, 2008: 3). Indeed, there exists a bidirectional interaction between democracy and income equality. On one hand, inequality can foster the emergence of democracy; on the other hand, the same inequality can also undermine democracy. Social conflict, particularly among distinct groups, can contribute to the emergence of democracy. The presence of inter-group inequality can influence the equilibrium of political institutions, influencing the likelihood of a society adopting a democratic framework. Nonetheless, when a primary conflict arises between the affluent and the impoverished. The rationale is that while the lower socio-economic strata primarily derive their income from labor, a wealthier minority largely obtain capital and

land revenue. Therefore, a higher labour share corresponds to a lower degree of inter-group inequality, particularly when the conflict is between the wealthy and the poor (Acemoglu and Robinson, 2006: 58-59). This rising inequality, coupled with the influence of wealth over political power and decision-making, fundamentally undermines social unity.

Populist policies amplify political instability, giving rise to heightened divisions and conflicts within society. Consequently, from a political perspective, inequality undermines social connections and networks, posing difficulties for communities to effectively cooperate and address shared challenges. In conclusion, the complex interplay between democracy and income equality emphasizes the necessity of tackling both social and economic dimensions to foster inclusive governance and sustainable development. By understanding the bidirectional relationship between these factors, policymakers can strive towards creating environments that promote greater equity, social cohesion, and democratic participation, ultimately leading to more resilient and equitable societies.

3.3.4. Global Consequences

If an average individual were asked to list the significant challenges confronting the world today, it's likely that "inequality and poverty" would be ranked among the foremost concerns. Today a prevailing apprehension exists that economic growth is not being equitably distributed (OECD, 2008: 15) among the world population because of globalization. Globalization is not only a reality but also a necessity driven by technological advancements. While globalization offers significant opportunities, particularly for emerging nations through trade and labour mobility, it may also exert a disruptive influence on income distribution within these nations. Like economic, social, and political factors to income inequality, globalization, manifests itself as both a contributor to and a consequence of income distortion.

Inequality on a global scale can be analysed through various methods although measurement of it is difficult. A common method entails comparing the mean income per capita between countries and analysing whether the income disparity has expanded or contracted over time. Within this framework, the primary point of comparison is typically a nation or a collective group of nations, including those that are developing and industrialized economies. An alternative approach involves viewing all individuals worldwide as global citizens and measuring inequality among these individuals. This measurement can be

regarded as a representation of global inequality (Urata and Narjoko, 2017: 2-3). Measuring inequality on a global scale especially international trade is determined as the primary driver potentially exacerbating inequality and widening the development gap among nations, a perspective underscored by many studies.

In many parts of the world, real wage rates for middle-income groups have either stagnated or declined in comparison to top-income earners within their own countries (Vandemoortele, 2009: 2). So, the persistent issue of income inequality has transcended national borders and evolved into a global concern. Wealthier nations often reap the benefits of this situation, attracting skilled workers who seek to escape income inequality, a prevalent problem in emerging countries. Consequently, the growing disparities in political and economic justice within a country have accelerated the phenomenon known as “brain drain.” Individuals who experience injustice in their home countries, despite receiving a good education, opt for a solution by residing in countries offering better opportunities. The burden primarily falls on emerging countries; despite their high production potential, they struggle to transition to the production of high-quality goods due to a shortage of qualified personnel, leading to significant setbacks in their growth rates. As a result, the absence of qualified individuals capable of advocating for equality within a country exacerbates the ongoing income inequality, making it a more pressing issue.

Elevated inequality is associated with political instability, leading to subsequent macroeconomic volatility and reduced investment (Alesina and Perotti, 1996: 1221) both at the country level and globally. In particular, the combination of income inequality and macroeconomic instabilities frequently may lead to severe worldwide crises. Giving this reality Raghuram Rajan (2011: 9) provides an analysis of the recent crisis in the USA, whose political and economic power is recognized worldwide. According to him, the political response to rising income inequality—whether it emerges as a deliberate policy strategy or as an ad hoc reaction to public pressure—can significantly influence global inequality dynamics. To decrease income inequality expanding lending to households, particularly those with lower incomes gave rise to a crisis in 2008. In the United States (USA), the facilitation of homeownership—considered a cornerstone of the American dream—among low- and middle-income households was framed as a legitimate mechanism for expanding credit access and stimulating consumption. However, the convergence of government-supported accommodative monetary policies and the profit-maximizing

imperatives of financial institutions generated systemic vulnerabilities, ultimately precipitating a financial crisis. This crisis led to global instability on a worldwide scale. Thus, a nation's endeavour to mitigate income inequality not only reshaped its internal income distribution negatively but also exerted influence on the global income distribution in the same way.

3.4. Income Distribution in Main Economic Approaches and Theories

Economic approaches to income distribution are centred on understanding how income is distributed among individuals or households within a society, as well as the factors that underlie this distribution. The fundamental inquiry in the analysis of income distribution and economic growth revolves around the question: “Who reaps the benefits of economic growth, to what extent, and for what underlying reasons?” (Fields, 1988: 460). These questions delve into the distributional aspects of economic progress and seek to understand how the gains generated by economic growth are distributed among different segments of society.

Labour economists and experts in public finance are also particularly interested in understanding why families are relatively poor today and continue to experience poverty over several generations. They aim to determine the reason for the wealthy dynasties remaining prosperous. The main issue discussed by macroeconomists and theorists is whether income inequality among families is on the rise or declining over time (Sala-i-Martin, 1996) and how wealth is shared among households over time.

The approaches to discovering the answer to these questions encompass a diverse array of theories and models that serve as valuable tools for economists and policymakers in their efforts to analyse and elucidate income inequality. Theoretical perspectives on income inequality share a common foundation, despite the phenomenon's inherent complexity, which arises from a multitude of interwoven factors. These perspectives frequently draw upon a combination of theories to examine and interpret the root causes and broader implications of income inequality across diverse socio-economic contexts. Such an integrated approach enables a more nuanced and comprehensive understanding of this critical issue. Furthermore, the evolving impact of income distribution unfolds through a developmental process characterized by transitions across distinct economic and social regimes.

Each regime defines a distinct correlation between income disparity and the developmental progression it shapes. Theories analysing the impact of income allocation on economic progress can broadly be categorized into two contrasting schools of thought. The classical perspective asserts that inequality serves as a catalyst for capital accumulation, which in turn stimulates economic growth. In contrast, certain sections of the modern perspective contend that in advanced economies, greater equality facilitates higher allocation of resources in human capital, ultimately enhancing economic development outcomes (Galor, 2000: 707). In conclusion, when analysing theoretical economic approaches to income inequality, it is common to consider economic growth. In the subsequent sections of this chapter, a comprehensive explanation and analysis of various approaches examining income inequality will be investigated.

3.4.1. Classical Economics

The distributive dimension of economics is inherently complex, integrating a wide array of interrelated factors, including social, cultural, economic, technological, and, most importantly, political elements. Income distribution has been a topic of scholarly concern for centuries, dating back to prominent scholar Ibn Khaldun. He identified the root cause of unfair income distribution as the transfer of social surplus from the laboring class to the upper strata of society. In subsequent centuries, income distribution emerged as a major research focus within classical economics as well. The classical framework, originally conceptualized by Smith (1776), was later elaborated and critically examined by prominent economists such as Keynes (1920), Lewis (1954), Kaldor (1957), and Bourguignon (1981), each contributing unique insights that have shaped its evolution. Notably, Adam Smith (1776) made significant contributions to the field of income distribution through his endeavours to develop the Labour Theory of Value. Furthermore, Ricardo (1817), with his Theory of Rent, and Malthus (1830) with his Theory of Population Growth, both expanded and diversified the classical theory of income distribution (Algül, 2020: 190). The approach advocates that saving rates are positively correlated with wealth and income disparity; it is essential in directing capital to those who exhibit a higher tendency to save. Consequently, this process fosters an augmentation in aggregate savings as well as the build-up of capital, thus serving as a critical component within the broader structure of economic advancement (Galor, 2000).

The emergence in Labour Theory of Value in the late 18th and early 19th centuries represents a highly complex and intellectually stimulating development in economic thought. Its establishment as a coherent foundation for economic analysis provided the evolution of classical political economy. The concept was profoundly developed through the influential contributions of Adam Smith (1776), further expanded by David Ricardo (1817), and ultimately refined in the works of Karl Marx (1867), each playing a pivotal role in shaping its theoretical foundation (Foley, 2000). Indeed, Marx did not explicitly refer to his theory of value as a “labour theory of value” in his writings. While his theory is often described as a labour theory of value by later economists and scholars, Marx himself referred to it more broadly as the theory of commodity value or value theory (Freeman, 2020: 37).

Smith states that wages, profit, and rent represent the fundamental origins of all income and exchangeable value within an economic system. According to Smith, profit and rent emerge in conjunction with the income earned by laborers. The price of a commodity is determined by summing its constituent elements: wages, profit, and rent. These income categories, referred to by Smith as the three primary origins of all exchangeable value, contribute to the natural price of each commodity at their natural rates. As a result, the natural price of a commodity fluctuates in tandem with the natural rate of each of its components—namely, wages, profit, and rent (Henry, 2016).

From Ricardo’s (1817) perspective, it’s important to recognize that all lands are not homogeneous, nor are they inexhaustible in quantity. The utilization of land doesn’t incur any cost unless it possesses distinct situational advantages. Ricardo contended that as the scope of cultivation expands to encompass less fertile land, the cultivation of more fertile land gives rise to a form of payment known as rent. In his analysis, the writer designates this specific category of rent as “differential rent,” highlighting its significance within classical economic frameworks. Furthermore, this differential rent illustrates the disparities in quality between “marginal” and “intra-marginal” territory as agricultural expansion takes place (Bina, 1989: 83-84).

Malthus’s work (1830) emerged during a period when debates regarding the legitimacy of private property were at the forefront. Initially, Malthus dismissed the radical contemporary theories advocating for social progress, many of which called for the abolition of private property. Instead, he focused on the inevitable and dire consequences of demographic expansion on the availability of vital supplies. Secondly, he exonerated the

system of private property from the blame for human suffering, attributing it instead to the unchecked growth of population. Lastly, Malthus argued against any form of social welfare, considering it to be essentially a subsidy for the population growth among the poor causing only exacerbated misery. He maintained that any human efforts to address inequality or alleviate suffering through social or political means would be counterproductive, as they would lead to increased population growth, further straining productive resources. In summary, Malthus's ideas defended private property and capitalism as the only viable systems, while cautioning against interventions aimed at reducing inequality or suffering due to their potential to exacerbate the challenges posed by population growth (Ross, 1998).

Classical economists, including Smith, Malthus, and Ricardo, concentrated primarily on the distribution of factor incomes and the allocation of income among the key factors of production: natural resources known as land, human labor, and financial investments known as capital. As per Ricardo's theory (1817), the central concern of political economy is not the source and content of wealth as Smith believed, but rather the issue of how the created value is distributed among those involved in production (Talas, 1997). Smith (1776), on the other hand, argued that individuals' self-interest and ambitions naturally lead them to use their resources in the most beneficial way for society. If they invest too heavily in a particular area, a decrease in profits in that sector and an increase in profitability in other areas will promptly steer them toward correcting their misjudgements. Thus, without any legal or political intervention, individual self-interest and ambition ensure the harmonious use of the existing capital for the benefit of the entire society. Smith was indifferent to income distribution and its redistribution. In contrast, Ricardo placed special importance on income distribution. According to him, the share of these three classes, rent, profit, and wages, in the production at different stages of society will vary depending on the fertility of the land, the accumulation of capital and population, as well as the skills and tools used in agriculture. Ricardo and Malthus argued that unemployment and, consequently, low wages were the responsibility of population growth, in other words, the workers themselves. Classical economists argued against intervention in income inequality by contending that wage increases (income distribution) naturally resulted from mechanisms such as changes in labour supply, both increases, and decreases, or within the framework of a wage fund. They believed that attempts by governments or unions to raise wages beyond their natural level or fund amount would disrupt this equilibrium and might even lead to further reductions in wages (Çelik, 2004). Classical economists believed that by focusing on the functioning of a

free-market economy, income distribution would automatically become fair. However, this approach raised criticisms that income inequality could increase.

3.4.2. Marxist Theory

Marx (1867) developed his theory of agricultural rent as a direct extension of political economy. He argued that capitalist ground rent is closely tied to the social environment that underpin the growth of capital in the agricultural industry. In Marx's view, capitalist rent arises from the creation of trade value, as opposed to the medieval conception of rent, which was connected to the physical characteristics and inherent worth of the product. Marx contended that understanding the origins of capitalist ground rent demands an examination of the connection between use-value and exchange-value in commodity production. It is crucial to highlight that, while Marx is often tied to the surplus value approach, his theory diverged significantly from that of other classical economists. While other classical economists regarded socially necessary labour time as a universal and objective measure of value, Marx took a different perspective. He viewed labour as both a measure of value and as the pure source of value (Bina, 1989: 86-87).

The Labour Theory of Value, which underscores the pivotal role of labour in determining the value of commodities, constitutes a foundational element in Marx's analysis of capitalism. The framework explains the underlying cause of the exchange of goods at specific relative prices in the market. This theory posited that a commodity's value is both influenced by and can be quantitatively assessed through the mean number of labour hours required for its production. Thus, within the framework of the labour theory of value, the quantity of labour invested in the production of an economic good was deemed the wellspring of that particular good's value (Foley, 2000).

In his work (1867), Marx identifies distinct social strata determined by two primary prerequisites: possession of productive assets and the capacity to acquire the human labour capacity of others. The writer distinguishes three primary strata within modern bourgeois community. The capitalists, often referred to as the bourgeoisie, hold ownership over the means of production and engage in the acquisition of labour power from individuals within the working class, thereby perpetuating the dynamics of economic control and class division. In contrast, the workers, or proletariat, do not possess control over productive assets and do not participate in the acquisition of labour power; instead, they commodify their own labor,

selling it in exchange for wages, thus securing their means of subsistence within the capitalist framework. Furthermore, a smaller, intermediary class—the petite bourgeoisie—exists, characterized by its ownership of the means of production, yet distinct in that it refrains from purchasing labour power, positioning itself between the capitalists and the proletariat within the socio-economic hierarchy. In contemporary economic discourse, Marx's criterion regarding the ownership of the means of production can be expanded to include various forms of control, whether through legal ownership or other forms of authority, over the resources involved in the production process (Robinson and Kelley, 1979). The mentioned broader interpretation acknowledges various forms of power and influence that can determine control over production, beyond traditional ownership models

According to the class-based perspective of the Marxist approach, historically defined social classes are determined based on production relationships. They form the fundamental social forces within the societal process. Regardless of whether individuals are cognizant of it, classes exist and exert an influence on people. These classes possess distinct, and at times, conflicting interests. These interests are moulded by the economic dynamics of capitalism (Hindess, 1987). Marx (1867) argued that class struggle determined economic inequality. According to him, capital accumulation leads to the marginalization of the working class and an increase in inequality.

3.4.3. Neoclassical Economics

The neo-classical approach shares the fundamental principles of the classical approach, but it advocates that market economies may fail to achieve efficient resource allocation. Therefore, it supports government intervention in areas and sectors where market failures exist. According to this perspective, the functions of the state should only come into play when the market economy cannot fully or partially fulfil its functions. The primary objective of the public sector is to ensure the optimal allocation of resources. However, this approach does not advocate for government intervention to minimize income inequality and promote macroeconomic stability, economic growth, or development. What sets it apart from classical economics is its acceptance of partial government intervention (Şen and Sağbaşı, 2016: 88-89). This approach's pioneer is Alfred Marshall, and some other prominent representatives, including Arthur C. Pigou, Vilfredo Pareto, and Knut Wicksell.

The foundations of neoclassical economic theory, initially constructed as responses to critiques from socialist perspectives, consist of two key ideas. The first concept posits that a competitive capitalist economy operating without intervention, naturally generates full employment, suggesting that unemployment results from various hindrances, imperfections, or government involvement. The second proposition is closely connected, asserting that disparities in income and wealth are determined by the marginal productivity or relative contributions to economic output of different factors of production, primarily capital and labor. This rationale is also extended to the contributions of individual workers themselves (Foster and Yates, 2014).

3.4.4. Keynesian Economics

The pivotal transformation in macroeconomic theory was instigated by Keynes in 1936, when he introduced the contentious notion of deficit spending as a means to stimulate income and employment. Keynes (1936) argued that during a recession, an unbalanced public budget, rather than a balanced one, was essential to mitigate the downturn. This viewpoint emerged as a response to the Great Depression, characterized by widespread underemployment and persistent unemployment, which left free markets incapable of restoring full employment equilibrium. Keynes contended that aggregate demand could be manipulated during periods of economic contraction to restore the economy to full employment. Consequently, he advocated for active government intervention, primarily through fiscal policy. In this context, countercyclical fiscal policies should be employed during both economic recessions and expansions. During downturns, increasing government budget deficits would exert expansionary effects by stimulating private consumption. Conversely, austerity measures should be applied during periods of economic prosperity to prevent the economy from overheating due to excessive demand (Okeke et al., 2021).

The Keynesian framework for analysing income inequality can be regarded as a more nuanced and comprehensive extension of the political model. While the political model concentrates on aspects of political organization and development that are believed to affect income inequality, the Keynesian model places its focus on the concrete policies that governments implement in their attempts to reduce inequality. Nevertheless, there exist several differences between these two perspectives that set them apart. Political models of income redistribution tend to approach the issue from a conflict-oriented standpoint. From

this perspective, ordinary citizens attain universal suffrage and, through mechanisms like the establishment of social-democratic parties, leverage state institutions to secure a larger share of income, often to the detriment of the wealthy elites. Conversely, from a Keynesian perspective, we can comprehend the redistribution process through a consensus-based framework. Here, the balancing of savings, consumption, and investment benefits both the propertied class and the common people. In comparison to a state of recession, achieving such an economic equilibrium enhances not only profits but also wages (Stack, 1978). In summary, while the political model emphasizes conflict-driven income redistribution through state intervention, the Keynesian model perceives it as a consensus-driven process that benefits both the propertied class and the common people through economic equilibrium.

3.4.5. Monetarist Economics

In the early 1970s, the rapid expansion of public spending led to the emergence of stagflation, a phenomenon that Keynes had not predicted. In this newly formed conjuncture, Milton Friedman initiated a new trend, which came to be known as the monetarist approach. Friedman, developing from the reactions against Keynesian theory, has emphasized the importance of monetary policies over fiscal policies. Monetarists have argued that the government inevitably erodes individual freedoms and causes significant harm to the economy, emphasizing the need for the public sector to be as small as possible (McConnell et al., 1999). Friedman illustrated that the Keynesian model of household behaviour was fundamentally flawed by suggesting that individuals' consumption patterns are influenced by fluctuations in their anticipated future income, termed as "permanent income" (Walter, 2018). Friedman's (1969) permanent income hypothesis asserts that a person's earnings are determined by two distinct components: permanent income and transitory income. Permanent income consists of the wealth a person has accumulated, along with education, skills acquired, and income resulting from economic activities other than wealth. Transitory income, on the other hand, is interpreted as all other factors excluding permanent income.

Friedman argues that individuals vary in their attitudes towards risk, with some preferring to take risks while others prefer to avoid them. Therefore, he suggests that the macro-level income distribution in a country largely depends on whether the population is predominantly risk-seeking or risk-averse. Consequently, the fundamental factor contributing to income inequality in a country arises from the attitude towards risk (Sahota, 1978).

Despite conducting numerous studies on income, Friedman did not focus extensively on income distribution. Unlike previous approaches, he defined income distribution using concepts such as risk and preferences. He rejected state intervention in income distribution, arguing that it would lead to adverse consequences. The only exception to this stance is his proposal for a negative income tax, which focuses on the consequences rather than the causes of income distribution inequality (Ulutürk and Ergezer, 2005). A negative income tax is a mechanism that flips the direction of tax payments for incomes falling below a specific threshold. To elucidate, individuals earning above this threshold contribute funds to the state, while those below it receives financial assistance. Although Friedman's viewpoint sparked significant debates in the 1970s regarding the notion of a welfare state, it did not gain much popularity and faced substantial criticism. Criticism primarily revolves around concerns that such a tax system may lead to individuals avoiding work, which could impede long-term economic growth. Additionally, difficulties in financing transfers, uncertainties regarding the criteria for determining the threshold for taxation, and the potential problems associated with setting the threshold too low or too high are among the key points of contention (Şen and Sağbaş, 2016: 101). So, the proposal for a negative income tax put forward by the monetarist approach cannot be effectively utilized to achieve income equality.

3.4.6. Public Choice Theory

Public choice theory, formulated by James Buchanan, along with the contributions of Gordon Tullock, provides a theoretical framework that integrates economic theories with the decision processes of individuals in the context of public policy. This approach seeks to explore the processes through which political decisions are reached by viewing political actors—such as voters, politicians, and bureaucrats—as rational agents motivated by self-interest, much like economic agents in markets. Thus, the approach focuses on analysing public policies and decisions in the economy based on individuals' preferences. In other words, this approach assumes that individuals make rational choices and that these choices have societal consequences. So, public choice analysis examines how the different preferences and goals of individuals and society are balanced and the effects of these preferences on public policies (Buchanan, 2003). Particularly in areas such as public expenditures, taxation, social security, health policies, this approach is used to evaluate the effects and efficiency of public policies. In public choice theory, the community are typically

identified as individuals or collectives. These actors strive to protect or advance their interests in the creation, implementation, and effects of public policies. Such groups often encompass various actors such as politicians, voters, public officials, lobbyists, businesses, and civil society organizations. Public choice theory seeks to analyse decision-making processes within the public sector by exploring how the divergent interests of various stakeholders and the mechanisms of decision-making influence the formulation and implementation of public policies (Shughart and McChesney, 2010).

Public choice theory views taxation and tax policy from a political perspective. According to this approach, tax policy is inherently political, and every politician aims to provide as much service as possible with the taxes collected from the areas they govern (Şen and Sağbaş, 2016: 105). Buchanan focused on fiscal illusion regarding taxation and presented a unique approach to this issue. Fiscal illusion arises when government revenues lack complete transparency or are not fully perceived by taxpayers, leading to the misconception that the cost of government is lower than its actual value (Wagner, 1976). Political authorities prefer indirect taxes to levy more taxes by applying fiscal anesthesia to the taxpayers, thereby distorting income distribution, as they do not fully inform taxpayers accurately.

3.5. Measuring Income Inequality: Some Alternative Measures

Income inequality is a multifaceted socioeconomic issue with profound implications for societies on a global scale. Policymakers, economists, and social scientists must grasp and gauge income inequality, as this understanding is essential for addressing its repercussions and formulating effective interventions. Several measures and indices have been developed to assess income inequality, each offering distinctive insights into income distribution within a society. This part of the thesis will explore the advantages and limitations of different measures of income inequality, shedding light on the diverse perspectives they provide and the challenges they present in comprehending this multifaceted issue.

3.5.1. Lorenz Curve and Gini Coefficient

The importance of an extremely disproportionate allocation of wealth continues to be a subject of significant academic discourse, yet it remains critical to ascertain whether the current distribution is trending towards greater or lesser inequality. To achieve this, it is

required a systematic approach to analyse available statistics that portray the economic conditions of a particular country over various periods or different countries simultaneously. In essence, the objective is to delineate a framework capable of identifying the position on a spectrum ranging from extreme wealth equality to the complete consolidation of all wealth under the control of a single individual (Lorenz, 1905). Over time, numerous measurement methods have been developed to comprehensively grasp the state of income inequality in society and to formulate appropriate policies. One of the most well-known techniques among these is the Lorenz curve, which was first presented by Max Otto Lorenz and developed in 1905.

The Lorenz curve serves as a fundamental analytical instrument used to visually depict the allocation of income across different segments of a society, offering clear depiction of inequality patterns. It also aids in the comparison of various distributions, particularly when evaluating them from a welfare perspective. The curve graphically demonstrates the fraction of national income received by various segments of the population, where individuals are ranked according to their income levels. Typically, this curve is constructed based on a theoretical distribution function defined by two equations, assuming that the income distribution follows a density function (Gastwirth, 1971). This method shares a conceptual similarity with the quantile method. In contrast to merely displaying income portions, the curve connects the total income proportion to the total population proportion. Furthermore, this curve is illustrated with the x-axis denoting the cumulative share of the population ordered by income strata, ranging from 0 to 1. The y-axis, on the other hand, reflects the cumulative percentage of total income corresponding to that segment of the population. The calculation involves aggregating the income of a designated percentage of the population and subsequently dividing this sum by the total income (Y). This method provides a measure of the relative share of income attributed to that specific population segment. The formula is as follows: (Bellù and Liberati, 2005):

$$L \frac{k}{p} = \frac{\sum_{i=1}^k (y_i)}{Y} \quad (3.1)$$

Certainly, here's a breakdown of the symbols and their meanings in the provided mathematical expression:

$k = 1 \dots n$ represents the position of each individual in the income distribution.

$i = 1 \dots k$ represents the position of each individual in the income distribution.

P is the total number of individuals in the distribution.

y_i is the income of the i^{th} individual in the distribution.

$\sum_{i=1}^k (y_i)$ is the cumulated income up to the k^{th} individual.

The formula expressing the Lorenz Curve indicates that $\sum_{i=1}^k (y_i)$ ranges between 0 (for $k=0$) and 1 (for $k=n$), thus the equation (2.1) ranges between 0 and 1. The 45-degree line in the Lorenz curve represents income equality. Thus, when income is distributed equally among all individuals, the Lorenz curve would coincide with the 45-degree line. However, in scenarios where income distribution is unequal, the Lorenz curve generally resides below the 45-degree line, indicating that the lowest $x\%$ of individuals receive an income lower than $x\%$ of the total revenue within the nation. The deviation from the 45-degree line is a direct reflection of income disparity within the society. The greater disparity between the curve and the line of perfect equality, the higher level of income disparity. In other words, the greater deviations indicate a more pronounced disparity among the population. This visual tool effectively illustrates and quantifies the magnitude of income inequality in a given society (Trapeznikova, 2019).

Many income inequality measures are derived from the Lorenz curve, and one of the most widely recognized among them is the Gini coefficient, which was considered by academics to be the best measure of inequality (Gastwirth, 1972) when it was proposed. Although the coefficient has long been regarded as the primary metric for evaluating income disparity, contemporary scholarship acknowledges the increasing utilization of alternative metrics alongside, or even in lieu of, the Gini coefficient. Despite the overshadowing of its frequency of use, the coefficient continues to be the foremost measure of inequality that comes to mind. The Gini coefficient was developed by Gini (1912). Gini proposes to utilize the disparity between the hypothetical straight line representing perfect income equality and the actual line depicting people's incomes as a means of quantifying and assessing inequality. This coefficient is calculated by evaluating the proportion of the space that lies between the line of perfect equality and the curve to the cumulative space under the line of absolute equality, providing a quantitative measure of income distribution disparities within a given population. This ratio provides a numerical value that quantifies the extend of income inequality in a given population, with higher Gini coefficients indicating greater

income inequality and lower values signifying more equal income distribution. It has a range of values that provide insights into the distribution of resources within a population: i) the Gini coefficient of 0 represents perfect income or wealth equality. In this scenario, every individual has the same income or wealth; ii) the Gini coefficient of 1 represents perfect income or wealth inequality. This implies that one person within the population possesses all the income or wealth, while everyone else has none; iii) The Gini coefficient varies between 0 and 1, where values approaching 1 signify greater income or wealth inequality within a population. It provides a clear and concise way to quantify and communicate the level of disparity in a nation. Values of 0 and 1 represent theoretical extremes that are not realistically observed in the real world. Empirical data typically reveal that Gini coefficients fall within a range of 0.24 to 0.63. These values reflect the more practical and diverse income and wealth distribution patterns found in actual populations. According to the World Bank (2024a), South Africa, with a Gini coefficient of 0.63, is recognized for having the highest level of income inequality worldwide, while Slovenia, with a coefficient of 0.24, displays the least extent of income disparity. Although the Gini coefficient is usually computed at the national level, certain economists have attempted to calculate a global Gini coefficient to assess income inequality on a global scale. However, this endeavour involves several assumptions due to incomplete data, resulting in slightly different values in various studies. For instance, Milanovic (2021) approximated the Gini coefficient, an indicator of global income distribution, to be approximately 0.63 in 2021. Moreover, Chancel et al. (2021: 55) conducted a study in 2020, estimating the global income coefficient to be 0.67. These estimates provide insights into the overall income inequality on a global scale, even though the specific values may vary slightly due to data limitations and methodological choices (Roach et al., 2023: 17).

The Gini index has attained considerable prominence owing to its simplicity and the clarity with which it facilitates the assessment of income inequality, further supported by its intuitive graphical representation through the Lorenz curve. Additionally, the Gini index offers valuable features such as the ability to conduct decompositions by income sources and population groups, along with robust inferential properties. Furthermore, various scholars have proposed original interpretations and extensions, further emphasizing its versatility in various domains and applications (Giorgi and Gigliarano, 2017). Another advantage of using the Gini coefficient is that it is a unit-free and bounded parameter. This characteristic makes it easy to compare income or wealth inequality across different assets or populations with

varying denominations (Schechtman and Yitzhaki, 1999). Since the Gini coefficient is a ratio, it provides a standardized measure that is not influenced by the specific units or currency used, making it a versatile and widely applicable tool for comparing inequality levels.

Though the Gini index is widely utilized by governments and international organizations as a standard tool to summarize income inequality both within nations and globally, it is crucial to recognize that the index has faced criticism due to its limitation of yielding identical values for distinct income distributions (Liu and Gastwirth, 2020: 16). This means that two distinct distributions can yield the same Gini coefficient, potentially obscuring important differences like inequality between them. Despite its widespread use, this limitation is a point of concern and has led to ongoing discussions about the adequacy of the index as a sole indicator of income disparity.

Piketty (2014) expresses reservations regarding the reliance on single summary indices of inequality, like the Gini index. His argument rests on the premise that the social, economic, and political implications of inequality vary significantly across different segments of the distribution, underscoring the importance of analysing them separately. In other words, Piketty argues that it is essential to examine inequality at different points along the income distribution, as the characteristics and consequences of inequality can differ considerably based on the specific segment of the distribution under observation. Atkinson (1970) states that studies should incorporate a broader spectrum of inequality measures, instead of exclusively relying on the Gini coefficient. The Gini coefficient is widely acknowledged for its heightened sensitivity to income variations within the middle portion of the distribution, while potentially failing to adequately reflect shifts at the extremes. By incorporating a diverse set of inequality measures, researchers are able to gain a more detailed and multifaceted understanding of income distribution dynamics, as well as the effects of policy adjustments across various income segments.

Anderson et al. (2017: 982) argue that link between public expenditure and disparities in income shifts according to the inequality metric applied. Unlike the Gini coefficient, this dynamic exhibits a stronger inverse trend when examining the income held by the top 10% or 20% of the population. However, when attention shifts to share of earning accrued by the least wealthy segment of society (20% or 40%), the correlation weakens, becoming less negative. This observation has important policy implications, suggesting that the

redistributive consequences of government expenditure have not been uniformly distributed across the income spectrum. Instead, they have been more concentrated in the upper half, primarily benefiting middle-income and higher-income groups.

Criticizing the Gini index, or any other singular measure of income inequality, solely on the basis that it can yield the same value for different income distributions, on the other hand, is not entirely justified, according to Liu & Gastwirth (2020). A common limitation of any single index is its inability to distinguish between all pairs of income distributions. However, the Gini index possesses a distinguishing feature: it can differentiate between distributions that yield identical values for generalized entropy measures with integer indices. It is important to recognize that expecting a single measure to fully capture and describe the complexity of an entire income distribution is unreasonable. Consequently, employing multiple measures of income inequality may provide a more comprehensive and insightful understanding of income distribution, accounting for its various dimensions and subtleties.

Notwithstanding its inherent constraints, the Gini coefficient has found widespread application in scholarly research and remains the predominant metric for assessing income inequality. However, owing to its greater responsiveness to differences within the central portion of the income distribution, it is essential to recognize that the Gini coefficient is not entirely impartial or devoid of inherent value judgments. Rather, it should be regarded as one of the numerous approaches available for quantifying income inequality (De Maio, 2007). However, it remains one of the main topics in the literature is the need for a nuanced understanding of measuring income inequality.

3.5.2. Quintile and Decile Ratios

Income inequalities serve as one of the most prominent indicators of disparities in living standards within each country. Fundamentally, in this context, income is conceptualized as the after-tax income of a household within a particular period. It includes income derived from salaried employment, earnings from self-employment activities, returns on capital assets, and government-provided cash transfers. Levies on income and payments toward social security schemes imposed on residential units are subtracted from this total. The income is then distributed among household members, with adjustments made to account for variations in the needs of households of different sizes (OECD, 2016a).

Different measures uncover the income inequality among these households. One such measure is the quantile or decile ratios, which involve comparing the income of the top income bracket, typically defined through quintiles or deciles, with those of the lowest income group. For example, this could involve evaluating the earning received by the top 20% of the country relative to that of the bottom 20%. One significant advantage of this measure is its capacity to facilitate sensitivity analyses. For instance, researchers can compare the correlations between population health and various income ratios, such as the 20:80, 30:70, and 40:60 decile ratios. This methodology enables investigators to identify which segments of the earnings stratification have the greatest effect as social determinants of health (De Maio, 2007). By conducting these analyses, researchers can gain insights into the specific income disparities that are most strongly linked to health outcomes.

Using percentile or share ratios provides the benefit of clarity in pinpointing which segment of the income distribution contributes to alterations in the summary measure. This clarity can be more challenging to achieve when relying on the Gini coefficient. However, there are downsides to using inter-decile ratios. These ratios often overlook incomes that fall between percentiles as well as those above the highest and below the lowest percentiles. Moreover, they exhibit a limited adherence to the transfer principle, implying that the overall inequality measure may not increase when income is redistributed from wealthier to less affluent individuals. For example, the measure may remain unchanged if transfers occur within the designated percentiles of interest (Trapeznikova, 2019).

The decile dispersion ratio, which contrasts the mean income of the top 10% of the population with that of the bottom 10%, serves as an effective measure of the income disparity between the top and bottom deciles, quantifying how many times greater the income of the highest decile in relation to that of the lowest decile. While it provides insights into the extremes of the income distribution, this ratio has limitations. It does not take into account the distribution of incomes within the middle deciles, and it does not provide information about how income is distributed within the highest and lowest deciles or percentiles (World Bank, 2023). Consequently, it may fail to fully capture the intricate nuances of income inequality within a society. To address these shortcomings, complementary measures such as the Gini coefficient or Palma ratio are often employed to provide a more comprehensive picture of inequality. By considering the entire income

distribution, these metrics enable policymakers and researchers to formulate more targeted and equitable strategies to reduce disparities.

3.5.3. Theil Entropy and Atkinson Indexes

The Theil Index, also referred to as the entropy index, is derived through the summation of the products of the relative proportions of income within a distribution and the natural logarithms of those same relative shares. Devised by Theil (1967) the method for quantifying income inequality has evolved in the context of subsequent advancements over recent decades. It is demonstrated that Theil's original approach naturally leads to a versatile category of decomposable inequality measures. Consequently, it is closely connected to several commonly used families of inequality measures, making it a valuable tool for understanding and analysing income inequality across different contexts and applications (Cowell, 2006). The Theil index, one of two primary indicators commonly utilized to measure inequality alongside the Gini coefficient, offers a unique advantage through its capacity for decomposition. Unlike the coefficient introduced by Gini, the Theil index enables the overall level of inequality to be clearly separated into two factors: inequality that exists between groups and inequality that is observed within groups. This characteristic offers a more nuanced insight into the sources and underlying mechanisms of income disparity, enabling policymakers and researchers to identify specific sources of disparity and design more targeted interventions (Liao, 2016).

The Theil index is a quantitative measure crafted to investigate disparities in wealth by quantifying the entropic “distance” of a demographic from an “ideal” condition of total income equality, where all individuals receive identical incomes. The numerical value of the Theil index is expressed in terms of negative entropy, wherein higher values indicate greater order and, consequently, a larger deviation from the ideal scenario of maximum disorder associated with perfect equality. By framing the measure in terms of negative entropy, the Theil index effectively captures and quantifies disparities in income distribution, offering a nuanced representation of inequality levels within a population (United States Census Bureau, 2021). The index falls within the range of values from zero to ∞ (infinity), with zero indicating a perfectly equal distribution of a variable and higher values signifying a greater degree of inequality. It is crucial to acknowledge that the Theil index assigns equal weight to each region, irrespective of its size. Consequently, disparities in index values observed

when comparing different countries may partially stem from variations in the average size of regions within those countries. This characteristic implies that countries with a larger number of smaller regions might exhibit different inequality patterns compared to those with fewer, larger regions, even if their overall income distributions are otherwise similar. Thus, this equal weighting characteristic can influence the index's sensitivity to the geographic size of regions when assessing regional inequality (OECD, 2016b: 177).

The primary advantage of using the Theil index lies in its sensitivity to even minor structural changes, which enables a comprehensive analysis of both sectoral concentration and regional diversification (Cutrini, 2005). Conceição & Galbraith (1998) contend that the application of the Theil index to measure wage disparities between industries allows for the construction of extensive and continuous time series that track inequality. When used in this manner, the Theil index effectively quantifies inequality between different economic sectors. However, it does not provide insights into the degree of inequality within each of these sectors.

The Atkinson index, originally proposed by Atkinson in 1970, is a measure that are broadly characterized as the standardized ratio of the equally distributed equivalent level of wealth to the average of the observed wealth distribution. The Atkinson index falls within the range of values from zero to one and increases as income inequality grows. The index equals zero in a state of perfect equality, where every individual holds an identical and positive level of wealth, and approaches one when there is complete inequality, meaning one individual possesses all the wealth while all others have nothing. The Atkinson index can be comprehended through the concept of an equivalent distribution of wealth that would result in complete equality. For instance, the index value of 0.7 suggests that if resources were allocated uniformly, the equivalent level of social welfare could be realized with merely 30% of the actual total resources, thereby underscoring the magnitude of disparity within the wealth distribution (Costa and Pérez-Duarte, 2019).

A notable feature of the Atkinson index is its capacity for decomposition into within-group and between-group inequality components. This decomposition facilitates a more comprehensive examination of income disparities, both within and across various groups or categories. Furthermore, the Atkinson index presents a distinctive advantage by offering insights into the welfare implications of various policies, while integrating normative considerations into the analysis. As such, it serves as a valuable instrument for evaluating

the influence of legislative measures on the allocation of income and overall social welfare (Bellù and Liberati, 2006).

3.5.4. Palma Ratio and Robin Hood Index

The Palma ratio, an economic metric, pertains to the proportion between the national income shares attributed to the upper decile (top 10%) of households and the lower two quintiles (bottom 40 %). This ratio finds its foundation in the empirical insight provided by economist José Gabriel Palma (2006, 2011), who highlights discrepancies in income distribution across distinct nations or temporal periods are primarily driven by shifts within the extremities of the income distribution spectrum, encompassing the most affluent and the most disadvantaged segments. Moreover, this observation highlights the principle of relative stability within the income proportion allocated to the middle segment of the income spread. It underscores the Palma ratio's emphasis on capturing fluctuations in income distribution, particularly by focusing on the disparities observed at the upper and lower ends of the distribution spectrum (Cobham et al., 2016). The Palma ratio is grounded in the empirical observation that, in many countries, the middle-upper portion of the income distribution (ranging from the 4th to the 9th decile) consistently earns approximately 50% of national income. This distribution tends to remain stable over time and across different nations. Consequently, shifts in income or consumption inequality are predominantly driven by changes in the income proportion of the wealthiest 10% and the bottom 40%. Societies with a Palma ratio of 1 or lower are typically regarded as having more equitable income distribution, indicating that the top 10% does not capture a disproportionately larger share of national income compared to the bottom 40% (Trapeznikova, 2019).

The Robin Hood index, another measure for assessing income disparity, is known by various names, such as the Pietra index, the Hoover index, and the Schutz index (Allen, 2022). The Pietra index (2014), initially introduced as a tool for assessing disparity in 1915, has inspired equivalent inequality measures that have been put forth in subsequent research. Notably, similar measures were proposed by Hoover (1936), by Schutz (1951), and were formally introduced as the Robin Hood index by Atkinson & Micklewright (1992). Fundamentally, the ratio is a metric that quantifies the extent to which income redistribution is necessary to attain a state of perfect income equality. Specifically, this index estimates the proportion of overall earning, which needs to be redistributed from households with incomes

above the mean to those below it to attain equitable income distribution. Higher values on this index indicate greater income inequality, signifying a greater need for income redistribution to achieve income parity. This concept can be graphically depicted by the maximal vertical gap separating the Lorenz curve from the line representing perfect equality, often shown as the 45-degree line (Afonso et al., 2015). In summary, the Palma ratio sheds light on income distribution dynamics by focusing on shifts within the extremes of the income spectrum, while the Robin Hood index quantifies the extent of income redistribution needed to achieve perfect income equality.

3.5.5. Pareto Ratio

Vilfredo Pareto, esteemed as both an economist and sociologist, highlights the illogical elements of human life that constitute the basis of a sociological viewpoint, providing empirical examples while exploring the societal dynamics. Pareto's contributions to welfare economics include the formulation of sociological theories centred on logical and illogical behaviours, residues and derivations, as well as the roles of the elite, rentiers, and speculators. Drawing from disparities in income among societies, he has formulated a comprehensive theory of social inequality. Pareto's approach emphasizes the unequal structure that emerges from individual income rather than class distinctions, focusing on the broader socio-economic distribution rather than statistical analyses. It highlights social heterogeneity rather than gaps in social structure, opportunities, or individual abilities (Gedik, 2021).

The Pareto Ratio, often referred to as the 80-20 rule, posits that a significant portion of the outcomes or consequences in many situations is typically generated by a relatively small fraction of the causes. This concept traces its roots to Pareto's observations (1986) over a century ago, when he noted that 20% of the population in Italy owned 80% of the wealth. In response, he developed a mathematical model to illustrate the unequal distribution of wealth, which became known as the Pareto distribution. The Pareto ratio is a particular instance within the larger framework of Pareto distributions (Dunford et al., 2014). Pareto's insights into wealth distribution and the 80-20 rule remain influential in understanding disparities in various domains of life. Consequently, this principle continues to serve as a foundational tool for analysing inequality and resource allocation in economics, sociology, and beyond.

3.5.6. Pigou-Dalton Principle

The development of welfare economics traces back to Myint, Ricardo, Mill, and Marshall; however, the concept of welfare economics was first introduced by Pigou. According to Pigou, welfare economics is the investigation of the determinants of the economic well-being of the world or a single country, and welfare economics is a field that deals with factors contributing to the enhancement of economic well-being in any society (Pigou, 1920). Consequently, through welfare economics, recommendations are made to facilitate an increase in societal well-being. Society makes choices that maximize its welfare among different options. Welfare economics plays a crucial role in formulating recommendations for the optimal resource distribution for the improvement of social welfare. The two important issues in welfare economics are how to measure welfare and the optimal allocation of resources. Welfare economics, which holds a significant place in economic theory, deals with questions regarding what welfare is, how the welfare of society is assessed, and who has a say on behalf of society. Attempts to answer these questions are made through social welfare functions (Gedik, 2021). Otherwise, Dalton (1920: 349) assumes that while inequality can be theoretically associated with economic well-being, its practical measurement primarily relies on income as the essential yardstick.

The Pigou-Dalton (PD) principle (1912), when applied to a particular type of good, advocates for a transfer of that good from an individual who possesses more of it to another individual who possesses less. This transfer should meet two key criteria: it should be non-leaky, meaning that the individual with fewer units of the good gains exactly as much as the other individual loses, and it should be non-rank-switching, meaning that the individual with fewer units should not end up with more than the other individual as a result of the transfer. In essence, the PD principle calls for a fair and efficient reallocation of the specified good without changing the overall distribution or ranking of individuals in terms of that particular resource (Adler, 2013). This principle serves as a central concept for assessing and comparing various distributions of resources or outcomes, making it a cornerstone of economic discussions on inequality.

In a unidimensional context, the PD principle asserts that a regressive transfer, with respect to a single attribute, leads to a decline in social welfare. Since there exists a direct correlation between an individual's possession of this single attribute and their level of well-being, transfers that exhibit regressiveness in this attribute consequently reduce well-being.

Essentially, the PD principle stipulates that if a transfer from one individual to another enhances the well-being of the advantaged while diminishing that of the disadvantaged, it ultimately diminishes social welfare (Bosmans et al., 2009). The PD principle, when applied to a specific good, advocates for a fair and efficient transfer from those who possess more to those who possess less, ensuring that the transfer is non-leaky and non-rank-switching. This principle serves as a fundamental concept in evaluating and comparing different resource distributions, making it crucial in discussions surrounding inequality and resource allocation.

3.5.7. Kuznets' Inverted-U Curve

The principal criteria most frequently employed in cross-country comparisons are the rates of economic growth and the degrees of economic development. Economic growth signifies the sustained expansion in the overall production of outputs and services within a specified temporal period reflecting the dynamic capacity of an economy to expand, relative to a prior timeframe, and can be measured in either nominal or real terms. It reflects both the expansion in the excellence of goods and services produced by individuals generated by individuals. Conversely, economic development encompasses a wider and more qualitative concept of advancement within an economy, incorporating enhancements in diverse facets of human welfare, such as living standards, education, healthcare, infrastructure, and institutional effectiveness. Emphasizing sustainable and equitable progress, economic development aims to alleviate poverty, inequality, and social hardships, thereby benefiting all segments of society. However, as a term, economic growth and economic development are intertwined, complex concepts, which can create challenges in distinguishing between them and interpreting certain macroeconomic and social variables (Van Den Berg, 2016). While economic growth fluctuates from year to year and can be tracked over time, economic development is an active process that becomes observable after a certain period has passed. Hence, managing this active process is a crucial endeavour. Failure to adapt to advancing technology could even lead to a regression in the level of development over time.

Today, measuring economic growth is relatively straightforward, while various challenges are encountered in measuring economic development. Therefore, assuming that economic growth can also lead to economic development, economic growth is often used as a measure of development. So, economic growth is a phenomenon that countries desire and believe can help address various economic and social challenges. In pursuit of this objective,

a range of research efforts has been carried out to examine the consequences of economic growth on various macroeconomic indicators. According to the studies, income inequality within a country can either increase or decrease during its economic growth. One notable study in this regard was conducted by Kuznets (1955), who explored the interaction between economic progress and income allocation. By means of employing both time-series data for the USA, Germany, and England, as well as cross-sectional data covering these nations and others like Ceylon, India, and Puerto Rico, the writer proposed a hypothesis about the dynamics of income inequality during economic development. He suggested that the initial phases of economic growth, income disparity typically increases, stabilizes during the intermediate phases, and ultimately decreases as development progresses. Thus, Kuznets' findings indicated that income inequality follows a distinct pattern throughout the course of economic growth: initially increasing, reaching a peak, and subsequently declining, forming an inverted U-shaped curve.

Kuznets (1963) further strengthened his inverted U-shaped hypothesis by examining significant differences between sectors in average income levels in less industrialized nations. These disparities were primarily attributed to income differences between the agricultural and non-agricultural sectors. His research revealed that, in both less industrialized and advanced economies, income distribution within the traditional agricultural sector was less unequal compared to the income distribution in the contemporary non-agricultural sector. Kuznets noted a contraction in the income size distribution following the Second World War, as evidenced by a decrease in the proportion of income controlled by higher-income groups. He also found that, following the Second World War, income distribution of the wealthiest 5% of the demographics was 20% or less before taxes, in contrast to the 30% share observed in the 1920s and 1930s in most countries. As a result, the income proportion of the lowest 60% of the demographics, which had been under 30% in the 1920s and 1930s, surpassed 30% in the aftermath of World War II. This data provided further support for his argument that income disparity declines during the later phases of economic progress (Ganaie and Kamaiah, 2015).

Numerous empirical analyses have been conducted to validate the Kuznets' inverted-u curve, which is regarded as one of the most significant works in the literature. Yet, the results of these analyses are quite complex and varied. Historical analyses conducted in Western countries generally align with Kuznets' findings, revealing a positive correlation

between economic progress and income disparity, particularly in the initial phases of development. However, current studies examining the experiences of development in more contemporary contexts provide less support for Kuznets' findings (Acemoglu and Robinson, 2002: 183). Subsequent developments such as economic globalization and changing economic conditions are the reasons for questioning the validity of the Kuznets' inverted-u curve. Despite this reality, his inverted-u curve continues to remain a seminal work in measuring income inequality.

3.6. Reducing Income Inequality

The elimination of income inequality represents a critical and multifaceted societal objective aimed at correcting discrepancies in the distribution of financial resources among individuals and households. Income inequality denotes the uneven allocation of income within a population, where some individuals or groups earn considerably more than others. This disparity holds considerable social, economic, and political consequences, influencing access to education, healthcare, and opportunities for upward mobility. Based on the identified connections between income inequality and various other factors, it emerges that state regulation on income distribution stands as a crucial process aimed at attaining favourable social and economic outcomes (Mishchuk et al., 2018: 131). Efforts to mitigate income inequality often encompass policies and initiatives designed to redistribute wealth, foster economic growth, and ensure equitable access to resources and opportunities. Many tools and strategies have been put forth in the literature to tackle and mitigate income inequality. Although these efforts are seen as important steps towards a fairer and more inclusive society, the influence of these strategies on income allocation has also sparked debate. Therefore, some practices demonstrate intricate net effects on income allocation, as will be detailed in the ensuing sub-section.

3.6.1. Progressive Taxation

Taxes are compulsory financial charges or levies imposed by a governing authority, which may operate at the local, regional, or national level, on individuals, businesses, or other entities within its jurisdiction. Taxes serve as a fundamental source of revenue for governments, and their primary responsibility revolves around the planning and collection of these revenues. This primary function is commonly known as the fiscal or traditional function of taxation. However, with the evolution of social and economic structures, taxation

has assumed a broader role. Taxes have become a significant tool for government intervention in social and economic life, extending beyond their fiscal function. These functions are also referred to as the non-fiscal functions of taxation. The non-fiscal function of taxation encompasses the use of taxes for social and economic purposes such as resource allocation, income distribution, financing healthcare services, environmental protection, and economic stability, in addition to revenue generation. Indeed, one of the significant aspects of the social function of taxation is income redistribution. Taxes are utilized as a tool for mitigating income inequality by imposing progressive tax rates on higher-income individuals, thereby facilitating the redistribution of wealth through various forms of assistance or benefits directed towards lower-income groups. This redistributive mechanism is essential in fostering economic and social equity within a society.

A progressive tax system is characterized by tax rates that rise or progress as an individual's or entity's taxable income increases. In such a system, lower-income earners are subject to a lower tax rate, while higher-income individuals or entities face higher tax rates. This progression is typically achieved by defining tax brackets that categorize taxpayers based on their income levels. As income increases and moves into higher brackets, the tax rate applied to that income also increases, resulting in a higher overall tax liability for those with higher earnings. The income distributions before and after taxation inevitably differ, as taxation exerts a significant influence on aggregate income distribution within a society. The imposition of taxes and subsequent redistribution of wealth modifies the initial income distribution, often leading to a reduction in income disparities (Sağbaşı et al., 2011). Among the tax types, personal income tax exhibits the highest degree of progressivity although there are substantial differences between countries. In contrast, contributions to social security, taxes on consumption, and property levies are frequently regarded as regressive in numerous nations (Joumard et al., 2012: 39). Progressive taxation is frequently associated with income equality, whereas flat-rate taxes such as consumption taxes are criticized for exacerbating income inequality. Nevertheless, there exist divergent perspectives regarding the influence of these two taxes on income distribution.

Modigliani & Brumberg's seminal work (1954), followed by Ando & Modigliani's contribution (1963) laid the foundational groundwork for what is now recognized as the "life cycle model." The model posits that an individual's well-being is more heavily influenced by consumption rather than income, thereby supporting the notion that consumption taxes

are more equitable than income taxes. One of the key contributions of the life cycle model to the taxation field is its ability to challenge conventional notions of justice (Sağbaşı et al., 2011). The life cycle model transformed the understanding of taxation principles, highlighting the importance of consumption over income in determining individual well-being.

Dependence on increasing taxation and expenditures as a reactionary approach to address inequality can be inherently short-lived, however. The sole enduring strategy to alleviate inequality involves the different strategies halting the fundamental expansion of wage disparities and capital-derived incomes. Specifically, the focus must be on ensuring that individuals can engage in gainful employment and secure wages that elevate them and their families above the poverty line. These necessities lead to a substantial improvement in the efforts of advanced nations to promote labour force participation, rather than relying on unemployment, disability, and premature retirement benefits. Furthermore, it entails fostering job retention and providing substantial career advancement opportunities (OECD, 2008: 16).

3.6.2. Social Safety Nets

Social security programs, organized by governments, aim to shield families from economic shocks, natural disasters, and other crises. Cash transfers delivered through these programs play a crucial role in fostering investments in human capital and serve as a significant source of income for disadvantaged individuals, ultimately contributing to the improvement of living standards (World Bank, 2024b). Thus, social safety nets play a pivotal role in poverty reduction and offering assistance to the most vulnerable members of society, additionally, promoting inclusive growth. While the traditional perspective on social protection schemes, as embraced by the World Bank, framed them as tools for income redistribution and enhancing the well-being of individuals who couldn't engage in productive economic activities, there has been a paradigm shift. Social safety nets are increasingly recognized as essential components of the growth agenda as well. Five functions can elucidate the multifaceted and pivotal role of social safety nets. Firstly, they serve to mitigate chronic poverty and reduce inequality. Secondly, they encourage increased and enhanced investments in human capital among the poor, thus offering a path to escape poverty. Thirdly, they provide a crucial mechanism for individuals to manage risk stemming from individual-level shocks. Fourthly, they bolster resilience by assisting the vulnerable in

navigating systemic shocks. Lastly, during periods of broader economic reforms, social safety nets act as a protective shield to safeguard the interests of the impoverished (IEG, 2011). Indeed, the expansion and fortification of social safety net programs, including unemployment benefits, food assistance, and access to affordable housing can offer vital financial support to individuals in need and contribute to facilitating the narrowing of income inequality.

The social safety net encompasses a variety of transfer programs, and a fundamental distinction lies in whether they adhere to a means-tested or social insurance framework. Means-tested programs primarily assess eligibility based on an individual's or household's income and assets. In many cases, additional factors such as age, family composition, or disability status are also considered in the determination process. These programs are not necessarily entitlements and can be subject to budget limitations. Typically, the benefit amounts are more generous for those with lower incomes. In contrast, social insurance programs primarily establish eligibility by considering an individual's employment history and earnings record. Generally, individuals with longer work experience and greater income records are generally more inclined to qualify for benefits, which, when provided, are often more substantial. The redistributive effects of social insurance schemes differ markedly from those of income-tested assistance programs. This difference arises because the most vulnerable members of society frequently possess limited work histories and minimal earnings, making them unable to access social insurance benefits (Moffitt, 2013). These programs play a significant role in alleviating economic hardships, ensuring that vulnerable populations have access to essential resources, and ultimately fostering a more equitable society.

3.6.3. Education and Training

Education and training are often used interchangeably, but they are indeed distinct terms, even though they share a common goal. Education typically encompasses a broader and more academic approach to acquiring knowledge, which may not always be directly tied to specific job skills. On the other hand, training is usually more practical and focused on teaching the specific skills and knowledge needed for a particular job or task (Masadeh, 2012). Both education and training are fundamental to personal growth and vocational development; however, they serve distinct functions and focus on different dimensions of

learning. For example, investing in accessible and quality education and vocational training programs to enhance individuals' skills and employability, thereby increasing their earning potential.

There is a strong and logical connection between human capital inequality and income inequality (Földvári and Leeuwen, 2011). Human capital, which includes a person's education, skills, knowledge, and abilities, is a key determinant of their earning potential. When there are disparities in human capital development, such as differences in access to quality education and training opportunities, it often results in unequal income distribution. Widespread access to education has several positive effects on society, including enabling more informed participation in the market economy. This increased access can reduce the lobbying influence of the wealthy, as it empowers a more educated and informed citizenry. Simultaneously, it enhances the social and job opportunities available to individuals from lower-income backgrounds, which can lead to lower income inequality within a society (Rodriguez-Pose and Tselios, 2006). Thus, government intervention in education and training should aim to foster a more equitable education opportunity by promoting fair income distribution.

Training programs especially should be designed to be inclusive and easily accessible for marginalized groups, including individuals with disabilities, those lacking skills or qualifications, minority populations, people with a migrant background, and those facing limited occasion due to their socio-economic status or geographic location. Implementing specific strategies and offering flexible training formats can play a crucial role in preventing early dropout from educational and training programs and facilitating the smooth transition from school to the workforce (EU, 2022). Indeed, when training programs are structured to be inclusive and accessible to these vulnerable and marginalized groups, they can contribute to social cohesion. By providing individuals from these groups with the skills and opportunities they need to access better-paying jobs and career paths, training programs can help reduce income disparities and promote greater economic equity. In conclusion, addressing disparities in education and training opportunities is essential for reducing income inequality and promoting economic equity within societies. Furthermore, targeted investments in skill development can foster a more inclusive labour market, enhance social mobility, and contribute to long-term sustainable economic growth.

3.6.4. Healthcare Access

The significant correlation between income disparity and a range of health indicators has been increasingly recognized in academic research. A consistent pattern emerges showing that wider income disparities between the rich and the poor in a given region are associated with poorer health outcomes for the population in that area. This phenomenon may be attributed to reduced social cohesion and heightened psychosocial stress within such communities (Shi et al., 1999). Fundamentally, the link between the earnings of individuals and health is a well-established and widely acknowledged fact in academic literature. Higher income is generally correlated with better health outcomes, as evidenced by numerous studies in the field (Kawachi and Kennedy, 1999: 215) while lower income is linked to having worse health status. So, unequal access to healthcare within a country can contribute to the deterioration of income distribution for various reasons.

Individuals with poor health often experience a reduction in their earning potential as they are more likely to miss work due to illness, resulting in lower productivity. Health inequalities can further result in lower labour force participation rates, as individuals with certain health conditions may face discrimination from employers, limiting their access to well-paying jobs and opportunities for career advancement. Poor health can also hinder regular school attendance and academic performance, leading to lower educational attainment and limited access to higher-paying job opportunities. Health issues frequently entail substantial healthcare costs, which can place a significant financial burden on individuals, reducing their disposable income. Some individuals with health problems may even be compelled to take on debt to cover medical expenses. In this situation, ensuring affordable and accessible healthcare services to reduce financial burdens on individuals and families can increase health equality.

3.6.5. Labour Market Policies and Minimum Wage Focus

Contemporary labour economics places a growing emphasis on the examination of labour institutions and regulations, evaluating their influence on market dynamics and economic results. Labour market policies primarily aim to achieve income redistribution, making them a potent tool for mitigating income disparity. These labour market institutions include social protection systems, labour laws (such as minimum wage regulations and their enforcement), active labour market policies, as well as trade union participation and collective

bargaining. Wage and salary differences are commonly identified as key contributors to income inequality, while transfer payments, taxation, and social security contributions serve as mechanisms to counterbalance and reduce this disparity (Obadić et al., 2014: 122). On the other hand, the minimum wage is particularly regarded as a crucial tool for addressing many problems in the labour market.

The minimum wage has long been considered a pivotal component of public policy aimed at diminishing poverty and inequality. Elevating the minimum wage is anticipated to result in higher earnings for millions of low-wage workers, consequently contributing to a reduction in income inequality (Lin and Yun, 2016). Historically, minimum wage policies have exhibited an irregular pattern influenced by both political and economic considerations. The establishment of legal minimum wage laws has a varied international history. New Zealand pioneered in this regard, enacting the Industrial Conciliation and Arbitration Act in 1894. Following this, Australia became the second country to introduce such legislation, with the Victorian Factories and Shops Act 1896 specifying the initial minimum wage rates. In the USA, Franklin D. Roosevelt, who was the president at the time, played a pivotal role in the enactment of legally mandated nationwide minimum wage regulations in 1938. Within the European Union (EU), the adoption of minimum wage legislation occurred progressively throughout the latter half of the 20th century. Notably, among the EU member states that implemented such policies, Germany was the last to do so, enacting its minimum wage law in 2015 (Adema et al., 2019: 55-56).

Different countries, indeed, have pursued varying processes when implementing legislated wage thresholds policies. For example, the initial wage thresholds law in the USA during the late 1930s aimed to ensure that low-wage workers could provide for a sufficient standard of living. Subsequent changes in the minimum wage over time have been driven by ongoing efforts to realize this long-term objective. One common target has been the restoration of the eroded real value of the wage threshold, often set at 50 % of the average hourly earnings of production and non-supervisory workers, with step changes designed to sustain this ratio (Horrigan and Mincy, 1993: 257). The fundamental objective shared by minimum wage policies across different countries is to ensure that employees can attain a decent standard of living, while concurrently striving to establish greater justice and equity in the nation's income distribution. By guaranteeing that workers earn a wage that enables

them to meet their basic needs, these policies contribute to a fairer and more balanced society, underpinning the values of social justice and economic well-being.

If wealth is distributed more equitably among labor, a greater number of individuals can invest in their human capital, leading to a subsequent increase in economic growth. In a society characterized by significant inequality and resource polarization, there exists a compelling drive for collective entities to seek their concerns through avenues outside conventional economic operations or common political processes. Consequently, in societies marked by greater levels of inequality, citizens are more inclined to participate in rent-seeking practices or other forms of political and social volatility, including violent uprisings, political assassinations, and coups (Perotti, 1995: 4-5). The minimum wage aims to prevent this socio-political instability.

3.6.6. Closing the Gender Inequality Gap

Gender is recognized as a concealed dimension within the ongoing discourse and examination of income disparity. Concerning the measurement of individual income disparity, the prevalent practice involves overlooking intra-household disparities. This customary method entails the calculation of inequality metrics based on household disposable income, under the presumption that resources are combined and evenly distributed among household members (Sauer et al., 2020). When examining the social distribution of income, it becomes evident that income is not distributed equally between men and women. Hereupon, when gender discrimination is discussed in global literature, it typically refers to the limitations placed on women's education, their participation in public life, social activities, and their freedoms. Examinations reveal that income inequality is intimately tied to unequal access to education and is significantly associated with other disparities in opportunities, including variations in access to healthcare, financial services, and essential resources. Discrimination in education, which is central to these issues, is often considered the fundamental form of discrimination that underlies subsequent gender inequalities. Women who lack education may find it difficult to enter the workforce and cannot stand up effectively for their basic rights. However, women who are unable to participate in the workforce are often seen as a fundamental but less visible factor in income inequality.

The gender pay gap plays a direct role in perpetuating income inequality. Moreover, pronounced gender disparities in workforce participation are a fundamental driver of gender-

based wage differentials, thereby reinforcing overall income inequality. Furthermore, the disproportionate representation of women within the shadow economy, where remuneration tends to be comparatively lower and job security is minimal, further widens the gender wage gap and exacerbates income inequality (Gonzales et al., 2015). To effectively address and eliminate income inequality, it is imperative to comprehensively tackle gender disparities. Central to this effort is the prioritization of educational opportunities as a fundamental and pivotal aspect of the strategy. Essentially, the wisdom encapsulated in the African proverb emphasizes the transformative power of educating girls, *“If you educate a boy, you educate an individual. If you educate a woman, you educate a family and a whole nation.”*⁴



⁴ Suen, Serena. “The education of women as a tool in development: challenging the African maxim.” (2013).

4. SOCIAL EXPENDITURES AND INCOME INEQUALITY

Income and wealth inequalities have been central topics of discussion in recent decades. Various factors such as economic crises, epidemics, immigration waves, and labour disputes have fuelled social unrest and contributed to these disparities. To address these issues, governments have increasingly turned to social expenditures to intervene in social and economic life.

Income inequality and social expenditures are intertwined aspects of any society's economic and social foundations. There exists a reciprocal correlation between income disparity and government social expenditures. On one hand, the allocation of income can profoundly influence both the magnitude and efficacy of social expenditures. Elevated income disparity frequently drives a heightened demand for social welfare initiatives aimed at supporting individuals with limited financial resources. Conversely, social expenditures can serve as effective instruments for mitigating income inequality, particularly when implemented alongside well-designed policies targeting specific objectives and demographic groups. However, it is essential to recognize that empirical findings regarding the interplay between income disparity and social expenditures vary considerably across different nations and temporal contexts. This section aims to examine the core theoretical foundations underlying the correlation between income inequalities and publicly provided social expenditures while also analysing the empirical evidence derived from these theoretical perspectives.

4.1. Role of Government Intervention in Mitigating Income Inequality through Social Expenditures

Social expenditures, covering key areas such as healthcare, education, and social assistance, serve as essential mechanisms for mitigating social and economic disparities by establishing a safety net for vulnerable populations. They can help narrow the income gap and promote fairness by redistributing wealth through various mechanisms such as

progressive tax policies. Basically, by eliminating income inequality these social expenditures serve as a tool for fostering social mobility, breaking down barriers, and expanding opportunities for individuals from disadvantaged backgrounds. Nevertheless, achieving a balance between reducing income inequality and upholding fiscal sustainability is a complex undertaking that often requires challenging policy decisions of government role and trade-offs.

While sustainable economic growth is often seen as a solution to various issues, it's important to note that when it comes to income inequality, such growth can exacerbate the problem. The justification of broad consensus about government intervention through public expenditure policies, especially social expenditures, lies in the understanding that sustained economic growth, while capable of mitigating poverty to some extent, might not be effective in diminishing income inequality on its own (Harun and Azali, 2003). In this context, despite experiencing economic growth in a country, the government's role in mitigating income inequality becomes prominent primarily through the formulation and implementation of expenditure policies. The government's role in tackling income inequality can differ in accordance with the prevailing economic circumstances and the ideological perspective or political agenda of the ruling administration. Different strategies may be implemented, influenced by both the economic context and the government's foundational philosophy and priorities.

In a closed conventional economy, the scope for public sector intervention is restricted, and social norms and attitudes serve a pivotal function in shaping inequality. Societal norms possess the potential to exert both constructive and detrimental influences on inequality in closed societies. These norms, coupled with the initial distribution of assets, establish the magnitude of inequality within these societies. Consequently, the government's role in such contexts may be relatively constrained and consistent. Moreover, significant yet gradual economic transformations may not produce readily quantifiable effects on inequality for an extended period. In contrast, in more open and advanced societies, the influence of the government and the impact of broader economic dynamics gradually gain greater significance in addressing inequality. In contemporary, more open societies, the government's role tends to be more significant than in the past, while the influence of social norms gradually diminishes as countries progress. Simultaneously, pivotal economic shifts, including technological advancements, globalization, privatization, trade

liberalization, and other major structural policies, have a significant effect. The interplay among these factors inevitably shapes overall inequality, particularly impacting income, and wealth distribution (Tanzi, 1998). Indeed, as governments endeavour to combat income inequality through social expenditures, they must adopt a comprehensive perspective. Policymakers must take a multifaceted approach to address this issue, recognizing it as a global concern. They should consider the various factors contributing to income inequality from diverse angles, irrespective of their development level. It is also crucial to acknowledge how these factors evolve to develop effective, adaptable strategies.

4.1.1. Ethical Side of Government Intervention to Income Inequality through Social Expenditures

Ethics, as a branch of philosophy, concerns itself with moral principles, values, and distinguishing between right and wrong behaviour. In administrative ethics, a key consideration lies in ensuring the equitable provision of social rights to all members of society. This involves ensuring equitable access to rights and opportunities, thereby upholding the core principles of social justice, which are essential for the operation of a just and impartial government. While the concept of social justice is often discussed in political and economic contexts, its definition can be ambiguous. Broadly, it revolves around two core principles: the redistribution of goods and resources to improve the conditions of the disadvantaged, and the acknowledgment of this redistribution as a matter of their rights rather than a charitable act or mere national interest. In everyday discourse, the term social justice is typically regarded as an uncontroversial concept (Bankston, 2010). Fundamentally, social justice arises as the fundamental and ethical concept underlying government intervention in the market.

The question of why income inequality should be a concern for public policy is frequently discussed as a crucial issue. The extensive body of research on the concept of equality has dedicated substantial attention to the question of “equality of what?” This encompasses equality of opportunities, welfare, resources, and capabilities, among other aspects. Equality of opportunity has become a prominent social goal in Western democracies, as inherited privilege is perceived as intrinsically unfair. In a hypothetical scenario where everyone starts on an equal footing in life, unequal rewards might be perceived as deserved rather than unjust, and from an economic perspective, such inequality can serve as a

motivator for effort and economic activity. However, defining and reaching a consensus on what “equality of opportunity” and having “the same start in life” truly entail is challenging. Determining which factors should be considered as fair versus unfair advantages remains a subject of ongoing debate and complexity (Nolan, 2009: 490). The debate over income inequality’s importance in public policy highlights the complexity of defining and achieving “equality of opportunity” and fair starting points in life, underscoring ongoing challenges in determining fair advantages.

In the realm of ethics and humanism, equality is valued not just as a means to an end but as an intrinsic goal in itself. Moreover, reducing inequality is crucial for the sustainable growth of a society. By addressing disparities in personal, social, gender, rural-urban, and regional contexts, we can simultaneously achieve the ethical objective of fairness and promote more equitable growth. When these inequalities are lessened, it results in increased demand from the lower income segments, vulnerable populations, and disadvantaged groups. This, in turn, can drive higher economic growth. Furthermore, if we define equity in terms of empowerment and increased participation of the less fortunate, there is no inherent need for a trade-off between economic growth and equity. These two goals can be mutually reinforcing, creating a more just and prosperous society (Dev, 2018: 46). Addressing inequalities across various contexts fosters both ethical fairness and sustainable societal growth, driving increased demand and economic prosperity while promoting empowerment for a just society.

The principal objective of social expenditures is to guarantee a minimum standard of welfare for all citizens while addressing inequality stemming from various factors. Nevertheless, debates frequently emerge concerning the possible negative effects of these expenditures on economic and social indicators. For instance, excessive generosity in unemployment benefits might disincentive workforce participation, leading to a heavier financial burden on the employed population. Similarly, overly generous healthcare benefits may pose challenges associated with population growth. Moreover, extensive social services for immigrants could attract individuals less inclined to participate in the workforce, potentially causing social unrest. Hence, it is essential to thoroughly evaluate the recipients, purpose, and extent of social expenditures, as these decisions carry significant economic and social implications. From an ethical perspective, if social expenditures aimed at promoting social equality end up burdening the working class,

ethical concerns may arise. Balancing the objectives of social equality and fiscal responsibility is a multifaceted challenge that policymakers must tackle to ensure that social expenditures are both economically sustainable and ethically just.

4.1.2. Political Approaches to Government Intervention in Income Inequality through Social Expenditures

Social expenditures are inherently linked to social welfare approaches, which revolve around the state or condition of human well-being. Human welfare is realized when individuals, families, communities, and even societies achieve a satisfactory level of social well-being (Midgley, 1997). The need for social welfare is acknowledged worldwide, and as a means to achieve this welfare, social expenditures are embraced by all countries. However, the specific nature and extent of these expenditures, designed to promote social welfare, vary significantly from one country to another. Each nation tailors its approach based on its unique social, economic, and political circumstances and priorities. Variations in government roles in addressing income inequality often stem from these differences in the welfare system structures adopted by countries.

The concept of the welfare state is often classified into three main categories based on different approaches and philosophies: i) Liberal Welfare States: the government's role in providing social welfare is limited, and the emphasis is placed on promoting individual self-reliance and personal responsibility, ii) Conservative Welfare States: They typically uphold traditional values and focus on family and community support networks and emphasize a partnership among the state, voluntary organizations, and the private sector in delivering social services, iii) Social Democratic Welfare States: They have a more comprehensive and generous approach to social welfare. These states emphasize universal access to services and benefits, and the government holds a key position in wealth redistribution. The emphasis is placed on mitigating inequality and ensuring comprehensive social protection for all citizens (Esping-Andersen, 1990). The welfare state approach encompasses a spectrum of philosophies, ranging from promoting individual self-reliance to advancing societal equality.

Liberal states tend to be more hesitant about extensive government intervention, which can result in limited government involvement in reducing income inequality. In

contrast, conservative and especially social-democratic countries may take a more proactive stance, employing a range of policies to tackle income inequality. The specific approach depends on a nation's political and economic orientation, as well as its commitment to social welfare and economic redistribution. Hence, when we analyse the active roles and levels of social expenditures by governments, it's reasonable to anticipate lower social expenditures levels in liberal economies, while social democratic and conservative governments are more inclined to adopt proactive social expenditure measures. Furthermore, when comparing countries based on their levels of development, there's a general expectation that income distribution may be more equitable in advanced nations. However, research reveals that income inequality has indeed increased significantly in these countries as well (Jaumotte et al., 2013). As citizens increasingly recognize the gravity of the matter, their expectations and requisitions from governmental authorities are transforming.

In democratic nations with a prominent liberal ideology, there is a discernible demand among citizens for active government engagement in social welfare, despite the prevailing liberal views. This phenomenon can be attributed to evolving societal and economic conditions, the recognition of the need for safety nets, and the benchmarking of social welfare systems in other democratic countries. Ultimately, democratic governments are expected to be responsive to the evolving preferences and requirements of their citizenry, resulting in a dynamic interaction between individual responsibility and collective expectations for government involvement in social welfare, even in countries with a strong liberal political tradition. Thus, in response to the profound disparities in living standards resulting from pervasive inequality, certain governments have deviated from their longstanding commitment to liberal economic principles and have initiated alternative policies aimed at alleviating this detrimental situation, especially during the economic crisis. For example, In the USA, typically characterized as a liberal nation, there exist two predominant perspectives regarding public opinion on the growing issue of inequality. The first perspective asserts that Americans are largely indifferent to disparities in outcomes, while the second contends that an escalation in inequality prompts a greater demand for government-led redistribution efforts. However, it appears that Americans do express reservations about inequality and increasingly advocate for government intervention to rectify it, albeit not necessarily through conventional redistributive programs. Existing evidence suggests that Americans might exhibit uncertainty or lack

information on how best to address the mounting inequality, and, as a result, they may be influenced by ongoing debates on the topic. Nevertheless, there is a notable inclination among Americans to support increased investment in education as a response to their mounting concerns about inequality. This implies that the concept of equal opportunity may be more relevant than income redistribution in our comprehension of the politics surrounding inequality (McCall and Kenworthy, 2009). So, in liberal democratic nations, including the USA, there's a growing demand for government involvement in social welfare despite liberal ideologies. This shift reflects evolving societal needs and a recognition of the importance of safety nets. In addressing inequality, there's a trend toward prioritizing equal opportunity over traditional income redistribution.

4.1.3. Obstacles to the Government Intervention to Income Inequality through Using Social Expenditures

The phenomenon of inequality has been steadily expanding, presenting significant ethical, societal, and political dilemmas that demand a response from policymakers. The convergence of factors since the 1980s, such as globalization and technological advancements, has initiated powerful centrifugal forces even within advanced economies. These forces amplify existing disparities and give rise to new ones. Groups possessing the necessary assets, skills, talents, and occasionally political connections have greatly profited from the economic opportunities that have emerged as a result of these changes. Yet, a substantial portion of the population has encountered eroded employment prospects, suppressed income levels, and heightened economic insecurity because of this trend (Blanchard and Rodrik, 2023). The necessity for government intervention to eradicate this disparity has been evident. However, the critical questions have revolved around the selection of instruments to be employed and the extent of such intervention.

In an era characterized by increasing inequality, persistent poverty, and declining economic mobility, the nation requires a fresh approach to fiscal matters. It is crucial to prioritize among three key objectives: reducing inequality, alleviating poverty, and enhancing economic mobility. Furthermore, tax and expenditure policies should be aligned with these priorities. Irrespective of the desired extent of income redistribution, a country must make well-informed decisions about the most effective means to achieve this goal. This includes determining the total tax load and the mix of tax mechanisms employed to

generate necessary revenue. On the expenditure side, governments face a range of choices, each with differing levels of effectiveness, efficiency, and public approval (Zolt, 2014: 1102). These choices encompass various sectors, such as infrastructure investments, education, and healthcare services, each with its implications for societal well-being and economic development. Infrastructure investments, for instance, can stimulate economic growth and create jobs, while education expenditures hold the potential to generate long-term social and economic benefits. Additionally, healthcare spending is crucial for maintaining the population's well-being and productivity. Strengthening fiscal management systems and basing budget planning on robust foundations, such as adopting performance-based budgeting, can lead to more efficient allocation of public resources. Moreover, transparency, accountability, and inclusivity in decision-making processes are essential for gaining public approval. Nevertheless, due to the time lag in realizing the outcomes of investments in social expenditures, their immediate effects on the budget could be significant.

Social expenditures are included in the budget, aligning with the long-term strategic objectives of governments and the yearly implementation plans according to these objectives. Typically, when formulating these plans, an assumption of economic stability is accepted. Nonetheless, the unforeseen and abrupt social, global, and economic crises have the potential to derail these plans and lead to substantial budget deficits. Consequently, as the extent and scale of social expenditures tend to shift by the newly established economic circumstances, these outlays possess a considerable potential to strain budgetary constraints.

Given that social expenditures essentially entail the disbursement of funds from governmental entities to private enterprises and/or individuals without a corresponding requirement for repayment, they are particularly susceptible to populist exploitation. Governments can readily manipulate these expenditures for political gains, such as influencing upcoming elections or appeasing interest groups. This scenario can, understandably, result in significant harm to macroeconomic indicators and disrupt the overall economic landscape. In such a situation, an excessive level of social expenditures than planned can discourage individuals from actively participating in the workforce, leading to distortions in income distribution that primarily disadvantage the working class. To fund increased social expenditures, there might be a necessity to raise tax revenues.

However, this could result in a heavy tax burden for both individuals and businesses, potentially having a harmful effect on economic growth and causing a slowdown in the overall economy. These expenditures can introduce the risk of social dominance known as a circumstance in which social expenditures take precedence in fiscal policy, potentially undermining economic growth, and fiscal sustainability (Schuknecht and Zemanek: 95). Thus, social expenditures with populist exploitation potentially harm macroeconomic indicators and disrupt economic stability.

The administration and allocation of social expenditures often involve complex bureaucratic processes that consume a significant portion of the budget, posing challenges to efficient resource utilization. Moreover, the political sensitivity surrounding social expenditures can introduce instability, as changes in government or political disagreements may disrupt the continuity and effectiveness of these expenditures. Additionally, an extensive social expenditures framework can increase the risk of inflation by stimulating demand, potentially threatening economic stability. Therefore, managing social expenditures requires careful consideration to mitigate these challenges and ensure effective allocation of resources without compromising economic stability.

4.1.4. Future of Social Expenditures and Income Inequality

The world has an ever-changing nature over time. In economic, political, and social realms, people's expectations from the government are subject to this change. In response to this transformation, governments adopt new strategic plans, programs, and related financial allocations, adjusting their projections regarding the available resources to cover these allocations. Moreover, as it is of utmost importance for governments to promptly adapt to these changes, continuous reviews of demographic shifts, political agendas, economic conditions, global trends, technological advancements, and relevant political priorities are essential to achieve this. As for income inequality, as pointed out by Piketty & Saez (2014), it is a complex issue resulting from a combination of factors. On one hand, it stems from disparities in capital ownership and capital income, and on the other, it is influenced by inequalities in labour income. These facets of income inequality involve distinct sets of economic and social processes. Anticipations suggest that both income inequality and social expenditures are likely to exhibit an upward trajectory in the future.

There are multiple factors contributing to this expectation in social expenditures over time. Firstly, aging populations in many countries, especially advanced ones, are likely to place increased pressure on social expenditures, particularly in areas such as healthcare and pensions. There is also an expectation of a rising trend in these expenditures, which can place an increasing financial burden on the working class. Secondly, economic growth, or its absence, exerts a crucial influence on the capacity of governments to finance social programs. Economic downturns can place strains on budgets and possibly result in reductions in social expenditures, whereas periods of growth may offer additional resources for social expenditures. Simultaneously, while the potential for increased spending during crisis periods can strain budget constraints, the prospect of additional taxes in the future may have adverse consequences for income distribution. Thirdly, in addition to the political priorities of governments, global economic, political, and social factors such as climate change, environmental challenges, technological innovations, and trade agreements can influence the adoption of more cost-effective approaches to delivering social services, potentially leading to an increase in their effectiveness. Lastly, international dynamics like geopolitical imbalances or migration to countries with perceived better job prospects can potentially lead to increased social expenditures beyond what may be required.

4.2. Exploring the Relationship between Social Expenditures and Income Inequality across Various Economic Contexts

When analysing the international dimension of social expenditures, it is observed that the diversity of social expenditures is nearly uniform across countries, yet the proportion of these expenditures within national budgets differs. These variations in the scale of expenditures can be ascribed to various elements, such as the financial capacity of individual countries, the specific social policies they adopt, their participation or non-participation in economic cooperation or international organizations, and differing views on social rights and welfare standards. Moreover, when the inequality of income distribution is scrutinized within countries, it becomes apparent that even among economically powerful nations, a significant number grapple with pronounced income inequality, a concern that cannot be underestimated.

In this section, we embark on a comprehensive exploration of the intricate interplay between social expenditures and income distribution, spanning historical trajectories, current realities, and future projections. Our analysis delves into multifaceted dimensions, accounting for the varying economic power of leading nations across the globe. We will scrutinize the evolving strategies employed by governments to address income disparities through social expenditures, considering the effectiveness of different approaches in fostering equitable distribution and societal well-being.

4.2.1. Evaluation of the Relationship between Social Expenditures and Income Inequality across Countries with Varying Economic Strength

Countries exhibit varying levels of economic power due to differences such as natural resources, human capital, technological innovation, governance structures, trade integration, demographic characteristics, geographical location, and economic policies. Depending on these differences, social and economic problems of them also vary. However, in recent times, income inequality has emerged as a common problem for all of them. The tendency of income distribution to deteriorate even in countries with high per capita income has increased the literature's interest in this topic. Social expenditures have become the backbone of efforts in addressing income inequality, emerging as one of the most crucial fiscal policy instruments in this regard. The studies have particularly focused on the failure of economically strong countries to solve this problem through social expenditures.

When the authors conducted the same studies in countries with weaker economic conditions compared to others, they noticed many limitations. These limitations generally stem from a plethora of statistical, conceptual, and institutional complexities and inconsistencies. The existing literature often emphasizes that these problems mentioned earlier persist to this day, much as they have in the past. One of the challenges that arises pertains to the precise delineation of income. Offering an in-depth analysis of the categorization of revenue Gannage (1968), highlights the existence of multiple variations rather than a singular conventional definition of income. The writer argued that the outcomes of studies that investigate this topic can vary based on whether the person or the household is considered the unit of production and consumption, and whether non-monetary forms of income, such as in-kind contributions, are taken into account. As in

subsistence economies, non-monetary incomes can be significant, this determination may be a very important part of these studies. Moreover, the geographical divisions within countries with lower income levels compared to others further complicate efforts to determine individual incomes due to the wide array of mentalities and attitudes, even within rural areas. Factors like the roles of women, family size, and variations in the monetary compensation for services can make it impractical to isolate personal income, as it often encompasses activities and services of entirely different natures.

Education, as a critical component of social expenditures, is unquestionably vital for every member of society to decrease income inequality. It not only contributes to economic growth but also fosters the urbanization of society. However, in countries without economic power, government spending on the education sector cannot be effective in addressing their socio-economic challenges due to various obstacles, including mismanagement, a lack of strategic planning, and insufficient governance (Junaid et al.,2023). Additionally, these countries may face credit constraints that hinder their ability to invest in human capital accumulation via education (Singh et al., 2023). These constraints can impede the development of education, skills, and income equality among their populations.

Social expenditures can differ considerably depending on the particular country, its economic conditions, and the characteristics of its system. Generally, if their data is scrutinized, the countries without economic power are determined tend to dedicate a smaller share of their budget to social expenditures in comparison to other countries. Several factors can contribute to this disparity. Restricted financial resources can pose challenges for these countries to allocate a significant portion of their budget to these expenditures. The lack of essential infrastructure, including hospitals, clinics, schools, and adequately trained healthcare and educational professionals, can limit their capacity to deliver quality social services. A higher burden of infectious diseases and malnutrition often underlies health issues in these countries, necessitating extra efforts in addressing these challenges. Additionally, in some of these countries, individuals and families often bear a substantial share of their healthcare costs through direct out-of-pocket expenses. This can create financial barriers to accessing healthcare, especially for the most vulnerable populations. In such cases, the availability of substantial, concessional external financial support from the international donor community remains vital for alleviating human

suffering and addressing critical social needs (Ortiz, et al., 2010:25). Presently, ongoing efforts to enhance social services, improve access, and enhance affordability are being undertaken, often with support from international organizations and donors (Kırdar, 2013). These measures are primarily focused on improving healthcare and education infrastructure, training professionals, enhancing access to essential services, and addressing social issues, such as economic deprivation and income inequality. These endeavours are critical to enhancing the overall well-being of the population in these countries.

Alongside economically weak countries, in some emerging countries that demonstrate a trend towards development and have the ability to integrate into international trade, there is deep concern about widespread poverty and income inequality. Although several factors can be identified to clarify the underlying causes of this income inequality worldwide, many of which are particularly relevant in these countries. However, the conclusions regarding these elements fluctuate based on the specific features of each nation. By way of example, according to the Heckscher-Ohlin factor proportions model, which was firstly introduced by Heckscher (1919) and developed by Ohlin (1933), trade openness has a considerable effect on wage inequality. If trade openness encourages the adoption of skill-intensive technologies in a country with a surplus of workers in low-skill occupations, it could lead to a rise in the relative wages of these workers, thereby decreasing wage inequality. However, if trade promotes skill-biased technological changes, it could exacerbate wage inequality by increasing the demand for more skilled labor, thus raising wage disparities (Lee and Lee, 2018).

The primary challenge faced by emerging countries is achieving sustainable economic growth. Sustainable growth can address issues in numerous areas. Economists and policymakers widely recognize that economic growth not only leads to an improvement in the overall welfare of a country but also contributes to the sustainability of social expenditures. Sudden and substantial increases in social expenditures, particularly during crisis periods, can strain the resources of some countries. For example, a pivotal moment in global growth trends occurred during the 2008-2009 crisis that initially began in the financial sector of the USA and then spread to the real economy. This crisis had a profound effect, not only on the USA but on the entire world economy, resulting in significant declines in growth rates. As the crisis deepened, the significance of social

protection and social security programs became increasingly evident and appreciated (Alper and Demiral, 2016). The worldwide economic downturn also exerted a significant effect on numerous nations, particularly in terms of their ability to finance social expenditures. These countries faced significant financial challenges during this period, and the effects of the crisis were particularly severe in those that did not have fiscal space.

The analysis of social expenditures in emerging countries is the other challenge. For example, in terms of social protection, one of the key challenges is the absence of fundamental descriptive information concerning the variations in social protection levels across different countries and over time. The legislation on public policy regarding social welfare was introduced in numerous countries throughout the early to mid-1900s. Another constraint in current research is the absence of comprehensive cross-national and longitudinal data concerning the implementation and framework of social policies. Our ability to assess how government-led social efforts shape income distribution and influence key aspects of the economy—such as job creation, inclusive labour market participation, and long-term economic growth trajectories—is undermined by this gap. Furthermore, these countries have undergone substantial changes in their social policies in recent decades. They have introduced a range of reforms, adjusting the scope of insurance provisions, redefining eligibility requirements, and recalibrating the balance between private and public benefit delivery systems. Nevertheless, the broader trajectory of these transformations remains inadequately comprehended (Mares and Carnes, 2009). Due to these shortcomings, the overall impact of social expenditures, which cannot be sufficiently examined through analysis alone, remains incompletely understood. Consequently, significant challenges arise in the future formulation and implementation of policies.

Social expenditures on education and healthcare are considered to have the potential to promote economic growth, enhance income equality, and reduce poverty in emerging countries (Barro, 1991: 407). For this reason, international financial institutions, donors, and non-government organizations advocate for increased government investments in education and healthcare (Gupta et al., 2002: 717). Additionally, it's believed that the adverse economic repercussions of corruption are increased military spending (Gupta et al., 2001: 718) as well as reduced government expenditures for education and healthcare (Mauro, 1998: 243). Consequently, curbing corruption can result in higher investments in more productive sectors, such as education and healthcare.

Within the framework of emerging countries, the principal insights regarding the returns on education show that primary education remains the top investment priority, with returns decreasing as individuals advance to higher levels of schooling and as the country's per capita income rises. Investing in women's education generally generates higher returns than investments in men's education, and the private competitive sector typically provides greater returns on education compared to the public sector. Moreover, public funding for higher education is often regressive. These patterns highlight the importance of prioritizing primary education, considering gender disparities, and taking into account income levels and the sector of employment in education investment decisions (Psacharopoulos, 1994: 1325). Additionally, elevating compulsory education beyond the primary level could yield a substantial and favourable influence on income distribution in these nations.

Since expenditure allocations for education and healthcare are designed to stimulate economic progress and enhance the socio-economic well-being of disadvantaged demographics, policymakers in many transitioning economies should focus more on the distribution of funds within these expenditures. The size and efficiency of these allocations are critical tools for advancing equity and facilitating reforms. Collecting data is also crucial for estimating future budgetary allocations necessary to achieve specific objectives in education and health. The estimations should include expenditures separately. This estimation can be shaped by variables like urbanization, availability of hygienic facilities and potable water, per capita income and adult illiteracy. Private investment made outside of government involvement is also instrumental in shaping the outcomes in these areas (Gupta et al., 2001: 732-733). Hence, it is crucial to allocate a larger budget for education expenditures in emerging countries depending on detailed analysis.

Economically strong countries often referred to as an industrialized country, is characterized by having a developed and sophisticated economy and usually assessed through indicators like GDP and mean income per individual. These nations are also known to possess a well-established technological framework and varied industrial and service sectors. Citizens in these countries typically benefit from access to premium healthcare services and advanced educational opportunities at the higher education level, as well as comprehensive welfare systems. Delivering these services necessitates generally governments that are politically stable, economically robust, and grounded in democratic principles. Despite this management and opportunities, income inequality remains a

persistent concern in these countries as well. Fundamentally, Income inequality has become a critical challenge in the age of growing globalization (Nguyen, 2021). Indeed, with this globalization, existing income inequality in industrialized countries derives from significant factors contributing to this disparity. Empirical analysis suggests that the influx of low-wage imports into these countries tends to exacerbate income inequality. Moreover, factors such as the size of the government, the interaction between technology and education, democratization processes, and the impact of labour unions are essential for understanding the evolution of income disparities within these nations over recent decades. Notably, the impact of government size is particularly significant in liberal market economies. Although the magnitude of the impact of unionization has diminished over time, there has been a notable increase in the responsiveness of income disparity to international commerce in recent times in industrialized countries (Roser and Cuaresma, 2016: 16-17).

One of the most contentious issues in contemporary politics revolves around determining the ideal size of government in society, as mentioned above, the services that the government should provide to the public, and the revenue required to finance these services. It is commonly believed that industrialized countries allocate substantial budgets to their expenditures like healthcare and education. In advanced economies, there are variations in the overall extent of general government spending. For instance, some parts of Scandinavia allocate as much as 60 % of their GDP to the public sector, while government spending makes up only around a third of GDP in countries like South Korea and Switzerland. These disparities reflect differing societal preferences regarding whether services like education and healthcare should be provided by the public or private sector. Furthermore, the diverse choices made by these economies regarding the scope and structure of social safety nets contribute to differences in spending levels and the extent of resource redistribution among income groups across countries (Kirkegaard, 2015). In addition to economic factors, the countries also contend with various social and demographic changes that can influence their social expenditures.

Many industrialized countries are currently undergoing significant changes in their demographic structure. The consistent trend of decreasing fertility rates and increasing life expectancy has led to substantial segments of the population that are already relatively old or will become so soon. This significant shift in demographic structure is expected to have

far-reaching consequences. In terms of economic implications, it is likely to influence the size, composition, and dynamics of the labour force, potentially presenting challenges in accommodating an aging workforce. Regarding the public sector, this demographic change is expected to affect not only the demand for pensions but also other social expenditures, such as those related to education and healthcare (Heller et al., 1986). Indeed, various factors, including globalization and the transmissibility of economic and financial crises, can pose challenges to the sustainability of social expenditures. Countries that do not allocate sufficient fiscal space to support social expenditures during times of prosperity may face substantial challenges when dealing with economic crises or other unexpected shocks. Governments must maintain a balance between providing social services and ensuring fiscal sustainability, especially during periods of economic growth and downturn. This balanced approach can help them respond effectively to both regular welfare needs and unforeseen crises.

4.2.2. Evaluation of the Relationship between Social Expenditures and Income Inequality during 2008 Global Crisis

The crisis referred to as the Great Depression of 1929 stands as the most consequential event in the history of the global economy. The recession led to significant and long-debated changes in the government's fiscal policy, with contrasting views being presented for years. In today's modern era, it was not considered likely that states believed to have the capability to produce strong policies for intervention in the economy and crisis management would experience such a deep crisis again. However, the financial meltdown of 2008 has left a lasting imprint on historical records as the most significant economic event of modern times, akin to the 1929 crisis. Originating from the USA's subprime mortgage market collapse, the crisis quickly escalated into a worldwide financial meltdown, impacting economies across the globe. Characterized by a confluence of factors including excessive risk-taking, lax regulation, and unsustainable lending practices, the crisis led to widespread bank failures, stock market crashes, and a severe contraction in economic activity. Governments and central banks scrambled to implement unprecedented monetary and fiscal measures to stabilize financial markets and prevent a complete economic collapse. Its escalation into a global economic downturn subsequently affected emerging-market economies, primarily through trade links and, in certain instances, declining remittances from workers. For many emerging countries, the economic

repercussions stemming from these indirect effects mirrored the severity experienced by industrialized countries directly. Marking the first global recession since World War II, the downturn resulted in a 0.6 % reduction in worldwide GDP in 2009. Without countercyclical measures, the downturn could have been considerably more severe (Dullien, 2010). The financial crisis of 2008, which rapidly evolved into an economic crisis, resulted in some of the most severe measures witnessed since World War II. The exact consequences of these measures are still under investigation in the current literature.

The primary objective of the mortgage system that triggered the crisis was to enable citizens in the lower income bracket to afford housing through affordable loans (Rajan, 2011: 9), so, it was in a way a result of an attempt to rectify income distribution in the USA. However, the crisis was unexpected, and its effect reverberated across countries worldwide through various channels. Initially, it started in the financial markets, where the reversal of previously strong financial flows created difficulties in accessing funding, particularly in many emerging nations. Another significant channel of effect was the unprecedented decline in exports. The magnitude of these declines surpassed expectations and has far-reaching consequences. Additionally, there were effects through remittances and labour flows. Decreases in employment inevitably affected immigrant laborers disproportionately. In some instances, restrictions on hiring immigrant workers were imposed, even for highly qualified individuals. Consequently, job offers were rescinded, and immigration patterns are being affected, notably in countries like the USA where banks receiving bailouts were instructed to refrain from hiring immigrant workers (Stiglitz, 2009).

Initially, the focal point of the financial upheaval resided within the USA rather than Europe. The onset of financial instability emerged in August 2007, coinciding with a surge in delinquencies on subprime financial instruments within the USA. The intricate bundling of many of these subprime loans into sophisticated credit risk products, such as collateralized debt obligations or collateralized loan obligations, and their subsequent dissemination throughout the global financial system, swiftly resulted in losses for numerous European financial institutions. Subsequently, the strains in the financial markets originating from the USA spread to Europe, triggering a crisis of confidence and liquidity (Papadia and Välimäki, 2018). Despite various support measures, pressures originating from the financial sector spread into the real economy, precipitating what became known as the Great Recession. Thus, the economic turmoil swiftly evolved into a

broader economic crisis, culminating in the emergence of the European Debt Crisis in 2010.

Various policy responses were implemented across Europe in response to the crisis, including fiscal expansion through automatic stabilizers and bank rescues in different countries. Notwithstanding the ramifications of these policy interventions and the fortification of the EU institutional framework, new challenges emerged within the euro area. Attention began to pivot towards sovereign debt burdens and housing market bubbles. As a result of the immense pressure placed on various governments by the global financial turmoil and the subsequent Great Recession, fiscal structure deteriorated rapidly in various euro-area nations. Consequently, market confidence in the long-term viability of public finances in an increasing number of these countries waned, driven by mounting deficits and escalating public debt levels. In late 2009, mounting concerns over the viability of Greek public debt were exacerbated by significant revisions to its fiscal data. While Greece became the central aspect of the financial crisis, contagion swiftly disseminated to other vulnerable nations. Apprehensions with respect to the sustainability of public finances also surfaced in Ireland, Portugal, and subsequently in Spain, Cyprus, and Italy. The European Commission took action in December 2010 to implement a permanent system for offering financial aid to countries facing economic difficulties. Monetary policy tools were exhaustively employed, with new measures being introduced to address the evolving situation (Hobelsberger et al., 2022). To prevent social disruption and protect citizens experiencing economic hardship during the crisis, recourse to social expenditures became necessary.

Financial crises are intrinsically linked to income disparity, primarily because of slowed economic progress and escalating workforce disengagement in lower-income groups. Additionally, there exists an indirect effect whereby the bargaining power of labour is undermined. These effects are compounded by crisis response policies that often prioritize the interests of large banks and corporations over the broader population, frequently resulting in austerity measures that disproportionately affect the less affluent. Conversely, it's argued that financial crises can diminish the wealth and income of the affluent, as they typically hold assets susceptible to devaluation during economic downturns. However, unless there are significant wealth effects disproportionately affecting the wealthy, the prevailing expectation is that financial crises exacerbate income

inequality (Bodea et al., 2021). With regard to the theoretical framework, the impact of financial turmoil on earning gaps has been rigorously analysed in research, yielding diverse findings. While certain studies indicate that financial crises typically worsen income inequality, as previously discussed, alternative research offers differing perspectives or nuances regarding this connection. Some authors, like Galbraith & Lu (1999), Diwan (2001), and Jayadev (2007) claim that crises disrupt income distribution, while others, like Agnello & Sousa (2012) argue that they rectify income distribution. However, some authors, like Piketty & Saez (2013), Morelli & Atkinson (2015), as well Li & Yu (2014) suggest mixed results.

Over the past thirty years, a prominent characteristic of the global economy has been the persistent increase in income inequality within countries. From 1995 to 2008, income inequality experienced a 9% rise within the OECD and by 3% in transitional economies. In quantitative terms, income disparity is more pronounced in transitional economies than in industrialized ones (Fiorentini, 2015). In addition to this thirty-year reality, the global economic downturn of 2008-2009 and its aftermath have had significant repercussions on income distribution in numerous countries. Equally notable are its impacts on global income distribution. The crisis influenced income distributions within individual countries as well as the growth rates of economies, collectively shaping shifts in global income distribution. The global financial crisis and subsequent recession constituted a seismic shock to a system that had been in place roughly from the mid-1980s until 2008. However, the effects of the crisis were uneven, varying across both countries and income groups. The recession hit affluent nations much harder than emerging Asia, thereby perpetuating the downward trajectory of global income inequality that had been evident since the turn of the century (Milanovic, 2022). Alongside this negative picture, the crisis experienced after 2008 further exacerbated existing inequality, placing significant pressure on macroeconomic indicators.

Most studies contend that countercyclical measures are preferable for alleviating the effects of the crisis on public expenditure, as these measures typically stimulate aggregate demand in an economy. Conversely, some studies argue in favour of procyclical measures as a means of implementing restrictive and stringent policies to alleviate the adverse effects of the crisis. Procyclical policy measures have been less favoured during recessions and crisis periods because they tend to hinder post-crisis recovery. However, there is a consensus

that financial regulation should be prudently implemented to enhance price stability and macro-financial stability (Gatauwa, 2014). When a country faces a crisis and must implement expenditure cuts or austerity measures to control budget deficits and debt, social expenditures, especially in areas such as healthcare and social protection, are significantly affected. Consequently, it can be inferred that debt crises ultimately undermine social protection systems and jeopardize social well-being. Moreover, while advanced countries typically respond to financial crises by increasing social expenditures to safeguard the most vulnerable, these crises often lead to adverse effects on social expenditures in emerging nations. This exacerbates the already poor quality of life for their citizens (Nguyen et al., 2023). As a result, both countries adopted varying approaches to social expenditures during the crisis.

Countries have become more adept at crisis management, employing temporary measures to expand safety nets and safeguard social expenditures through mechanisms such as loans and budget adjustments. During the 2008-2009 Global Crisis, governments and households tend to prioritize spending on education over health. As nations accumulate greater wealth, they often take more assertive measures to safeguard social expenditures, as seen in countries like Mexico, Romania, Latvia, and Lithuania. These countries have developed more advanced crisis management strategies, including temporarily expanding safety nets, securing social sector spending through loans, reallocating resources to sustain social expenditure, and using crises as opportunities to implement reforms designed to enhance efficiency and quality. Otherwise, donor funding tended to diminish when OECD countries experienced economic downturns, and overall, wealthy nations did not sufficiently address the needs of countries affected by global or regional crises (Lewis and Verhoeven, 2010). In conclusion, the 2008-2009 Global Crisis underscored the importance of crisis management strategies, with countries increasingly prioritizing social spending, particularly in education, and implementing temporary measures to protect vulnerable populations. However, there is no complete certainty regarding the outcomes of the measures taken on income inequality. Future research should focus on evaluating the long-term effects of these crisis interventions on social equity and economic resilience. Additionally, policymakers need to consider the balance between short-term relief and sustainable development to ensure that social spending effectively reduces inequality over time.

4.2.3. Evaluation of the Relationship between Social Expenditures and Income Inequality during COVID-19 Pandemic

At the onset of 2020, the occurrence of an unparalleled global pandemic was not anticipated, given the prevailing belief that epidemic diseases, which typically manifest once every century, are incongruous with the contemporary day. In opposition to this notion, a viral outbreak swiftly disseminated from China to various regions across the globe over a very short period. Due to unforeseen circumstances, nations encountered a state of social and financial unpreparedness in response to the epidemic, so precipitating a state of crisis. The rapid spread necessitated progressively stringent actions by governments worldwide, leading to robust limitations on social and economic activities to halt its propagation. These restrictions were implemented to the extent of mandating individuals to undergo quarantine and requiring them to remain in their residences. The experts predicted that the implementation of these measures would lead to significant social and economic effects, including disruptions in supply and demand due to the halt in economic activity. These disruptions could lead to cash flow difficulties for businesses and potentially result in their insolvency. Additionally, the sudden and substantial surge in unemployment rates would contribute to further increases in social expenditures (Çoban, 2020). In addition to these, the costs of providing financial support to businesses after the supply and demand shock in the market, increased healthcare, and education spending, and providing food and cash assistance to people unable to leave their homes and who rely on daily work and consumption also emerge as other factors contributing to increased expenditures in the budget.

The urgent measures implemented during the pandemic targeted four distinct objectives for the intended audience. These include aiding commercial enterprises, assisting households, encouraging investment and consumption, and bolstering the healthcare system's battle against the virus. When the implementation contents are examined according to the targeted audiences, it is important to note that there are considerable variations in the measures adopted by different countries. This variation stems from the structural variability due to the diversity in tax and transfer systems of countries. Accordingly, while some countries prefer to take tax policies suitable for their structures as a measure, others have opted for direct cash assistance to households. For example, the USA chose to provide direct cash transfers to low and middle-income households, whereas

many EU countries found it more suitable to provide income support to households by simplifying access conditions to certain social benefits for non-standard workers and families with children. Among all these measures, the most preferred method, due to the immediate positive outcome seen in the market, is direct cash assistance to individuals. Since the course of the pandemic could not be fully predicted, ensuring the sustainability of the healthcare system was the most important goal initially. Therefore, a significant surge in healthcare spending was likely (OECD, 2020b). During these expenditures, the primary objective was to swiftly emerge from the crisis environment. However, past experiences have demonstrated that one crisis could precipitate another. Hence, countries were uncertain about the long-term ramifications of their current spending policies.

The COVID-19 pandemic has undone years of progress in eliminating extreme poverty. As a consequence, it is projected that an additional 250 million people will be pushed into extreme poverty by 2030, according to experts' projections for the year 2020. It is projected that it will take a decade of economic growth to restore intense poverty levels to pre-crisis standards. To address extreme poverty, various countries will need to significantly increase public investments in sectors such as social protection, water, sanitation, and hygiene as well as education and healthcare during this period. Given that the COVID-19 pandemic has not affected all nations equally, it is expected that there will be an increasing divergence in poverty across countries, with some facing severe setbacks while others may continue to make progress. According to experts from the World Bank, by 2030, extreme poverty will remain concentrated in vulnerable nations, with the percentage rising from 74% in 2018 to 85%. The most severe poverty levels will steadily be found in the world's poorest nations. Although nearly half (49%) of those in extreme poverty will reside in middle-income countries, the share of the total population affected is likely to be even greater in low-income nations (Manuel et al., 2020). Research is being conducted in the literature on the consequences of the crisis period on income distribution. Depending on these researches, it is expected that the direction of this effect can vary depending on the fiscal policies implemented by countries during the crisis period, pre-crisis financial conditions, and the state of income inequality in the country prior to the crisis. In conclusion, concerted efforts are needed to address the projected increase in extreme poverty and its disproportionate effect on vulnerable populations worldwide. These efforts must involve comprehensive strategies that focus on sustainable development,

increased public investments, and targeted social policies aimed at reducing inequalities and fostering resilience in the most affected regions.

4.3. The Relationship between Social Expenditures and Income Inequality: The Review of the Empirical Literature

Literature frequently emphasizes that government expenditure serves as a significant financial instrument in poverty alleviation and the reduction of income inequality. Principally it does so by creating a conducive environment for individuals to engage in economic activities, achieved through investments in crucial sectors like defence, the judiciary, legislation, law enforcement, and security. Additionally, the provision of fundamental public provisions, including sectors like education, healthcare, and social support initiatives can enhance the human capacity to generate higher income, ultimately contributing to the mitigation of poverty and income inequality within a society. This interplay between government expenditure and socioeconomic outcomes is a central focus of academic research in the field (Fotros et al., 2020). Numerous studies have explored the multifaceted nature of income distribution, investigating the intricate relationships among economic, social, as well as structural and organizational determinants drive income inequality. The effectiveness of social expenditures in addressing this inequality is a central theme in these investigations. Researchers aim to understand how government policies and social programs can mitigate income disparities and promote a fairer distribution of resources within society. These studies provide valuable insights for policymakers as they strive to create equitable economic and social systems. However, the findings derived from studies examining the interplay between public spending on social programs and disparities in income distribution in both emerging and advanced economies reveal a complex and multifaceted dynamic, influenced by varying economic structures, policy frameworks, and socio-political context⁵.

Schultz (1963) examined the economic significance of education in the USA and discovered that human capital plays a pivotal role in narrowing income disparities.

⁵ The extended version of the literature review, encompassing studies on income inequality, social expenditures, and associated concepts related to this relationship, has been systematically organized into tables and presented in the appendices section of this thesis.

Nevertheless, the availability of education, population growth, and the quality of schooling contribute to this decline.

Chiswick (1971) using multiple regression analysis for nine countries from 1950 to 1968 investigated income inequality and economic development and his findings elucidated that income inequality tends to increase with educational inequality. However, the connection between economic development and inequalities in skill development or workforce training opportunities lacks a clear and consistent pattern across countries.

Fields (1980) analysed the correlation between education and the allocation of income in selected emerging economies and concluded that, despite increased resource allocation to public education, income inequality did not show a significant decline in several of these countries. Jimenez's study (1986) reached a conclusion that confirms Fields' findings. The author examined public subsidization of education and healthcare in these countries between 1969 and 1983 and observed that a significant portion of public social expenditures failed to benefit the poor, thereby having little to no contribution on reducing income inequality.

Vedder et al. (1988) concluded from their study that the conventional belief that government tax and expenditure programs helping reduce income inequality is valid when the scale of these programs' activities is relatively small. However, as governmental taxes and transfer payments increase, there comes a point where a threshold is reached. Beyond this threshold, increased government intervention leads to more inequality rather than less. In the same way, Sidek (2021), examined a sample of 122 countries, categorized into emerging and industrialized countries, and utilizing dynamic panel threshold regression, the study investigated the influence of state allocations on income distribution disparities. The findings suggested that government expenditure contributes to alleviating income disparity. For industrialized nations, the study highlighted an inversed U-shaped Kuznets curve. It suggests that at the outset, elevated government expenditure tends to amplify income inequality; however, once a critical threshold is crossed, it subsequently produces a favourable effect. Furthermore, the study underscores the significance of education and development expenditure in reducing income inequality in emerging countries. Additionally, Dibo (2022) found the same findings in his study conducted for 20 OECD countries between 2004 and 2017. The outcome of the study indicated that the proportion of social expenditures relative to national income reduces inequality up to a certain level.

However, once this threshold is exceeded, the effect reverses, leading to increased inequality.

Ram (1989) examined whether the expansion of education could mitigate income inequality in selected countries with limited economic resources (1963-1987) and found no substantial support for the argument that increasing education levels within the population culminates in a decrease in income disparity.

Using the least squares method for 100 different countries from 1970 to 1988, Easterly & Rebelo (1994) investigated the correlation between income disparity and education expenditures. They discovered that an elevated level of disparity in income allocation correlates with a higher provision of publicly funded education.

Clements (1997) examined income distribution trends in Brazil and the factors influencing income disparity, with a particular focus on social expenditure. Statistics indicated a reduction in income inequality in Brazil since 1994, although the country's income distribution remains one of the most disproportionate worldwide. In 1990, Brazil allocated 4.2 % of its GDP to education expenditure, a notably higher percentage relative to other Latin American nations. A primary determinant contributing to income inequality in Brazil was the significant gap in educational attainment. Consequently, public spending on education, healthcare, and social insurance has frequently played a role in intensifying income inequality.

Sylwester (2002a) conducted a cross-sectional study to explore the potential impact of allocating more resources to education on income distribution within countries, as measured by the Gini coefficient. The empirical findings revealed a significant association between higher levels of public education expenditures and a subsequent reduction in income inequality. This relationship thanks to a range of control variables appeared to be more pronounced in prosperous nations. These findings suggested that increasing investments in education could be an effective strategy for reducing income inequality within a country. However, Sylwester (2002b) also asserted that the relationships among education, human capital, earning, and income disparity are complex and cannot be simplified. The enduring effect of education on income disparity can vary significantly between countries, as each country's unique circumstances influence the outcomes.

In their study, Gregorio & Wha-Lee (2002) provided empirical finding on the connection between education and income disparity. They analysed a panel data set spanning numerous countries from 1960 to 1990. Their findings revealed that education-related factors, such as higher educational attainment and a more balanced access to education, are linked to a more equal income distribution. This implies that investments in education can significantly help alleviate income disparity. The study further supports the presence of Kuznets' inverted-U curve, which demonstrates the connection between the expansion of the economy and the disparity in income distribution. Additionally, government social expenditures were found to promote a more equitable income distribution. However, the authors also noted that despite these factors, substantial unexplained variation in income inequality remains across countries.

Moene and Wallerstein (2003) undertook a comprehensive study examining the link between total welfare expenditures and income inequality. Their findings demonstrated a strong negative correlation, suggesting that increased welfare spending is linked to reduced income disparity. Analysing advanced industrial societies, they identified differences in how social insurance spending, as a percentage of GDP, related to inequality. While certain policies, such as pensions, healthcare, family benefits, and poverty reduction, showed no substantial correlation with income inequality, approximately 30% of welfare programs revealed a significant positive association. These programs—encompassing unemployment benefits, occupational illness and injury compensation, proactive employment policies, sickness pay, and disability assistance—tended to be more generous in nations where the pre-tax income distribution was relatively equal.

Cantillon et al. (2003) conducted an evaluation and provided empirical evidence concerning the relationships among critical factors such as labour market participation, the prevalence of low-wage earners, and the allocation of social assistance, poverty, and income disparity in some of the EU Member States and OECD members. Their analysis revealed that, despite declining unemployment levels as well as consistent levels of publicly provided social expenditures, neither poverty nor income disparity showed a corresponding reduction during the 1990s. In fact, these issues appeared to have worsened in several OECD nations over that period. A particularly notable outcome of their research was the robust inverse link between publicly provided social expenditures and both poverty and income inequality, a relationship consistently supported by empirical evidence.

However, contrary to expectations, the study did not establish substantial connections between job opportunities and poverty, as well as between low wages and employment level. Instead, strong associations emerged between low wages and poverty, publicly provided social expenditures and poverty, and, intriguingly, between low wages and social spending. These insights underscore the intricate and multifaceted relationships among these variables within the broader context of poverty and income inequality.

Osberg et al. (2004) conducted a study employing a straightforward Ordinary Least Squares (OLS) method and utilizing data from multiple channels to investigate the transnational effects of inequality and social trust on government spending. Their analysis encompassed 17 OECD countries over the period 1973–1993. The findings revealed that the income disparity between the middle class and the impoverished, as measured by the 50/10 percentile ratio, exerted a modestly favourable influence on social expenditures. Conversely, the inequality between uppermost and lowermost income categories and the middle class, as quantified by the 90/50 percentile ratio, was found to exert a substantial negative influence on social expenditures.

De Mello & Tiongson (2006) conducted an empirical investigation of 40 countries between 1970 and 1998 to address the question of whether societies with greater income inequality are inclined to allocate more government resources toward income redistribution when compared to more egalitarian societies. The study findings underscored that government spending aimed at income redistribution is closely tied to the existing level of inequality within a country. In particular, governments in more unequal societies tend to allocate fewer resources to redistributive programs. Moreover, the research highlighted that such redistributive spending might not be an efficient tool for reducing poverty or improving income distribution because it can benefit the non-poor as well. This lack of targeting in redistributive spending can lead to income distribution metrics being unresponsive to increased public spending on such programs.

Jones (2007) investigated the interplay between social expenditures, the tax system, and income inequality in Japan. The study revealed that social expenditures, quantified as a proportion of national income, had increased in response to an aging population, yet it stayed beneath the average level observed within the OECD. Moreover, the share of social expenditures directed toward low-income households was relatively limited. The study also suggested that the current fiscal situation constrains the scope for increasing social

expenditures. Furthermore, the redistributive effect of the tax system in Japan was relatively small and declined since 1993. In contrast, the impact of social expenditures was more significant and on the rise. This finding, which applies to the entire population, was partly attributed to the increasing pension outlays. To tackle the challenges of rising income inequality and poverty, the study advocates for reforms focused on reducing labour market dualism and improving the targeting of social expenditures toward low-income households, with particular emphasis on single-parent families.

In their study, Köse and Güven (2007) sought to empirically evaluate whether central government education expenditures at the national level have a significant outcome on per capita, distribution of earnings, and income inequality across provinces in Türkiye. They examined data spanning from 1975 to 2001 and conducted statistical tests to draw their conclusions. Their findings suggested that one of the key aims of the national government is to reduce income inequality among provinces. They argued that increasing education expenditure appears to be a more effective national public policy tool in achieving this goal compared to social security expenditure and the public policy of reducing inflation. They also noted that inflation and government transfer payments may have distorting effects on the economy, potentially interfering with efficient resource allocation and economic development objectives. Overall, their study highlights the role of education expenditure as a means to address income inequality and promote economic development across different regions within a country.

Holzner (2010) empirically examined the connection between economic inequality and public spending in a transitional context. The study focused on 28 transition economies in Central, East, and Southeast Europe, spanning from 1989 to 2006. Employing the GLS estimator and implementing a General Error Correction Model with Temporally Aggregated Data (GETS) approach, the findings indicated that expenditures on health and social protection show an inverse relationship with income disparity.

The research carried out by Niehues (2010) examined the link between more generous social expenditure policies and lower levels of income disparity. This analysis employed a dynamic panel approach covering 24 European countries over the period from 1993 to 2007. To address the issue of endogeneity inherent to social policies concerning inequality levels, the study employed the System of Generalized Method of Moments (GMM) estimator. The findings provided evidence that increased social expenditure does

indeed lead to reduced income inequality. This finding remained robust across various instrument counts and data restrictions. When analysing the composition of benefits, the study suggested that unemployment benefits and public pensions are especially important in mitigating income inequality. In contrast, more targeted benefits do not have a substantial effect on income inequality. Rather, they seem to positively influence pre-government income inequality, suggesting distinctive effects.

Martinez-Vazquez et al. (2012) evaluated the potential implications of taxation and public spending policies on the distribution of income by utilizing unbalanced panel data encompassing 150 industrialized- transition countries over the period from 1970 to 2009. Using a multivariate regression framework, the analysis focused on four categories of social expenditures: social protection, education, health, and housing expenditures. The findings suggested that a one-point rise in expenditures on social protection and education is connected to a reduction in income disparity nearly 0.14 percentage points. For health and housing expenditures, the estimated effects were somewhat higher, corresponding to a one-percentage-point growth in these categories resulting in a reduction in income inequality by approximately 0.7 to 0.8 % points.

Cassette et al. (2012) investigated the role of trade openness in services on income inequality in ten OECD nations spanning from 1980 to 2005. Employing the Error Correction Model, they examined both the short-term and long-term dynamics of this connection. The researchers observed a distinct influence of commerce in goods compared to commerce in services. While trade in goods had both immediate and long-term implications on disparities, trade in services only exhibited long-term consequences. Moreover, it was found that the effect of international trade in services on inequalities is more pronounced than that of international trade in goods. This effect extends beyond disparities between high and low incomes, also encompassing disparities between high and median earnings. Furthermore, the inclusion of the education variable yielded the expected negative influence on inequality; however, the coefficient did not consistently demonstrate statistical significance. This could be attributed to the fact that education typically requires a significant amount of time to produce desired outcomes.

Cosmin (2012) conducted a study utilizing a sample of 29 European countries to examine the effectiveness of public social protection expenditures in providing income support and mitigating income inequality. The study's results revealed several critical

insights: An increase in government intervention through social protection spending was associated with a decrease in income disparity. Additionally, the research provided evidence supporting the Kuznets curve, which posits that as a country's income rises, income inequality initially increases before eventually decreasing. Lower levels of income inequality were more prevalent in economies characterized by high employment rates, elevated levels of tertiary education attainment, low corruption, and a reduced old-age dependency ratio. These findings underscore the crucial role of government social protection expenditures in addressing income inequality and highlight the significance of various socio-economic factors in shaping income distribution.

Ferrer et al. (2014) conducted a comparative analysis of social policies in Spain and Chile, focusing on two key components of social policy: social expenditures and tax policy. They employed two sub-indexes from the Social Policy Index for two distinct periods, specifically 2004-2006 and 2009-2011. The study revealed that social expenditures and tax policy are integral aspects of social policy that mirror a country's overarching development strategy. Similar to other nations, both countries pursue a fundamental objective of public intervention, namely the mitigation of poverty and disparity. It is widely recognized that the magnitude of social expenditures has a substantial influence on the levels of both poverty and inequality. Consequently, this study underscores the crucial role of these two elements in shaping social policy and their effect on these key socio-economic indicators.

Fiszbein et al. (2014) asserted that evidence from various emerging countries demonstrates the positive influence of social protection programs, leading to substantial reductions in poverty. Conversely, the absence of such programs poses a significant risk to endeavours aimed at eradicating poverty. The study suggests that without social protection programs approximately 150 million individuals in emerging economies would be living in poverty. This underscores the vital role played by these programs in alleviating poverty and enhancing the well-being of vulnerable populations. However, the effectiveness of welfare programs in mitigating poverty is contingent on two interrelated factors: the overall financial resources allocated to these programs referred to as budgetary adequacy, and the precision with which these programs target those in need, denoted as targeting efficiency.

The study conducted by Doerrenberg and Peichl (2014) analysed a panel of advanced OECD members spanning the years 1981 to 2005, with the goal of assessing the effect of redistributive policies on inequality after taxes. The findings indicated that government

spending and social expenditures effectively achieved their intended objective of reducing inequality. Specifically, an increase of 1% in government spending or public social expenditures was linked to a reduction in inequality of about 0.3%.

Bastagli et al. (2015) explored the formulation of taxation and public spending strategies aimed at promoting income equity and safeguarding vulnerable populations during fiscal consolidation periods in emerging economies. Their analysis indicated that a combination of progressive income taxes and highly redistributive transfers has significantly reduced income inequality, contributing to a one-third decrease in inequality levels. The reduction is even more pronounced when considering in-kind assistance, such as investments in healthcare and education.

In İlğün's study (2015), the focus was on understanding the influence of public social expenditures on income distribution. The research covered the period from 1995 to 2012 and involves an analysis of data from 17 OECD countries. Both total social expenditures and specific subcomponents of social expenditures were examined. The study's findings indicated that a rise in the government's proportion of the economy positively affects income distribution. Furthermore, the results showed that a larger proportion of total public social expenditures, along with spending on active labour market programs, pensions for widows and orphans, and unemployment insurance relative to the gross domestic product, contributes to a reduction in income inequality.

Cimoli et al. (2017) conducted a scrutiny that investigated an example of both industrialized and emerging Latin American countries during the time span between 1990 and 2010. Their research sought to investigate the influence of institutions and structural changes on income distribution in these countries. The findings highlighted the critical roles of social expenditures and direct redistribution in mitigating income inequality. Notably, most Latin American countries experienced significant improvements in income distribution starting from 2004. These improvements could be credited to two main factors. First, changes in international conditions eased external constraints, resulting in faster economic growth, reduced unemployment, and informal employment. Second, the rise in government transfers and social outlays enabled wider access to crucial services, including healthcare and education, for a greater portion of the nation.

Kiendrebeogo et al. (2017) carried out a comprehensive analysis using a detailed dataset on social expenditure, spanning the period between 1984 and 2010, with a particular emphasis on emerging countries. The research further employed a distinctive multi-country dataset on poverty to examine the effect of social protection measures in alleviating poverty during periods of crises. The findings revealed that the crises were linked to a 12% escalation in the economic growth of the poverty headcount and a 7% rise in the poverty gap. However, these adverse effects on poverty were significantly attenuated in states with higher levels of social expenditures. This implies that social safety net measures are instrumental in alleviating poverty during periods of crisis and underscores the conceivable benefits of policy interventions to bolster social protection systems.

In their study, Anderson et al. (2017) performed an extensive meta-regression analysis to investigate the conclusion of public expenditure on income inequality, with particular emphasis on lower- and middle-income economies. They amassed and analysed data from 84 distinct studies, which collectively encompassed over 900 evaluations of the correlation between various measures of public spending and income disparity. Their findings provided support for a modest inverse correlation between government spending and income disparity, with this relationship being particularly pronounced within the framework of social wellbeing and various types of social expenditure. The choice of inequality measurement, such as the Gini index or the proportion of earning held by the top earners, also influenced the strength of this correlation. Nonetheless, the scale and nature of the estimated correlation were affected by various elements, such as the incorporation of control variables as well as the particular estimation techniques employed. Additionally, the study uncovered sign of publication bias, indicating that negative assessments of the interplay between government expenditures and income injustice may be underrepresented in the current body of work. This implies that the actual role of government expenditures on income disparity could be more significant than currently reported.

In a comprehensive scrutiny executed by Şen et al. (2018), utilizing the Bootstrap Panel Granger Causality methodology it is analysed a panel of eight emerging economies spanning the time frame between 1995 and 2012. The findings indicated a robust and statistically significant positive causal relationship between public expenditures on education and healthcare and the trajectory of economic growth, with particularly

pronounced effects observed in Brazil and Mexico. In contrast, Indonesia exhibited a significant but negative causal correlation among education expenditures, health expenditures, and economic growth. Meanwhile, no causal relationship was observed between these variables in Argentina, Chile, India, South Africa, and Türkiye.

Investigating the connection between education expenditures and income inequality, Seefeldt (2018) delved into the influence of spending on tertiary education compared to primary and secondary education on income inequality. The research employed panel data covering 50 US states during the years 1987 and 2015. Utilizing an OLS with fixed effects for both time and state, the study revealed that both total education expenditures and expenditures broken down by education level have a significant effect in reducing income inequality. These findings support the continuation of education spending policies across all levels as an effective strategy for reducing income inequality.

The study carried out by Haile & Niño-Zarazúa (2018), which examines dataset from 55 countries with lower and intermediate income levels encompassing the timeframe between 1990 and 2009, provided compelling proof. Using OLS, the research provides strong evidence that public expenditure on social programs has been instrumental in enhancing overall societal well-being of populations in low- and middle-income countries.

Employing dynamic panel models and the GMM and using data from 28 Member states of the EU from 2005 to 2014, Sánchez & Pérez-Corral (2018) analysed the link between public expenditures aiming societal purposes and earning disparity. The study findings revealed that there is an inverse link between overall public societal expenditure and earning disparity in the sample countries during the study period. However, when analysing different categories of expenditure, the study revealed that the link between societal expenditures and earning disparity varied between emerging Member States and the rest of the EU. In emerging states, both expenditures in health and social safety nets were inversely associated with income disparity. Conversely, in other EU Member States, this redistributive function was predominantly driven by social protection spending. Notably, no significant relationship was found between education expenditures of government and income disparity in either group of countries examined.

In his research, Ulu (2018) conducted a study to evaluate the influence of public social expenditures on income disparity across 21 member states of the OECD during the

timeframe spanning from 2004 to 2011, utilizing panel data. The study's findings indicated that public social expenditures have an affirmative effect on income disparity, meaning that as government social expenditures increases, income inequality tends to decrease. Additionally, the research suggested that government social expenditures, including social insurance and social assistance, is more efficient in reducing income inequality than expenditures on education. Both unemployment and population growth were identified as having a detrimental effect on income disparity. Furthermore, a negative correlation was observed between income inequality and factors such as economic openness, education expenditures, the elderly population, and education participation.

Using the Johansen and Juselius Cointegration test, Baylan (2019) studied the influence of social insurance expenditure on income dispersion in Türkiye for the period 1975-2010 and found that social security expenditures affect income distribution in Türkiye negatively while they affect economic growth positively in the period under review. The scrutiny suggested that the burden of budget transfers on the public and the relatively high proportion of indirect taxes in total tax revenues could be additional factors contributing to the observed effect on income distribution.

Cyrek (2019) conducted a study examining the efficacy of state social expenditures in tackling poverty and mitigating income disparity within the EU member states. The study analysed data from the period between 2007 and 2016, focusing on changes in efficiency during and after the 2007 financial crisis. To achieve this objective, the Data Envelopment Analysis (DEA) method was utilized to assess the social performance level of different EU countries. Additionally, the Malmquist index was calculated and decomposed to identify sources of efficiency changes during the crisis period. The findings of the study suggested that, in general, nations with greater levels of social expenditures prone to exhibit lower efficiency in reducing income inequality. However, this relationship does not apply to poverty alleviation. The study highlighted a counterbalance between the magnitude and competence of social spending, at least concerning the reduction of income inequality. Furthermore, variations in social models are observed between southern and northern EU countries. Southern countries predominantly focus their social policies on reducing income inequality, while Scandinavian nations and other affluent societies primarily direct their public support towards poverty alleviation.

Alamanda (2020) investigates the influence of public allocations on income disparity and poverty in Indonesia, with a particular focus on various kinds of public allocations, including capital allocation for infrastructure, public welfare aid, subsidies, and grants, and their effects on these socio-economic issues. Employing a range of statistical techniques such as fixed and random effects, besides Seemingly Unrelated Regressions, the study produces several key findings. The analysis reveals that social aid, subsidies, and grant expenditures do not significantly contribute to lessening income disparity or poverty in Indonesia. In contrast, allocations on infrastructure are found to have an inverse link with income disparity in both city and countryside. This negative relationship is particularly significant when the model of random effect applied to city areas and the model of fixed effect to countryside. Furthermore, infrastructure allocations are notably related to poverty reduction, with a stronger influence observed in countryside than in city.

In the study conducted by Kalkavan & Ersin (2020), the correlation between social expenditures and income dispersion was explored during the period spanning from 1980 to 2015. The research covered 15 OECD countries and employed methodologies such as the Pedroni and Kao Panel Cointegration and Dumitrescu-Hurlin (2012) Panel causality methods. The analysis revealed a meaningful connection between social expenditures and income dispersion in OECD examined countries. Additionally, the findings suggested a causal link, indicating that social expenditures influence income distribution.

Polat (2020) investigated the influence of transfer payments on income distribution employed panel analysis, utilizing data from 36 OECD members during the time framework between 1996 and 2018. The scrutiny also assessed the existence and direction of causality relationships among the variables via the Dumitrescu and Hurlin (2012) panel causality test. The findings of assessment revealed a mutual causality relationship between transfer payments and earning distribution disparity in OECD members. This implies that as income distribution imbalances increase or decrease in countries, transfer payments also ascendancy or diminution in reaction, indicating a dynamic relationship between these two variables.

Cammeraat (2020) focused on examining the relationships between social expenditures, which encompass categories such as old age and survivors, disability, healthcare, household support, unemployment, active labour market, housing, and various other forms of assistance, concerning poverty, income inequality, and GDP growth. To

carry out this analysis, the author employed OLS and Two-Stage Least Squares (2SLS) regression, utilizing a panel dataset encompassing 22 members of the EU over the period from 1990 to 2015. The study's results revealed a negative association between overall public social expenditure and both poverty and income inequality, highlighting a reduction in these disparities. However, no significant correlation was found between public social expenditures and GDP growth. Furthermore, the findings displayed considerable variation across the different social expenditure categories, suggesting the potential for more precise targeting of these expenditures to address specific social and economic outcomes.

In his comprehensive study, Öztürk (2020) conducted over the years from 1987 to 2016, causal relationships between income distribution and social expenditures in Türkiye were rigorously examined. Utilizing the causality test developed by Dolado-Lütkepohl, the research yielded crucial insights. Symmetrical analysis unveiled a causal connection between social expenditures and income distribution, underlining the substantial influence of social expenditure levels on income distribution in Türkiye. Additionally, asymmetrical analysis, focusing on positive and negative shocks, disclosed that increases in social expenditures tended to enhance income distribution, while reductions had the opposite effect. This indicates that there may be a vicious cycle, a decrease in social expenditures causes to a rise in income disparity. Thus, any reduction in social expenditures, for whatever reason, would contribute to a growth in income disparity, which in turn would result in a further decline in social expenditures, creating a vicious cycle and a bidirectional link between social expenditures and income disparity. Overall, the study emphasizes the crucial role of social expenditures as effective tools for mitigating income inequality in Türkiye.

Using China's data spanning from 1978 to 2018, Yu & Li (2021) scrutinized the effects of social protection expenditures on reducing income disparity and rural deprivation through cointegration analysis. Their research revealed a positive long-term link between social protection expenditures and the income disparity between city and countryside inhabitants. However, this influence was found to be limited, with approximately 99% of the variations in the city-countryside income disparity attributed to other factors. Additionally, the scrutiny discovered that social protection expenditures have a negative elasticity of -0.2255 on rural deprivation, indicating that it contributes to the reduction of absolute poverty in rural areas.

In their empirical investigation, Şenol & Orhan (2021) conducted a thorough analysis of the influences of education expenditures, health expenditures, and unemployment payments conducted by government on income inequality. Their study utilized panel data encompassing 15 OECD countries, including Türkiye, during the period spanning from 2002 to 2018. The outcomes of this analysis unveiled that the augmentations in the proportion of education expenditures to GDP as well as health expenditures to GDP have a substantial influence in mitigating income disparity. Notably, the findings emphasized that the effects of these factors, specifically the education and health expenditures to GDP ratios, which pertain to human capital progress, outweighed the influence of unemployment on earning disparity. This underscores the importance of investment in education and healthcare as effective measures to alleviate income inequality.

Verberi & Yaşar (2021) conducted a study to evaluate the connection between social expenditures and income disparity during the years 2009, and 2011 (when the influence of the 2008 depression was observed), and 2015 (a non-crisis year) in 30 OECD countries. They used the OLS method for cross-sectional regression. Their findings from their analysis indicated that a rise in social expenditures is linked to a reduction in income disparity. Additionally, according to their research, trade openness exerts a negative effect on income disparity, while unemployment is linked to a rise in income disparity. Interestingly, the estimation of the analysis points to the fact that the positive effect of social expenditures on income distribution diminished during crisis years compared to non-crisis years.

Wang & Thi (2022) performed a study that aimed to investigate the linkage of cause and effect between income disparity and healthcare expenditures using a quantile panel-type causality framework. They utilized panel data spanning the years 2004 to 2017 on an annual basis, encompassing 36 sample countries. Their empirical findings revealed intriguing patterns. In the context of a pronounced upward trend in the health spending according to income ratio, addressing the income inequality could lead to a continuous increase in the percentage of health spending to income. Conversely, within the context of elevated income disparity, a rise in the health expenditure pertain to income ratio could contribute to alleviating the intensity of income disparities. This underscores the necessity of prioritizing improvements in the health expenditure-to-income ratio as a strategic approach to mitigating the persistent escalation of income inequality, rather than solely

focusing on augmenting absolute health expenditures. Therefore, policymakers should carefully consider the relationship between the healthcare spending-to-income ratio and income disparity, particularly when focusing on the extremes of income distribution.

Pradhan & Quazi (2022) investigated the interplay between public social security expenditures and key socioeconomic indicators such as poverty, income disparity, and growth in GDP within the context of Bangladesh. Their research covered a period from 1991 to 2019 and employed advanced statistical methodologies, incorporating the Johansen Cointegration Test and Vector Error Correction (VEC) modelling. Their findings indicated that publicly provided social safety expenditures exert a meaningful influence on gross capital formation in the short run, reflecting their impact on economic investment. However, the study identified no short-term effects on poverty or income disparity in Bangladesh. Furthermore, publicly provided social safety expenditures demonstrated no meaningful influence on income inequality in either the short or long term, highlighting the complex and multifaceted dynamics underlying income distribution within the nation.

Sauer et al. (2023) sought to uncover the mechanisms behind varying trends in income inequality across the world in their study. They examined 73 countries as global sample, spanning the years from 1981 to 2010. Their focus was on understanding the diversity of factors influencing income inequality in different districts and across the income dispersion spectrum. Their research outcomes indicated that factors such as declining proportion of income allocated to labor, coupled with the growing imports from high-income nations, plays a significant role in exacerbating income disparity. Conversely, revenue collection from levies imports from lower-income economies have a stabilizing influence, tending to diminish income inequality. The study also demonstrated that the influence of technological advancements, financial integration within the nations, domestic financial development, and publicly provided social expenditures differ across regions. Notably, the researchers did not find consistent evidence supporting education as an equalizing factor in both affluent and less affluent nations. The outcomes of the study remained robust even when analysing various strata of the income dispersion.

Yun (2023) scrutinized the impact of government expenditures to both compulsory and non-compulsory education on income inequality within the Southeast Asian region. The study also examined the political aspect of governance conditions in four Southeast Asian countries (Indonesia, Malaysia, Singapore, and Thailand) to understand the tendency

between governance and income inequality between 2000 and 2019. The primary conclusion of the study revealed that aggregate public funding for education cannot exert a noteworthy influence on income disparity within the Southeast Asian context. Yet, when government education expenditures are divided into compulsory education, which includes primary and secondary levels, as well as non-compulsory education, comprising tertiary education, marked but contradictory effects were observed. Government spending on compulsory education (primary and secondary) helps reduce income disparity. In contrast, government expenditure on non-compulsory education, encompassing tertiary levels exacerbates income disparity. This was because tertiary education tends to benefit wealthier individuals more than those in lower-income groups, widening the income gap.

Using ARDL estimation technique, Makhoul & Lalley (2023) found similar findings to Yun (2023) for 20 selected OECD countries from 1970 to 2016. They concluded that educational expansion policies can increase income inequality overall while having no significant effect in the short run.

4.3.1. Evaluation of the Literature on the Relationship between Social Expenditures and Income Inequality

Inequality has consistently emerged as a central concern within the realm of international development, capturing the attention of scholars, policymakers, and practitioners alike due to its profound implications for sustainable growth, social cohesion, and global equity. A substantial body of literature has emerged, documenting numerous negative impacts of inequality on various socioeconomic factors since the 1970s. These include declining trend of investment and economic progress, increased poverty, worsened state of health, education, and welfare outcomes, heightened levels of crime, conflict, and challenges to social cohesion. Furthermore, a fundamental, universal concern exists for equality and fairness principles within all societies. Widespread inequality often contradicts these principles, especially when disparities in available opportunities are significant among individuals defined by factors such as gender, inherited resources, ethnicity, or other birth circumstances (Anderson et al., 2017) and the issue remains complex.

Studies in the literature, recognizing the potentially profound implications of income inequality in the social, economic, and political realms, have regarded social expenditures as the most effective remedy for this inequality and have approached the issue with the utmost sensitivity, presenting numerous works on the subject. Several studies propose a robust correlation between total social expenditures and income inequality, while others reveal this relationship to be extremely weak. On the other hand, some authors discuss how social expenditures, instead of reducing income inequality, may exacerbate it, whereas others claim that these expenditures have statistically insignificant effects on inequality. Some studies, however, have assessed social expenditures in relation to education, health, and social protection, revealing positive, negative, or insignificant effects for each expenditure category.

The majority of the literature has identified an inverse link between social expenditures and income disparity, meaning that as one increases, the other tends to decrease. This is evident by a number of studies, including Schultz, 1963; Sylwester, 2002b; Gregorio & Wha-Lee, 2002; Moene & Wallerstein, 2003; Cantillon et al., 2003; Köse & Güven, 2007; Holzner, 2010; Niehues, 2010; Martinez-Vazquez et al., 2012; Doerrenberg & Peichl, 2014; Bastagli et al., 2015 İlgin, 2015; Cimoli et al., 2017; Kiendrebeogo et al., 2017; Anderson et al., 2017; Haile & Niño-Zarazúa, 2018; Ulu, 2018; Verberi & Yaşar 2021, among many others.

Fields (1980) and Jimenez (1986) conclude from their respective studies that increased expenditures of resources to public education and health in emerging countries did not decrease income inequality. Furthermore, Dibo (2022) found in a study across OECD countries that while social expenditures initially reduce inequality, beyond a certain threshold, the effect reverses, leading to increased inequality. De Mello & Tiongson (2006) discovered that societies exhibiting greater income inequality tend to allocate fewer resources to redistributive programs, leading to less efficient income redistribution and potentially benefiting the non-poor as well. Osberg et al. (2004) revealed that while certain measures of income inequality had a small impact on social expenditures, others had a substantial negative effect. Specifically, disparity between the extremes of the income distribution and the median income cohort had a significant negative influence on social expenditures. Although social expenditures may appear to have a corrective effect on income distribution as a whole, the components of these expenditures result in different

effects in various countries. Therefore, it would be more precise to assess the effect of distinct components of public social expenditures on income dispersion in order to identify policies that effectively reduce income inequality.

4.3.2. Key Reasons for Divergent Empirical Findings on the Relationship between Social Expenditures and Income Inequality

Income inequality represents a challenge that cannot be effectively addressed through market mechanisms alone; in other words, it is a failure of the market. At this point, as with other market failures, public intervention becomes inevitable regarding inequality. Public intervention occurs through fiscal policy tools such as government spending and taxes. For direct effect, governments utilize social expenditures. These expenditures serve as a guide, reflecting both government priorities and the demands of the population. In this regard, three different perspectives emerge. The first, functional idea suggests that social expenditures through government intervention reduces income inequality; the second, classical idea argues that such intervention exacerbates inequality; the third one proposed by Vedder et al. (1988) an approach where both functional and classical perspectives can coexist. This means that while expenditures may reduce income inequality up to a certain threshold, beyond which they may exacerbate it (Dibo, 2022).

It is frequently posited that government spending on social initiatives plays a crucial role in mitigating income inequality. In fact, due to the reallocative character of social spending, one would envision an inverse relationship between increased social expenditures and post-tax income inequality (Esping-Andersen and Myles, 2012). Yet, the extent of this influence can differ considerably in accordance with the proportion of expenditures targeted at lower strata of income groups. If a significant share of transfers is directed toward the intermediate class due to political and economic factors, the ramifications on inequality might be limited (Milanovic, 1994). This principle is similarly applicable to indirect subsidies that constitute a substantial component of total public expenditure in numerous emerging nations. However, such subsidies frequently confer greater advantages to higher-income groups, exacerbating income disparities (Rhee et al., 2014). Additionally, proponents allege that public investment in healthcare and education contributes to reducing earning disparity by fostering equitable dispersion of human capital. Nonetheless, the magnitude of this effect hinges on the precision of the targeting

of such expenditures. Research indicates that a substantial part of the advantages derived from budget expenditures on health and education in emerging nations accrues to intermediate income groups residing in cities (Alesina, 1998).

The impact of transfers may fluctuate depending on the type of income being examined. When considering post-tax and transfer income, the impact on income distribution will be different; when considering pre-tax and transfer income, a different effect will emerge. The former is referred to as the “first-round effect” while the latter is called the “second-round effect.” The influence of certain expenditures on income dispersion may only manifest in the long run, rather than appearing immediately. A prime example of this is the efficacy of education expenditures on income distribution (Bastagli et al., 2012). From an empirical standpoint, the projected impact of government expenditure may vary reliant on whether the analysis considers the aggregate impact of expenditures, which includes how it is funded through direct or indirect taxes. Additionally, during times of inflation, the redistributive effect of social expenditures may diminish due to inflationary pressures. When income disparities within the market are pronounced, governments are often subjected to political pressures to engage in income redistribution. In democratic systems, to illustrate, a broader segment of the citizens stands to benefit from income levies and transfers, thereby establishing a political consensus for wealth redistribution. In fact, in autocratic governments, similar dynamics can emerge, often manifested in widespread protests that support redistributive political movements. Consequently, cause-and-effect dynamics between public spending and income disparity can function in both directions and without proper control measures, this could lead to imprecise estimations of the causal influence of public expenditure on income disparity (Anderson et al., 2017). In recent decades, in spite of the swift growth of global datasets containing both primary and secondary disparity data, no single ideal dataset exists to be available for international research on the various reasons like the multifaceted nature of income inequality and its susceptibility to various factors (Förster and Tóth, 2015).

Publication bias poses a significant concern, especially in structured analysis, since it may lead to considerable distortions in the results of meta-analyses. The argument posits that researches with statistically significant conclusions are prone to being published in scholarly, peer-reviewed journals. Compared to those giving statistically insignificant results. Consequently, this bias within the literature is likely to manifest in the meta-

analysis, as the studies that have been published are more commonly incorporated into such analyses (Borenstein et al., 2021). The correlation estimated between public spending and income disparity relies on the specific measure of inequality utilized. When compared to the Gini coefficient, the correlation seems to be more pronounced and negative when examining the proportion of the top 10% or 20% of the population in terms of national income, whereas it becomes less pronounced and less adverse when examining the share of the lowest 20% or 40%. Furthermore, the time period selected by the sample used for estimation and the integration of industrialized countries significantly affect the results. Additionally, there is evidence suggesting that studies employing OLS as the estimation method inclined to present a more substantial negative or smaller positive correlation between government expenditures for social purposes and income disparity. Apart from determinants like the Gini coefficient and social expenditures, income inequality is influenced by various other factors. However, incorporating all these factors into econometric analysis may be challenging because of data limitations or the incomplete measurement of these variables. For instance, the output of transfer expenditures made for primary education in an emerging country may be realized over a long period, leading to a temporal disconnect between input and output. Consequently, assessing the complete effect of these expenditures on income distribution may prove challenging (Anderson et al., 2017). Studies in the academic discourse exploring the level of income disparity and other variables may only provide insights from one perspective, thus limiting the ability to draw comprehensive conclusions on the subject.

The real impact of various welfare programs on inequality can vary significantly depend on factors such as the size of the program, the targeted groups, the extent of coverage, and the level of generosity. Additionally, behavioural or disincentive effects stemming from these programs, such as reduced labour supply or decreased productivity among workers, can contribute to higher levels of market income inequality. In some cases, these effects may even counteract the role of social expenditure in mitigating inequality on disposable income. These effects could offset the income disparity-decreasing action of social expenditure on disposable income, as noted by Niehues (2010). The interaction between social expenditures and income disparity may thus exhibit non-linear characteristics. For example, this connection could be influenced by the level of appropriations already allocated to public policy actions. In situations with relatively low social expenditures, redistribution becomes a crucial factor in addressing inequality.

Increased funding for social programs allows for the transfer of income from wealthier individuals to those facing poverty or temporary hardship, thereby reducing disparities. However, once social expenditures exceed a certain threshold, dissuasive effects may become more significant. This may lead individuals to decrease their engagement in activities such as human capital investment, labour market participation, and occupational mobility (Bação et al., 2024).

Therefore, factors such as publication bias, different variables used, the methodology implemented, the measure of inequality, political pressure for social expenditures by the middle or upper class, types of taxes to finance expenditures, the target group, and purpose of transfers, the economic conditions during the period of transfer will influence the establishment of the association between social expenditures and income disparity. As a result, studies conducted will reflect only a certain aspect of this relationship rather than providing a comprehensive view of the topic.

4.4. Econometric Framework on the Relationship between Social Expenditures and Income Inequality

This section offers an in-depth data-driven analysis aimed at delving into the intricate conclusions of social expenditures on mitigating income disparity. Initially, the chosen econometric methodology will be delineated, elucidating its underlying assumptions and rationale for its selection. Following the methodological exposition, a comprehensive depiction of the variables employed in the analysis will be provided. This includes a detailed discussion of the sources of these variables and the rationale behind their inclusion in the model. Subsequently, tests will be conducted utilizing the specified methodology and variables. Then, the obtained results will be evaluated to derive meaningful insights into the correlation between social expenditures and income disparity. Lastly, within the concluding segment of this section, based on these findings, pertinent policy recommendations will be developed. These recommendations will be informed by empirical evidence and will be tailored to address the prevailing challenges and dynamics of income inequality, thereby offering practical insights for policymakers and stakeholders. This framework aims to provide a thorough understanding that will inform policy recommendations planned to address income inequality effectively.

4.4.1. Econometric Methodology

In econometric research, the essential first step is to represent the variables within the econometric model using numerical data (Sevüktekin, 1998: 220). Researchers commonly work with three core data sets: cross-sectional, time series, and panel. Cross-sectional data pertains to information gathered from various entities at a specific moment in time, while time series data capture the measurements of these units at various points in time. Panel data refers to a dataset that combines both time series and cross-sectional, comprising N horizontal cross-sectional items and T observations over period (Yerdelen Tatoğlu, 2020a,: 2-5). The values of N and T are of paramount significance when determining the appropriate tests and analyses for the study.

The utilization of econometric data, encompassing both time series and cross-sectional variation, has become a standard practice in modern econometrics. The term “panel data” is employed to describe a broad spectrum of situations in econometrics and comprises repeated observations over time for the same entities, which can be individuals, such as workers or households, as well as entities like firms, industries, nations, regions, or countries. When combining the national accounts of multiple countries, it forms a country panel. Data of this nature have played a crucial role in recent research, particularly in the context of growth and convergence models. Furthermore, there has been considerable interest in cross-national panels due to their potential to offer exogenous fluctuations in institutional setups or policies, thereby facilitating the establishment of economically significant factors (Arellano, 2004).

Unlike models relying on time series or cross-sectional data, panel data models incorporate two distinct subscripts to represent the variables within the model. In the general framework of a panel data equation, as shown in equation (4.1), (y) denotes the dependent variable, (k) indicates the explanatory variable, (α) represents a scalar, (β) corresponds to a $K \times 1$, (X_{it}) refers to the (it^{th}) observation, and (u) represents the error term. The subscripts (i) associated with the horizontal cross-sectional units, while the subscripts (t) relate to the longitudinal aspect. Essentially, (i) pertains to the cross-sectional aspect of the data, while (t) pertains to the time dimension (Baltagi, 2008: 13).

$$y_{it} = \alpha + X'_{kit}\beta + u_{it} \quad i=1, \dots, N; t=1, \dots, T \quad (4.1)$$

Researchers often underscore the key benefits of utilizing panel data when comparing the three fundamental data types. They argue that panel data offers several key benefits. First, it effectively accounts for heterogeneity, recognizing the inherent differences across individual entities, making it a valuable tool for capturing diverse characteristics within the dataset. Furthermore, panel data is advantageous in its capacity to offer multiple observations for each entity (Hsiao, 2003: 3), thereby enriching the dataset with a wealth of information. The reliability of predictions is also enhanced, particularly as the number of observations increases, offering a robust basis for statistical inference (Baltagi, 2008: 6-7). Additionally, panel data reduces the likelihood of encountering multicollinearity issues, as it permits the inclusion of a wide array of variables and explanatory factors without the risk of high correlation (Pindyck and Rubinfeld, 1998: 250-251). This flexibility in model specification allows researchers to create more intricate and comprehensive models, making it easier to test various hypotheses and relationships. Given its advantages, this thesis utilizes panel data.

The subsequent sections of this part will elucidate the research methodology, expound on the econometric tests to be employed, and delve into the theoretical foundations and underlying assumptions that underpin these tests. This systematic and methodological approach will serve as the bedrock for this thesis, ensuring rigor and clarity.

4.4.1.1. Homogeneity Test

Econometric models are created through the compounding of diverse units. In these models, the homogeneity of all units is defined when they exhibit similar characteristics, while the presence of distinct characteristics among these units is expressed as heterogeneity (Yerdelen Tatoğlu, 2018: 52). Models constructed using time series and cross-sectional data often overlook heterogeneity, assuming all units to be homogeneous. In contrast, panel data models are uniquely equipped to incorporate and account for this heterogeneity within the model, enabling a more nuanced and accurate representation of the underlying data.

Econometric models are subject to various influences, which may emanate from time or individual-specific effects. In cases of homogeneity, discussions of individual and time effects are typically non-existent, whereas in heterogeneous scenarios, both effects come

into play. To ascertain the presence of these effects, homogeneity tests are conducted. These tests seek to examine whether the unique individual effects specific to the cross-sections forming the panel, or the time effects pertaining to the period under analysis, have any effect on the coefficients and constant terms associated with the units. The test results determine whether homogeneity or heterogeneity is prevalent. The incorporation of individual and temporal variations into the model is crucial; otherwise, there is a possibility of generating biased findings in the analysis. In essence, including heterogeneity in the model helps prevent specification errors, enhancing the reliability of predictions (Tüzüntürk, 2010: 2). Various scholars have proposed different tests to reveal this relationship. When selecting among these tests, attention should be paid to the values taken by the time extent (T) and the cross-sectional extent (N) of the panel.

The thesis utilizes the Delta test formulated by Pesaran & Yamagata (2008) to identify the heterogeneity existence in the model. Pesaran & Yamagata built their test upon Swamy's (1970) Delta test, developed this test statistics, and presented them in two distinct dimensions. They proposed the homogeneity test referred to as Delta or Delta Tilde for large samples and prepared the Adjusted Delta Tilde test for small samples. When examining the assumptions of these tests, it is evident that the fundamental Delta and Delta-adjusted tests do not impose any restrictions on T and N. In other words, these tests could be employed to both balanced and unbalanced panels in cases where both $T > N$ as well as $N > T$, are calculated according to the (4.2) test statistic (Pesaran and Yamagata, 2008: 50-58).

$$\Delta = \sqrt{N} \left(\frac{N^{-1} \hat{S} - k}{\sqrt{2k}} \right) \quad (4.2)$$

In the context of this test, the null and alternative hypotheses are outlined below:

H_0 : $\beta_i = \beta$ Slope parameters are homogeneous across cross-sections.

H_1 : $\beta \neq \beta_j$ Slope parameters are heterogeneous across cross-sections.

When the probability value (p-value) resulting from the conducted test below 0.05, at a 5% level of statistical significance, the null hypothesis (H_0) is rejected, leading to the conclusion that the cross-sections forming the panel are heterogeneous. Conversely, when

the p-value exceeds 0.05, H_0 cannot be rejected, indicating that the sections forming the panel are homogeneous.

4.4.1.2. Cross-Section Dependency Tests

In econometrics, various tests are built upon several assumptions, one of which is the hypothesis regarding cross-sectional independence or its reverse, cross-sectional dependence. This hypothesis of cross-sectional independence has been used in relatively older econometric techniques. According to this assumption, a shock occurring in any unit forming the panel equally affects to the same degree all cross sections, or the other countries forming the panel are not affected by a macroeconomic shock occurring in any one country (Koçbulut and Altıntaş, 2016: 152). Tests based on cross-sectional independence are referred to as the first-generation tests.

Within the econometric literature, a variety of tests exist to evaluate cross-sectional dependence, meaning they conducted econometric analyses assuming cross-sectional independence. However, in the period after 1980, especially in the context of a globalized world and due to the high interdependence of countries in economic and financial crises, as well as the presence of economic organizations such as the EU leading to jointly made economic decisions, the relevance of cross-sectional independence started to be questioned. In response to these developments, the assumption of cross-sectional dependence was introduced, defining the dependence as an interaction among cross-sectional units like households, firms, countries, etc. (Baltagi et al, 2012). In light of these developments, the literature recognized that ignoring cross-sectional dependence in the investigations, even when it is present in the model, could lead to biased results and subsequently developed new tests, referred to as second-generation tests that consider this dependence. Additionally, the confirmation of cross-sectional dependence amongst units in an econometric model influenced subsequent tests, as authors began to introduce tests for sequential cointegration and causality that take this dependence into account.

The econometric literature offers a wide array of tests designed to evaluate cross-sectional dependence. When deciding which test to use in an analysis, consideration is given to the panel data set's dimensions, with N stands for the cross-sectional unit, and T indicates the time frame. Choosing the appropriate test is of paramount importance, as it ensures that the methodological framework aligns with the structural characteristics of the

dataset. Additionally, the homogeneity or heterogeneity of the series is important in the test selection process. This thesis will construct a panel data model that includes a group of 26 chosen OECD countries and cover the period from 1995 to 2021, resulting in T being equal to 27. So, given the relatively long-time dimension compared to the cross-sectional units, specific emphasis will be accorded to tests that exploit the properties of large T panels while accommodating the potential for dynamic interactions across units. In this case, since T is greater than N, tests that are specifically designed based on this assumption will be preferred in the analysis. The four different tests and their corresponding assumptions related to this situation are summarized below.

- **Breusch-Pagan (1980) Lagrange Multiplier Test**

Breusch & Pagan, considered among the most important authors for testing CD, introduced a new perspective to econometric analysis in 1980 with their Lagrange Multiplier (LM) test. This test, which is used for both homogeneous and heterogeneous panels, is based on the classic panel data model as specified below (4.3).

$$y_{it} = \alpha_i + \beta_i'x_{it} + u_{it} \quad \text{for} \quad i=1,2,\dots,N; t=1,2,\dots,T \quad (4.3)$$

The notation appearing in the equation (i) denotes the cross-sectional unit of the model, (t) states the time-series dimension, (β) stands for the slope parameter, (x) signifies the independent variable, (y) points out the dependent variable, α denotes the constant term, and (u) demonstrates the error term. Building upon the equation (4.3) as indicated, Breusch and Pagan developed the LM test statistic (4.4). This statistic is recommended for situations where T approaches infinity while N remains finite. Nevertheless, this formula is prone to significant size distortions for large values of N and small values of T, a common occurrence in practical applications (Pesaran, 2004: 3-5).

$$LM = T \sum_{i=1}^{N-1} \sum_{j=i+1}^N T_i \hat{\rho}_{ij}^2 \quad (4.4)$$

The value denoted as $\hat{\rho}_{ij}$ in this equation is defined as the correlation coefficient between i and j residuals. When the individual dimension, denoted as N, remains constant, and the time dimension, denoted as T, tends to infinity, the LM test exhibits an asymptotic

chi-squared distribution with $N(N-1)/2$ degrees of freedom, according to Pesaran (2004). For the formula, the null and alternative hypotheses are specified as below:

H_0 : There is no CD among cross-sections.

H_1 : There is CD among cross-sections.

When the p-value resulting from the test value is below 0.05 at a 5% level of statistical significance, the null hypothesis (H_0) is rejected, suggesting the presence of CD among the cross-sections in the panel. On the contrary, when the p-value exceeds 0.05, H_0 cannot be rejected, indicating that there is no CD among cross-sections.

- **Pesaran (2004) CD Test**

In scenarios where the panel's time dimension surpasses over the cross-sectional unit ($T > N$), standard time-series approaches may be utilized. A fundamental example of this test is the LM proposed by Breusch & Pagan, as mentioned, it is solely applicable in situations involving $T > N$. However, this limitation of the test, where it cannot be applied in the $N > T$ scenario, necessitates the use of new methods beyond standard techniques (Pesaran, 2004: 2). Building upon this limitation, Pesaran has proposed two distinct tests that can be utilized in both homogeneous and heterogeneous panels. The initial test in this context, as mentioned in the main article, is the Scaled Lagrange Multiplier Cross Section Dependency (CD_{LM}) test (Pesaran, 2004: 5). This test, as shown in equation (4.5), is derived from a standardized derivative of the LM test (Demir, 2019: 86) and can be applied in both $T > N$ and $N > T$ scenarios.

$$CD_{LM} = \sqrt{\frac{2T}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N (T\hat{\rho}_{ij}^2 - 1) \quad (4.5)$$

According to Pesaran (2004: 5), this test tends to indicate significant size distortions in case N is large as well as T is small, a phenomenon frequently observed in empirical studies. The primary reason for this is that the expected value of $E(T\hat{\rho}_{ij}^2 - 1)$ does not accurately converge to zero for a limited T , and when N is large, the LM statistic is likely to be incorrectly centred, which will lead to further exacerbated size distortions as N increases.

The size distortions associated with dimensionality in the Breusch-Pagan LM test and Pesaran's scaled CD_{LM} test have led Pesaran (2004) to propose a second test based on the average cross-sectional correlation coefficients ($\hat{\rho}_{ij}$), with the statistic depicted in equation (4.6). This test is powerful in both panel scenarios, where $T > N$ and $N > T$. According to Pesaran, it is evident that the average of CD in the test is precisely equal to zero when $T > k+1$, and N remains constant. Therefore, the test will be successful even in small samples. This has been supported by Monte Carlo simulations as well (Pesaran, 2004: 9).

$$CD = \sqrt{\frac{2T}{N(N-1)}} \left(\sum_{i=1}^{N-1} \sum_{j=i+1}^N \hat{\rho}_{ij} \right) \quad (4.6)$$

Regarding the hypotheses for this test, the null and alternative hypotheses are detailed below:

H_0 : There is no CD among the series.

H_1 : There is CD among the series.

When the p-value resulting from the test is below 0.05, at a 5% level of statistical significance, the null hypothesis (H_0) is rejected, suggesting the presence of CD among the cross-sections that make up the panel. Contrary, when the p-value exceeds 0.05, H_0 cannot be rejected, indicating that there is no CD among cross-sections.

- **Pesaran-Ullah-Yamagata (2008) LM-Adjusted (LM_{adj}) Test**

In their research, Pesaran, Ullah, and Yamagata (2008) identified various deviations in the Breusch-Pagan LM and Pesaran CD tests. They particularly found that the Pesaran (2004) CD test tended to perform poorly in measuring CD in cases where the group average of correlations was zero, but individual pairwise correlations were not zero. To address this deviation, they introduced corrections by incorporating variance and mean to the test statistic, deriving the test statistic depicted in equation (4.7). As a result of these adjustments, the test became known as the adjusted LM test, or LM_{adj} test. The LM_{adj} test is generally effective, especially in cases where $T > N$, and it performs well in heterogeneous panel data (Pesaran et al., 2008: 106-108).

$$LM_{adj} = \sqrt{\frac{2}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N \frac{(T-k)\hat{\rho}_{ij} - \mu T_{ij}}{vT_{ij}} \quad (4.7)$$

The hypotheses relevant to the LM_{adj} are specified below:

H_0 : There is no CD.

H_1 : There is CD.

When the probability value resulting from the test is lower than 0.05, at a 5% level of statistical significance, the null hypothesis (H_0) is rejected, signifying the presence of CD. Otherwise, when the p-value exceeds 0.05, H_0 cannot be rejected, indicating that there is no CD.

4.4.1.3. Unit Root Test

The concept of stationarity, expressed as the constancy of the mean, variance, and autocorrelation of a series over time, implies that the series' value tends to approach a certain value or fluctuates around its expected value. Stationarity is crucial in data analysis. Handling non-stationary series can result in the emergence of spurious regression issues meaning that the results of regression analysis would be biased. In the econometric literature, unit root econometrics entered the panel data framework in the early 2000s and progressed rapidly. Panel unit root tests are classified into different types based on the presence of cross-sectional correlation, such as first- or second-generation unit root tests, or depending on the homogeneity or heterogeneity of the autoregressive parameter, resulting in various types of tests (Yerdelen Tatoğlu, 2020b: 4-5). The stationarity level of series, cointegration, coefficient estimations, and causality tests are important in terms of assumptions and guide us on which tests to perform.

Introduced by Pesaran (2007), the Cross-Sectionally Augmented Im-Pesaran-Shin (CIPS) test is favoured among unit root tests for econometric modelling due to its contemporary and validated approach. According to the author, this test offers several advantages over others. Rather than relying solely on deviations from estimated factors, it enhances standard Dickey-Fuller or Augmented Dickey-Fuller (DF or ADF) regressions by incorporating cross-sectional averages of lagged levels. Additionally, the CIPS test further improves upon the IPS test by including additional lagged cross-sectional averages,

addressing residual serial correlation, and enhancing statistical power, especially in scenarios with cross-sectional dependence and heterogeneity. The enhanced capability of this test reduces the risk of Type II errors⁶, thereby improving the detection of unit roots in the data. So, through the inclusion of lagged differences and cross-sectional averages in the regression model, the CIPS test effectively captures both autoregressive dynamics and cross-sectional dependencies, rendering it applicable across a broad range of empirical contexts. The CIPS test proves robust against serial correlation in residuals, a common issue in time series analysis that can bring about biased estimations and erroneous inferences. Particularly well-suited for large panel datasets with numerous entities (N) and periods (T), the CIPS test performs admirably for researchers in fields such as macroeconomics, finance, and international economics. The test results include both the individual Cross-Sectional Augmented Dickey-Fuller (CADF) statistics as well as their simple averages, which are called the CIPS test. The fundamental equation used in the CADF test is represented by (4.8), and the error term is defined, such as (4.9), to address cross-sectional dependence.

$$y_{it} = (1 - \phi_i)\mu_i + \phi_i y_{i,t-1} + u_{it}, \quad i=1,2,\dots,N; t=1,2,\dots,T \quad (4.8)$$

$$u_{it} = \gamma_i f_t + \varepsilon_{it} \quad (4.9)$$

f_t denotes the unobserved common effect, while ε_{it} signifies the individual-specific (idiosyncratic) error. Expressing equations (4.8) and (4.9) in the following manner is convenient:

$$\Delta y_{it} = \alpha_i + \rho_i y_{i,t-1} + \gamma_i f_t + \varepsilon_{it} \quad (4.10)$$

Where,

⁶ It means failing to reject a false null hypothesis.

$$\alpha_i = (1 - \phi_i)\mu_i, p_i = (1 - \phi_i) \text{ ve } \Delta Y_{it} = Y_{it} - Y'_{i,t-1} \quad (4.11)$$

The t-statistic for the CADF is calculated as shown in equation (4.12).

$$t_i(N, T) \frac{\Delta Y'_i \bar{M}_w Y_{i,-1}}{\hat{\sigma}_i(Y_{i,-1} \bar{M}_w Y_{i,-1})^{1/2}} \quad (4.12)$$

The CADF provides separate results for every cross-sectional unit contributing to the panel. The CIPS statistic, which can be considered as an expanded version of the IPS test across cross-sections, is the average of the CADF equation and is formulated as shown in equation (4.13).

$$\text{CIPS}(N, T) = \bar{t} = \frac{1}{N} \sum_{i=1}^N t_i(N, T) \quad (4.13)$$

This approach allows for a comprehensive analysis of the data, considering both the individual statistics and their aggregated values. Its null hypothesis asserts that the series contains a unit root, implying non-stationarity, with rejection signalling stationarity.

4.4.1.4. Augmented Mean Group Coefficient Estimator

The foundational body of work on panel time-series traces its roots to an initial wave of methodologies, characterized by unit-root tests, cointegration tests, and empirical estimators. Pioneering works such as those by Im, Pesaran, and Shin (2003), Levin, Lin, and Chu (2002), Maddala & Wu (1999), and Pedroni (1999, 2004) formed the cornerstone of this first generation. These methods operated with the premise of cross-sectional independence among panel members. Subsequently, the field evolved into a second generation of methodologies, which unambiguously tackled the correlation issue among panel members. Notable contributions in this vein include the works of Bai & Ng (2004), Bai, Kao, and Ng (2009), and Pesaran (2006, 2007). This progression marked a significant advancement in panel time-series econometrics, as it accounted for the interdependencies among individual units within the panel, thereby enhancing the analytical robustness and accuracy of the models employed.

Developed by Eberhardt & Bond (2009) as a second-generation coefficient estimator, the AMG estimator, in conjunction with Eberhardt & Teal (2010), offers the capability of providing unbiased and consistent long-term coefficient estimates in the face of cross-sectional dependence. The method is viewed as advantageous for its potential to generate results both across the entire panel and for individual units.

The estimator, akin to Pesaran's (2006) Common Correlated Effects (CCE) estimation technique, can accommodate both the time-series properties of data as well as the variations in the effects of observed and unobserved factors across different panel groups. When the unobserved common factors contribute to the country-specific cointegrating correlation, the augmented country regression model incorporates this correlation with the flexibility to vary across different countries (Eberhardt and Bond, 2009). The AMG estimator takes into account cross-sectional dependence, estimating both within-group and overall panel cointegrating coefficients. It operates when T is greater than N and when N is greater than T . It assumes heterogeneity and requires that variables are integrated into order 1. By weighting the arithmetic average of within-group cointegrating coefficients for each cross-section, the AMG estimator provides stronger and more reliable results compared to the CCE estimator. It also yields effective outcomes in unbalanced panels. The AMG estimator can be used even in the presence of endogeneity issues. The AMG process is structured around three sequential phases (Eberhardt, 2012):

- ❑ Estimation of Pooled Regression Model with Year Dummies: Initially, a pooled regression model is estimated using the first difference OLS. This model comprises dummy variables for each year to capture time-specific effects. The differenced year dummies' coefficients are compiled, capturing an estimated cross-group average of the evolution of unobservable Total Factor Productivity (TFP). The aforementioned aggregate dynamic process is termed the "common dynamic process."
- ❑ Augmentation of Group-Specific Regression Model: The subsequent step involves enhancing the group-specific regression model by incorporating the estimated TFP framework obtained in the initial step. This augmentation can occur in two ways: i) inclusion as an explicit variable in the model, alternatively ii) Imposition of a unit coefficient on each group member, achieved by subtracting the estimated process from the dependent variable. Each regression model also incorporates an intercept capturing time-invariant fixed effects, such as TFP levels.

- Averaging of Group-Specific Model Parameters: Similar to the Mean Group (MG) and Common Correlated Effects Mean Group (CCEMG) estimators, the parameters of the group-specific models are averaged across the panel. Weighting schemes might be employed during this averaging process to account for variations in group sizes or other relevant factors.

The calculations for the AMG process are performed using the formulations from (4.14) to (4.16) as follows:

$$\Delta Y_{it} = b' \Delta X_{it} + \sum_{t=2}^T c_t \Delta D_t + e_{it} \rightarrow \hat{c}_t \equiv \hat{\mu}_t \quad (4.14)$$

$$Y_{it} = \alpha_i + b' X_{it} + c_i t + d_i \hat{\mu}_t + e_{it} \quad (4.15)$$

$$\hat{b}_{AMG} = N^{-1} \sum_i \hat{b}_i \quad (4.16)$$

Through these steps, the AMG procedure effectively synthesizes both the common dynamic process and group-specific characteristics, offering a comprehensive approach to analysing panel data while accounting for heterogeneity across groups, according to writers. Additionally, in Monte Carlo simulations outlined by Eberhardt & Bond (2009), both the AMG and CCE estimators demonstrated comparable performance in addressing bias and the root mean squared error (RMSE) concerns within panels featuring nonstationary variables—whether cointegrated or not—and multifactor error terms with cross-section dependence.

4.4.2. Empirical Findings and Discussion on the Relationship between Social Expenditures and Income Inequality in the Context of Selected OECD Countries

Income disparity has evolved from being solely a national issue to becoming a significant and worrisome global concern. Regardless of their economic power, every country experience varying degree of income inequality and strives to find different social, economic, and political solutions to address this inequality. Especially during times of

crisis, financial difficulties exacerbate this inequality, putting pressure on both countries and households. The social and political imbalances that income inequality can create over time further unsettle countries. Countries striving to address income inequality by taking various measures focus on social expenditures and transfers in an attempt to devise solutions. Motivated by this reality, the study aims to critically evaluate the influence of social expenditures on the distribution of income. To achieve this, five distinct models are developed, each of which will be discussed comprehensively in the subsequent sections. Each model will address social expenditures from a different perspective, endeavouring to elucidate their impact on income distribution with the help of control variables.

4.4.2.1 Data and Variables

This study will encompass social expenditures served by the public sector, categorized according to the COFOG framework, which represents a functional classification of public expenditures. Within this classification, social expenditures are further subdivided into three distinct groups: health expenditures, education expenditures, and social security expenditures, serving as the first-level breakdown within the COFOG system⁷. When the first-level breakdowns of COFOG, which includes ten distinct public expenditure categories, across various countries are examined, accessing data at this breakdown classification can be seen as a complex undertaking. The primary reason for this complexity lies in the diverse macroeconomic reporting methodologies employed by different nations. Consequently, the analysis focuses on a selected 26 member countries within the OECD like Austria, Belgium, the Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the United Kingdom (UK), and the USA. These countries have been chosen for their provision of comprehensive first-level breakdown data.

⁷The Classification of Functions of Government can be found in the appendices. For more detailed information, refer to the Manual on sources and methods for the compilation of COFOG statistics (European Union, 2019) accessible at: [<https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-19-010>]

It is crucial to emphasize that, as per the COFOG system, the reporting of public expenditures commenced in 1995. Therefore, in the study, we will conduct its analysis from the year 1995. The analysis will be limited to 2021, as the most up-to-date data available for the study is from 2021. To perform the tests, the following variables have been chosen for analysis:

- Gini index can be calculated in various ways. In his research, Frederick Solt created the Standardized World Income Inequality Database (SWIID), which seeks to improve the ability to compare income inequality evaluations across diverse countries and timeframes and he calculated four different types of Gini. We will use the disposable income Gini calculated by Solt. The reason for using this Gini is that it represents disposable income after taxes and transfers (Solt, 2020). The relationship between income inequality in post-redistribution income distribution and social expenditures can thus be analysed. Due to this mentioned reason, the disposable income Gini, which serves as a proxy for income inequality, will be used as the dependent variable.

Overwhelming majority of studies in the existing literature have included social expenditures as a whole in econometric analysis. We assess that this situation may obscure the fact that certain components of social expenditures are more successful in correcting income distribution than others, potentially leading to the portrayal of ineffective social expenditures as an effective tool. Therefore, it is crucial to identify which components of social expenditures are more effective in correcting income distribution, which will guide policymakers and investigate the reasons why ineffective social expenditures fail to achieve the desired outcomes. Additionally, to substantiate the assumption we propose, we will subject social expenditures to separate analysis both collectively and in terms of their components. Furthermore, we will examine these expenditures from the perspective of human capital. Due to this mentioned reason, total health expenditures, total education expenditures, total social protection expenditures, total social expenditures (including the first three categories), and total human capital expenditures (including health and education expenditures) will be used as the independent variables for Model 1, Model 2, Model 3, Model 4, and Model 5, respectively.

- Governments' ability to carry out public expenditures and their capacity to achieve maximum efficiency from these expenditures are generally evaluated in parallel with

their economic strength. Therefore, emphasis is placed on the potential of countries with high growth rates to make social expenditures and to improve income distribution through these expenditures. The most important study in this regard belongs to Simon Kuznets. The author emphasizes that countries may disrupt income distribution up to a certain point with their growth, but after that threshold, there tends to be an improvement in income distribution. Therefore, considering Kuznets' significant work in the literature, we deemed it appropriate to add the growth rate as a control variable to our models when investigating the connection between income distribution and social expenditures. Since many studies in the literature share the same perspective with us, they have added countries' growth rates as control variables in their analyses when examining this relationship (see, Ram, 1989; Easterly and Rebelo, 1993; Milanovic, 1994; Alesina and Perotti, 1996; Barro, 1999, 2000; De Mello and Tiongson, 2006; Murthy, 2006; Niehues, 2010; Figini and Görg, 2011; Doerrenber and Peichl, 2014; Seefeldt, 2018; Cammeraat, 2020).

- The unemployment rate is a crucial sign of the overall economic and social well-being, reflecting a complex interplay of factors including economic growth, the dynamics of the labour market, governmental policies, and global trends. Effectively tackling unemployment demands comprehensive strategies that encompass both immediate measures and enduring structural reforms aimed at fostering sustainable growth and inclusive prosperity. In addition, the upward trend in the unemployment rate will bring about significant jumps in social expenditures, causing the government to reduce other expenditures it uses to carry out public services. In a nation experiencing elevated levels of unemployment, it would not be feasible to expect to achieve equality in income distribution. Therefore, considering that an escalation in the unemployment rate leads to both a rise in social expenditures and a burden on the working population through higher taxes and lower-quality public spending, the unemployment rate will be considered as a control variable in the models. When reviewing the literature, it is observed that many studies include the unemployment rate in their analyses, particularly in the context of income inequality and social expenditures (see, Vedder et al., 1988; Nielson and Alderson, 1997; Moene and Wallerstein, 2003; Cimoli et al., 2017; Seefeldt, 2018; Haelg et al., 2020; Yun, 2023).
- Since the 1980s, as the global economy has become more interconnected, countries have increasingly embraced trade liberalization, leading to the introduction of the

concept of “trade openness” in academic discourse. The unrestricted movement of goods, services, capital, and labour across national boundaries has had diverse effects on income distributions among nations. Some scholars, drawing from the Stolper-Samuelson Income Distribution Theory (1941), argue that trade liberalization tends to raise the actual earnings of the plentiful resource within a nation while reducing the actual earnings of the limited factor. Others referring the Heckscher-Ohlin trade model suggest that when trade openness necessitates the incorporation of cutting-edge technologies that require skills, countries with abundant low-skilled labour may witness a rise in the relative wages of low-skilled laborer, thus potentially reducing earning inequality. However, if trade leads to the integration of innovative technologies that favour skilled labor, increased trade openness could exacerbate wage inequality by increasing demand for skilled workers. After reviewing the literature (see, Atkinson, 2015; Aghion et al., 1999; Edwards, 1997; Dollar and Kraay, 2001; Beer and Boswell, 2002; Lundberg and Squire, 2003; Gourdon et al., 2008; Bergh and Nielson, 2010; Cassette et al., 2012), we decided to include trade openness as a control variable in our models, believing it has a significant determinative effect on income distribution.

- Although income distribution has many determinants, demographic structure emerges as one of the most natural determinants. The dependent part of the population, which does not participate in production, is expressed as a burden on the independent part, which contributes to production and supports growth. Therefore, an increase in the non-working and non-producing segment of population may lead to a significant deterioration in income distribution. When reviewing the academic discourse, it is observed that in the predominant share of studies on income inequality, the population variable, along with the dependent population proxy, is included in the analyses (see, Modigliani and Brumberg, 1954; Ando and Modigliani, 1963; Levy and Michel, 1991; Turner, 1998; Moene and Wallerstein, 2003; Lee and Mason, 2003; De Mello and Tiongson, 2006; Jones, 2007; Martinez et al., 2012; Muineló and Roca-Sagalés, 2013; Aspachs et al, 2022; Hannan and Quazi, 2022). Population will also be incorporated as a control variable in our analysis, given its critical relevance.
- A dummy variable will be added to the models to analyse the effects of crises on income disparity over the studied period. Given that countries faced a significant rise in social expenditures and income disparity because of increasing unemployment

during crises, a dummy variable will be added to the analysis. This dummy variable will be used to account for the 2008-2009 Global Crisis for all countries, the 2010-2012 European Debt Crisis for the nations influenced by this downturn such as Greece, Ireland, Italy, Portugal, and Spain, as well as COVID-19 (for 2020 and 2021) for all countries, to understand how this increase affected income distribution during these crises.

All variables, whose diagrams are provided in the appendix, have been transformed into their natural logarithms. In econometric analysis, this transformation is applied to adjust the data's scale when the original data displays specific characteristics, such as skewness, heteroscedasticity, or a wide range of values. The objective is typically to render the data more amenable and interpretable for analysis, especially when working with statistical models that rely on certain assumptions about the data distribution. The package programs, Stata-15 and Eviews-13 is used for the calculations for the econometric analysis. The representation of the models along with the variables to be used in the thesis is as follows:

$$\ln\text{Gini} = f(\ln\text{Th}, \ln\text{GDPpc}, \ln\text{Ue}, \ln\text{Topen}, \ln\text{Pop}, \text{Dummy}) \quad (\text{Model 1})$$

$$\ln\text{Gini} = f(\ln\text{Tedu}, \ln\text{GDPpc}, \ln\text{Ue}, \ln\text{Topen}, \ln\text{Pop}, \text{Dummy}) \quad (\text{Model 2})$$

$$\ln\text{Gini} = f(\ln\text{Tpro}, \ln\text{GDPpc}, \ln\text{Ue}, \ln\text{Topen}, \ln\text{Pop}, \text{Dummy}) \quad (\text{Model 3})$$

$$\ln\text{Gini} = f(\ln\text{Tse}, \ln\text{GDPpc}, \ln\text{Ue}, \ln\text{Topen}, \ln\text{Pop}, \text{Dummy}) \quad (\text{Model 4})$$

$$\ln\text{Gini} = f(\ln\text{Thc}, \ln\text{GDPpc}, \ln\text{Ue}, \ln\text{Topen}, \ln\text{Pop}, \text{Dummy}) \quad (\text{Model 5})$$

Before conducting the econometric analysis, Table 4.1 provides a comprehensive exposition encompassing variable descriptions, their respective abbreviations, measurement units, and the sources from which empirical data shall be derived.

Table 4.1. Description of variables and data sources for empirical analysis

Variable	Abbreviation	Description and Measurement	Data Source
Income Inequality	Gini (ln)	Disposable income Gini	SWIID (1995-2021)
Total Health Expenditures	Th (ln)	Classification of the functions of government (COFOG) -% of GDP	IMF (1995-2021)
Total Education Expenditures	Tedu (ln)	Classification of the functions of government (COFOG) -% of GDP	IMF (1995-2021)
Total Protection Expenditures	Tpro (ln)	Classification of the functions of government (COFOG) -% of GDP	IMF (1995-2021)
Total Social Expenditures	Tse (ln)	Classification of the functions of government (COFOG) -% of GDP	IMF (1995-2021)
Total Human Capital Expenditures	Thc (ln)	Total of education and health expenditures- Classification of the functions of government (COFOG) -% of GDP	IMF (1995-2021)
Growth Rate-Real GDP per capita	GDPpc (ln)	GDP per head of population-US Dollar, constant, 2015 PPPs	OECD-STAT (1995-2021)
Unemployment Rate	Ue (ln)	Total % of the labour force.	WB (1995-2021)
Trade Openness	Topen (ln)	The sum of foreign trade volume (export plus import of goods and services)-as a share of GDP (%)	WB-WDI (1995-2021)
Population	Pop (ln)	Elderly population-aged 65 and over- % of population.	OECD (1995-2021)
Dummy (crisis)	Dummy	2008-2009 Global Crisis and 2020-2021 COVID-19 for all countries; European Debt Crisis for Greece, Ireland, Italy, Portugal, and Spain.	2008-2009-2010-2011, 2012, 2020-2021 (For crisis year 1; others 0)

Source: Author's construction.

In parallel with Table 4.1, Table 4.2 presents an array of descriptive statistics, including indicators like the mean, median, standard deviation, minimum, and maximum values, and the total count of observations for each variable under consideration.

Table 4.2. Descriptive statistics

Variable	Mean	Median	Maximum	Minimum	Standard Deviation	Observation
Gini (ln)	3.366	3.356	3.658	3.086	0.131	702
Th (ln)	1.779	1.863	2.345	0.369	0.323	702
Tedu (ln)	1.646	1.666	1.989	1.075	0.175	702
Tpro (ln)	2.763	2.814	3.298	1.863	0.279	702
Tse (ln)	3.310	3.318	3.722	2.813	0.195	702
Thc (ln)	2.422	2.440	2.799	1.788	0.182	702
GDPpc (ln)	10.513	10.558	11.650	9.105	0.436	702
Ue (ln)	1.985	1.986	3.321	0.593	0.492	702
Topen (ln)	4.515	4.490	5.974	3.103	0.512	702
Pop (ln)	2.793	2.802	3.164	2.375	0.164	702

Source: Author's construction.

The econometric equations representing the models are presented sequentially from Model 1 to Model 5 as follows:

$$\ln \text{Gini}_{it} = \beta_0 + \beta_1 \ln \text{TH}_{it} + \beta_2 \ln \text{GDPpc}_{it} + \beta_3 \ln \text{Ue}_{it} + \beta_4 \ln \text{Topen}_{it} + \beta_5 \ln \text{Pop}_{it} + u_{it}$$

$$\ln \text{Gini}_{it} = \beta_0 + \beta_1 \ln \text{Tedu}_{it} + \beta_2 \ln \text{GDPpc}_{it} + \beta_3 \ln \text{Ue}_{it} + \beta_4 \ln \text{Topen}_{it} + \beta_5 \ln \text{Pop}_{it} + u_{it}$$

$$\ln \text{Gini}_{it} = \beta_0 + \beta_1 \ln \text{Tpro}_{it} + \beta_2 \ln \text{GDPpc}_{it} + \beta_3 \ln \text{Ue}_{it} + \beta_4 \ln \text{Topen}_{it} + \beta_5 \ln \text{Pop}_{it} + u_{it}$$

$$\ln \text{Gini}_{it} = \beta_0 + \beta_1 \ln \text{Tse}_{it} + \beta_2 \ln \text{GDPpc}_{it} + \beta_3 \ln \text{Ue}_{it} + \beta_4 \ln \text{Topen}_{it} + \beta_5 \ln \text{Pop}_{it} + u_{it}$$

$$\ln \text{Gini}_{it} = \beta_0 + \beta_1 \ln \text{Thc}_{it} + \beta_2 \ln \text{GDPpc}_{it} + \beta_3 \ln \text{Ue}_{it} + \beta_4 \ln \text{Topen}_{it} + \beta_5 \ln \text{Pop}_{it} + u_{it}$$

The next section will include preliminary tests that need to be conducted before moving on to coefficient estimation.

4.4.2.2. Homogeneity Test Results

To make inferences about potential time or individual effects on the variables comprising the model, the Pesaran-Yamagata (2008) homogeneity test is conducted. The outcomes of the panel analysis are displayed in Table 4.3.

Table 4.3. The results of the Pesaran-Yamagata (2008) homogeneity test

Tests	Model 1		Model 2		Model 3		Model 4		Model 5	
	Stat.	p-value	Stat.	p-value	Stat.	p-value	Stat.	p-value	Stat.	p-value
Delta (Δ)	21.387*	0.000	20.737*	0.000	20.502*	0.000	20.851*	0.000	21.381*	0.000
Delta adj. (Δ_{adj})	25.495*	0.000	24.720*	0.000	24.440*	0.000	24.856*	0.000	25.488*	0.000

Source: Author's construction.* Indicates rejection of the null hypothesis at the 1% significance level.

As previously mentioned, the null hypothesis of the Pesaran and Yamagata (2008) test, defined as $H_0: \beta_i = \beta$, states that the coefficients are homogeneous. According to the table, the p-values for both the delta and delta_{adj} tests are less than 0.05, consequently, the rejection of H_0 leads to the conclusion that the slope coefficients within the model exhibit heterogeneity.

4.4.2.3. Cross-Section Dependency Tests Results

While investigating the presence of CD in the model, the study utilized the Breusch and Pagan (1980) LM, Pesaran (2004) CD, and Pesaran-Ullah-Yamagata LM_{adj} tests. The test results for CD for both the variables used in the model and this model as a whole are presented in Table 4.4.

Table 4.4. The results of CD tests

Variables	Breusch-Pagan LM		Pesaran CD		Pesaran-Ullah-Yamagata LM _{adj}	
	statistics	p-value	statistics	p-value	statistics	p-value
Gini (ln)	1512.000*	0.0000	12.0400*	0.0000	129.500*	0.0000
Th (ln)	1707.000*	0.0000	29.890*	0.0000	151.200*	0.0000
Tedu (ln)	1356.000*	0.0000	22.250*	0.0000	112.100*	0.0000
Tpro (ln)	2317.000*	0.0000	36.800*	0.0000	219.100*	0.0000
Tse (ln)	2198.000*	0.0000	37.310*	0.0000	205.900*	0.0000
Thc (ln)	1723.000*	0.0000	30.920*	0.0000	153.000*	0.0000
GDPpc (ln)	4826.000*	0.0000	66.560*	0.0000	498.900*	0.0000
Ue (ln)	1910.000*	0.0000	30.110*	0.0000	173.800*	0.0000

Table 4.4. The results of CD tests (continued)						
Topen (ln)	2340.000*	0.0000	38.630*	0.0000	221.700*	0.0000
Pop (ln)	4360.000*	0.0000	19.180*	0.0000	446.900*	0.0000
Model 1	521.700*	0.0000	0.4700	0.6383	9.733*	0.0000
Model 2	600.000*	0.0000	-0.8108	0.4175	16.260*	0.0000
Model 3	598.700*	0.0000	0.7177	0.4729	15.950*	0.0000
Model 4	603.100*	0.0000	-0.2215	0.8247	16.390*	0.0000
Model 5	600.300*	0.0000	0.1812	0.8562	16.300*	0.0000

Source: Author's construction.* Indicates rejection of the null hypothesis at the 1% significance level.

Upon examination of the values obtained from the tests proposed by different authors for detecting CD in Table 4.4, it becomes evident that in all tests, the null hypothesis (H_0 = there is no CD) is strongly rejected statistically, both at the variable level and for the entire model. Therefore, the presence of CD is acknowledged.

4.4.2.4. Unit Root Test Results

After conducting tests for homogeneity and cross-section dependency based on variables and models, the next step involves testing whether the variables are stationary in their first differences. This is necessary to utilize the AMG method for coefficient estimation. For this purpose, we conducted the CIPS unit root test, and the results are depicted in Table 4.5.

Table 4.5. The results of the CIPS unit root test

Variables	constant (level)	constant and trend (level)	Variables (Δ)	constant (1 st difference)	constant and trend (1 st difference)	Result
Gini (ln)	-1.966	-2.152	$\Delta \ln \text{gini}$	-3.280*	-3.266*	I (1)
Th (ln)	-2.137	-2.244	$\Delta \ln \text{th}$	-4.467*	-4.524*	I (1)
Tedu (ln)	-1.551	-2.225	$\Delta \ln \text{nedu}$	-4.472*	-4.576*	I (1)
Tpro (ln)	-1.451	-1.786	$\Delta \ln \text{pro}$	-4.015*	-4.125*	I (1)
Tse (ln)	-1.532	-1.939	$\Delta \ln \text{tse}$	-4.112*	-4.217*	I (1)
Thc (ln)	-1.748	-1.971	$\Delta \ln \text{hce}$	-4.328*	-4.416*	I (1)
GDPpc (ln)	-1.602	-1.826	$\Delta \ln \text{gdppc}$	-3.486*	-3.528*	I (1)

Table 4.5. The results of the CIPS unit root tests (continued)						
Ue (ln)	-1.304	-1.924	$\Delta \ln ue$	-3.187*	-3.202*	I (1)
Topen (ln)	-1.713	-1.776	$\Delta \ln topen$	-3.794*	-3.931*	I (1)
Pop (ln)	-2.140	-1.135	$\Delta \ln pop$	-2.270**	-2.543	I (1)

Source: Author's construction. Lags (1); CIPS critical values according to Pesaran (2007) for constant: -2.07 for 10%; -2.15 for 5%; -2.30 for 1% (table 2.b) and CIPS critical values for constant and trend: -2.58 for 10%; -2.66 for 5%; -2.81 for 1% (table 2.c); *, **, *** Indicate rejection of the null hypothesis at the 1%, 5%, 10% significance level respectively.

As indicated by the CIPS unit root test results, all variables, with the exception of the population variable, achieve statistical stationarity at the first difference in both constant and trend options of the test. The population variable, on the other hand, becomes stationary at the first difference under the constant option.

4.4.2.5. AMG Coefficient Estimation Results

At this stage of the analysis, the numerical relationship between income inequality and social expenditures will be elucidated using the AMG method for coefficient estimation. The results from the panel analysis are depicted in Table 4.6.

Table 4.6. The results of AMG for panel

Variables	Model 1 (Th)	Model 2 (Tedu)	Model 3 (Tpro)	Model 4 (Tse)	Model 5 (Thc)
Expenditure type	-0.039*** (0.10)	-0.060 (0.17)	-0.109* (0.00)	-0.113* (0.00)	-0.058** (0.06)
GDPpc (ln)	0.056 (0.33)	-0.021 (0.73)	-0.033 (0.68)	-0.045 (0.53)	0.015 (0.79)
Ue (ln)	0.015** (0.07)	0.013 (0.11)	0.019* (0.01)	0.014** (0.07)	0.014** (0.08)
Topen (ln)	-0.038** (0.04)	-0.041 (0.11)	-0.055* (0.01)	-0.053* (0.00)	-0.041*** (0.06)
Pop (ln)	0.157 (0.37)	0.021 (0.87)	0.143 (0.42)	0.089 (0.56)	0.112 (0.47)
Dummy	0.007*** (0.06)	0.004 (0.13)	0.005*** (0.07)	0.006** (0.04)	0.006*** (0.04)
Constant	2.446* (0.00)	3.695* (0.00)	3.718* (0.00)	4.075* (0.00)	3.079* (0.00)

Table 4.6. The results of AMG for panel (continued)					
Number of observations	702	702	702	702	702
Number of groups	26	26	26	26	26
Wald χ^2	14.93	11.65	21.98	34.38	12.97
prob> χ^2	0.0208	0.0702	0.0012	0.0000	0.0435
RMSE	0.0107	0.0109	0.0104	0.0106	0.0109

Source: Author's construction. *, **, *** Indicate at the 1%, 5%, 10% statistical significance levels respectively. The statistical significance levels of coefficients for countries are shown in parentheses. RMSE means Root Mean Squared Error. The results are obtained using AMG estimator with the inclusion of the trend and imp options.

Before evaluating the results obtained from the test, unit root tests will be conducted separately for residuals for each model to test the reliability of coefficients. Determining that the residuals are stationary at the level will indicate the reliability of the coefficients. Moreover, when unit root tests are implemented on residuals, and they are found to be stationary at the level, the result proposes the emergence of a long-term economic correlation among the variables (Baltagi and Moscone, 2010). This implies that the variables in the analysis influence each other consistently over time, and the econometric model can be used for long-term forecasts.

Table 4.7. Unit root test results for residuals of each model

Model 1	Constant	-3.902*	Result: stationary at the level
	Constant and Trend	-3.843*	Result: stationary at the level
Model 2	Constant	-3.896*	Result: stationary at the level
	Constant and Trend	-3.856*	Result: stationary at the level
Model 3	Constant	-3800*	Result: stationary at the level
	Constant and Trend	-3.742*	Result: stationary at the level

Table 4.7. Unit root test results for residuals of each model (continued)			
Model 4	Constant	-3.836*	Result: stationary at the level
	Constant and Trend	-3.779*	Result: stationary at the level
Model 5	Constant	-3.967*	Result: stationary at the level
	Constant and Trend	-3.921*	Result: stationary at the level

Source: Author's construction. Lags (1); CIPS critical values according to Pesaran (2007) for constant: -2.07 for 10%; -2.15 for 5%; -2.30 for 1% (table 2.b) and CIPS critical values for constant and trend: -2.58 for 10%; -2.66 for 5%; -2.81 for 1% (table 2.c); * Indicates rejection of the null hypothesis at the 1% significance level.

The findings shown in Table 4.7 demonstrate that the residuals of every model are stationary at the level. Therefore, since the coefficients are reliable, the interpretation of these coefficients can proceed. Based on the AMG coefficient estimation results presented in Table 4.6, which were derived from an analysis of 26 selected OECD countries, a reduction in social expenditures is associated with an anticipated increase in income inequality.

When examined by expenditure subcategories: i) a 1% increase in health expenditures leads to a 0.039% decrease in the Gini coefficient, statistically significant at the 10% level, ii) a 1% increase in social protection expenditures results in a 0.109% decrease in the Gini coefficient, statistically significant at the 1% level, iii) a 1% increase in total social expenditures (health, education, and social protection) leads to a 0.113% decrease in the Gini coefficient, statistically significant at the 1% level, iv) a 1% increase in total human capital expenditures (health and education) leads to a 0.058% decrease in the Gini coefficient, statistically significant at the 10% level. Thus, the analysis results indicate that social expenditures play a major role in correcting income distribution. Furthermore, while education expenditures exhibit a positive influence on income distribution, the effect is not statistically significant.

When examining the estimation results in the context of control variables: i) the influence of changes in per capita income on income inequality is statistically insignificant, ii) a rise in the unemployment rate exacerbates income inequality, iii) a reduction in the level of openness similarly exerts an adverse impact on income inequality, iv) aging of the population disrupts income distribution, but the result obtained is statistically insignificant,

v) crisis periods disrupt income distribution. This effect is statistically significant except for Model 2, as indicated by the test results.

Spending on social protection and broader social expenditures has the strongest effect in reducing income inequality. While health-related expenditures also contribute, their effect is relatively modest and less statistically robust. Education spending does not show a significant effect on its own, but its role becomes more pronounced when combined with other categories in total spending. Unemployment and trade openness consistently exhibit significant relationships—rising unemployment tends to increase inequality, whereas greater trade openness helps reduce it. The crisis year dummy variable also shows a significant positive association with the Gini coefficient, indicating that inequality tends to rise during economic downturns. Overall, the results underscore the importance of social expenditures—particularly in social protection—alongside key macroeconomic factors in shaping income distribution.

These findings are further substantiated by the country-specific coefficients presented in the subsequent tables. Notably, Table 4.8 offers a comprehensive set of estimates that elucidate the nuanced relationship between healthcare expenditures and income inequality, highlighting their distinct influence across different national contexts.

Table 4.8. The coefficients of Model 1 estimated with AMG

Negative coefficient (1%)	Negative coefficient (5%)	Negative coefficient (10%)	Negative coefficient (insignificant)	Positive coefficient (1%)	Positive coefficient (10%)	Positive coefficient (insignificant)
Estonia (0.254)	Luxembourg (0.067)	Greece (0.030)	Austria (0.060)	Hungary (0.048)	Denmark (0.171)	Belgium (0.056)
Finland (0.230)			France (0.105)	Portugal (0.133)		Czechia (0.054)
Italy (0.210)			Ireland (0.012)	USA (0.140)		Germany (0.070)
Lithuania (0.086)			Netherlands (0.048)			Latvia (0.050)
Poland (0.160)			Spain (0.010)			Norway (0.061)
Switzerland (0.237)			Sweden (0.205)			Slovakia (0.021)
			UK (0.112)			Slovenia (0.013)

Source: Author's construction. The social expenditure coefficients of countries are shown in parentheses.

The results obtained from the analysis on the impact of state-led healthcare expenditures on income distribution in Estonia, Finland, Italy, Lithuania, Poland, and Switzerland indicate a statistically significant positive effect on income distribution at a strong significance level of 1%. A 1% increase in healthcare expenditures in these countries leads to a decrease in the Gini coefficient by approximately 0.26%, 0.23%, 0.21%, 0.09%, 0.16%, and 0.24%, respectively. Similarly, the test results for Luxembourg and Greece reveal an inverse relationship between state healthcare expenditures and income inequality, with statistical significance levels of 5% and 10%, and the coefficients of this relationship are approximately 0.07% and 0.03%, respectively. On the other hand, the coefficients found are negative for Austria, France, Ireland, the Netherlands, Spain, Sweden, and the UK; however, they are not statistically significant.

The same test results indicate that state-funded healthcare expenditures in Hungary, Portugal, and the USA negatively affect income distribution at a 1% statistical significance level, while in Denmark, this effect is observed at a 10% statistical significance level. For these mentioned countries, the coefficients are positive and approximately 0.05%, 0.13%, 0.14%, and 0.17%, respectively. Additionally, positive coefficients are found for Belgium, Czechia, Germany, Latvia, Norway, Slovakia, and Slovenia; nevertheless, they lack statistical significance.

In the literature, there are three different findings regarding the influence of healthcare expenditures on the distribution of income. The first one is that an increase in government-provided healthcare expenditures is anticipated to exert a positive impact on income distribution. The test result for Estonia, Finland, Italy, Lithuania, Poland, Switzerland, Luxembourg, and Greece are consistent with this finding and corroborate the outcomes of Martinez-Vazquez et al. (2012), Bastagli et al. (2015), Cimoli et al. (2017), Sánchez & Pérez-Corral (2018), Şenol & Orhan (2021), Holzner (2010) and Wang & Thi (2022). The second finding in the literature regarding healthcare expenditures and income distribution is that these expenditures tend to exacerbate income inequality. The test results for Hungary, Portugal, the USA, and Denmark validate this finding and support the studies executed by Jimenez (1986), Clements (1997), Dollar & Kraay (2001), and Yılmaz & Rakıcı (2024). According to the last finding, no statistically significant correlation exists between health expenditures and income inequality. Thus, in the selected nations other than those mentioned above, it is evident that no statistically significant relationship exists

between healthcare expenditures and income distribution, which aligns with Alamanda's (2020) and Moene & Wallerstein (2003) findings. The primary reason for the lack of effectiveness of healthcare expenditures in reducing income inequality is that many healthcare expenditures provide no benefit to the poor (Jimenez, 1986), with these expenditures primarily benefiting those with relatively higher income levels.

Healthcare is often considered a necessity rather than a luxury (Baltagi and Moscone, 2010) because it is essential for maintaining and improving people's health and well-being. Access to healthcare services is vital for addressing health issues, preventing diseases, and promoting overall quality of life. Indeed, in societies where income inequality exists, there is also often inequality in accessing healthcare services. Therefore, reducing the degree of income inequality can also bring positive benefits in terms of access to healthcare (Murthy, 2006). However, inequities in healthcare utilization persist across OECD countries. Even after adjusting for healthcare needs, wealthier individuals are more likely to seek medical attention, particularly from specialists (Devaux and Looper, 2012). So, income inequality emerges as a critical determinant in elucidating health disparities at the demographic level. An increase of one unit in the Gini coefficient is associated with a reduction in life expectancy by approximately 2%, or equivalently, a decrease of 1.5 years, within OECD countries (Hedén, 2015).

Following healthcare expenditures, the correlation between education expenditures and income disparity will be examined. Table 4.9 illustrates the coefficients calculated to assess the association between education expenditures and income inequality.

Table 4.9. The coefficients of Model 2 estimated with AMG

Negative coefficient (1%)	Negative coefficient (5%)	Negative coefficient (10%)	Negative coefficient (insignificant)	Positive coefficient (1%)	Positive coefficient (5%)	Positive coefficient (insignificant)
Finland (0.426)	Luxembourg (0.065)	Estonia (0.230)	Denmark (0.074)	Belgium (0.221)	Poland (0.284)	Austria (0.039)
Switzerland (0.928)	UK (0.112)	Greece (0.033)	Germany (0.101)			Czechia (0.030)
		Ireland (0.022)	Latvia (0.078)			France (0.044)
			Lithuania (0.031)			Hungary (0.004)
			Netherlands (0.144)			Italy (0.124)

Table 4.9. The coefficients of Model 2 estimated with AMG (continued)						
Negative coefficient (1%)	Negative coefficient (5%)	Negative coefficient (10%)	Negative coefficient (insignificant)	Positive coefficient (1%)	Positive coefficient (5%)	Positive coefficient (insignificant)
			Norway (0.067)			Portugal (0.012)
			Slovakia (0.009)			Slovenia (0.044)
			USA (0.169)			Spain (0.099)
						Sweden (0.028)

Source: Author's construction. The social expenditure coefficients of countries are shown in parentheses.

The test results indicate that the coefficients for the influence of education expenditures on income disparity are negative for Finland and Switzerland at a strong statistical significance level of 1%, for Luxembourg and the UK at a 5% statistical significance level, and for Estonia, Greece, and Ireland at a 10% statistical significance level. The coefficients for the respective countries are approximately 0.43, 0.93, 0.07, 0.11, 0.23, 0.03, and 0.02. Although a negative relationship between income inequality and education expenditures has been observed in the case of Denmark, Germany, Latvia, Lithuania, the Netherlands, Norway, Slovakia, and the USA, the coefficients determined for these countries are statistically insignificant.

Conversely, positive coefficients of approximately 0.22 and 0.28 have been found for Belgium and Poland, respectively, at the 1% and 5% statistical significance levels. The results reveal that education expenditures in Belgium and Poland disrupt income distribution. Moreover, for Austria, Czechia, France, Hungary, Italy, Portugal, Slovenia, Spain, and Sweden, the coefficients are positive but statistically insignificant.

The findings of the thesis for Finland, Switzerland, Luxembourg, the UK, Estonia, Greece, and Ireland are in line with the research in the literature on education and income inequality conducted by Schults (1963), Gregorio & Wha-Lee (2002), Köse & Güven (2007), Seefeldt (2018), Şenol & Orhan (2021), as well as Sidek (2021) emphasizing the effectiveness of education expenditures in alleviating income inequality. Moreover, the findings for Belgium and Poland align with the studies conducted by Easterly & Rebelo (1994), Zhang (1996), Clements (1997), Dollar & Kraay (2001), Yun (2023), Makhoul &

Lalley (2023), as well as Yalçın et al. (2023). Finally, the thesis findings, discovering the correlation between education and income distribution to be meaningless, corroborate the findings of Ram (1989), Cassette et al. (2012), Sánchez & Pérez-Corral (2018), Alamanda (2020), as well as Sauer et al. (2023).

Especially due to its potential to accelerate social mobility and contribute to intergenerational welfare increase, education expenditures are likely to affect income distribution positively. However, the emergence of this positive effect is influenced by various factors. Factors such as educational opportunities, population growth, and the quality of schooling are crucial aspects of fostering this equality raising (Schults, 1963). However, many public social expenditures fail to benefit the poor and, as a result, do not alleviate income inequality (Jimenez, 1986). Increased access to education primarily reduces income inequality only under two specific conditions. Firstly, the baseline of educational accession must be relatively low. Secondly, the mean level of educational attainment must rise at a sufficiently fast rate (Checchi, 2001). Sylwester (2002b) emphasizes that alongside the low educational attainment levels of individuals at the onset of their education, establishing a better education system and gradually allocating resources to education are necessities to alleviate income disparity. At the same time, some writers like Chiswick (1971) proclaim that income inequality tends to rise alongside educational inequality. In an analysis conducted on OECD countries, Dibo (2002) identified a curvilinear correlation between education expenditures and income disparity across the countries that while social expenditures initially reduce inequality, beyond a certain threshold, the effect reverses, leading to increased inequality. Providing public education may bring about a shrinkage in both the growth rate of average income and the welfare of the median agent (Zhang, 1996).

High-level participation in education and equal distribution of educational opportunities lead to a beneficial effect of education expenditures on income distribution. Yet, despite these factors, there are unexplained differences between countries (Gregorio and Lee, 2002). Nevertheless, substantial education expenditures, in proportion to GDP, are likely to have a corrective effect on income distribution. However, the key issue is which educational level investment should be made in. Particularly, tertiary education is argued to be effective in income distribution (Cosmin, 2012). Köse and Güven (2007) find that increases in secondary school enrolment rates in Türkiye tend to exacerbate rather than

reduce income inequality across provinces. This outcome is attributed to the fact that wealthier regions benefit more from expanded educational opportunities, leading to an uneven distribution of gains. Furthermore, the generally low quality of secondary education in many provinces limits its effectiveness in enhancing individuals' employability and income-generating potential. As a result, increases in enrolment do not necessarily translate into improved income outcomes. These findings suggest that improving the quality of education and addressing regional disparities are essential for educational expansion to contribute meaningfully to reducing income inequality. While it may be argued that education could hurt income inequality, analyses have shown that the coefficient is not always significant because education typically requires a significant amount of time to produce desired outcomes (Cassette et al., 2012). Even if the coefficient is negative (or positive) across the nations incorporated in the panel, the coefficients for particular countries may vary in both magnitude and direction (Yalçın et al., 2023).

A comprehensive assessment of how education influences income distribution necessitates consideration of its regional distribution as well. Within a country, disparities may not only exist among income groups but also regionally. Such disparities can potentially disrupt income distribution within the country (Köse and Güven, 2007). Another topic of debate is at what horizon education creates a positive impact on inequality. Educational expansion strategies lead to a general rise in income inequality, yet they do not yield any notable effect in the short term (Makhlouf and Lalley, 2023). At this stage of the thesis, the role of social protection expenditures in income distribution will be discussed following education expenditures. Social protection expenditures and their coefficients for Model 3 are tabulated in Table 4.10.

Table 4.10. The coefficients of Model 3 estimated with AMG

Negative coefficient (1%)	Negative coefficient (insignificant)	Positive coefficient (5%)	Positive coefficient (insignificant)
Estonia (0.365)	Denmark (0.326)	Italy (0.301)	Austria (0.019)
Finland (0.401)	France (0.237)		Belgium (0.045)
Lithuania (0.072)	Ireland (0.017)		Czechia (0.013)
Luxembourg (0.113)	Netherlands (0.124)		Germany (0.159)

Table 4.10. The coefficients of Model 3 estimated with AMG (continued)			
Negative coefficient (1%)	Negative coefficient (insignificant)	Positive coefficient (5%)	Positive coefficient (insignificant)
Slovakia (0.250)	Norway (0.072)		Greece (0.012)
Spain (0.534)	Poland (0.127)		Hungary (0.017)
Sweden (0.429)	Switzerland (0.126)		Latvia (0.076)
UK (0.368)			Portugal (0.031)
			Slovenia (0.041)
			USA (0.005)

Source: Author's construction. The social expenditure coefficients of countries are shown in parentheses.

The results, shown in Table 4.10, illustrate negative coefficients at the 1% statistical significance level for Estonia, Finland, Lithuania, Luxembourg, Slovakia, Spain, Sweden, and the UK, with approximately 0.37, 0.40, 0.07, 0.11, 0.25, 0.53, 0.43, and 0.37, respectively. This indicates that social protection expenditures positively affect income distribution in these mentioned countries. Additionally, for Denmark, France, Ireland, the Netherlands, Norway, Poland, and Switzerland, although the coefficients are negative, they are statistically insignificant.

The test results elucidate that social protection expenditures in Italy disrupt income distribution at the 5% statistical significance level with a coefficient of 0.30, while for Austria, Belgium, Czechia, Germany, Greece, Hungary, Latvia, Portugal, Slovenia, and the USA, the coefficients are positive but statistically insignificant.

The findings of the thesis for Estonia, Finland, Lithuania, Luxembourg, Slovakia, Spain, Sweden, and the UK are in line with the research in the literature on social protection expenditures and inequality conducted by Burniaux et al. (1998), Holzner (2010), Cosmin (2012), Martinez-Vazquez et al. (2012), Fournier & Johansson (2016), Eroğlu et al. (2017), Kiendrebeogo et al. (2017), Sánchez & Pérez-Corral (2018), as well as Yılmaz & Rakıcı (2024). On the other hand, the finding for Italy corresponds with the studies of Jimenez (1986), Vedder et al. (1988), Clements (1997), as well as Yu & Li (2021). Lastly, the thesis findings, discovering the correlation between social protection

spending and income distribution to be meaningless, corroborate the findings of Baylan (2019), Alamanda (2020) as well as Pradhan & Quazi (2022).

Increased social protection expenditures are argued to reduce income inequality by providing benefits for disadvantaged individuals and the unemployed in many studies mentioned above. However, public social security spending does not exhibit a considerable effect on income disparity because of country-specific factors and the complex nature of income distribution dynamics (Pradhan and Quazi, 2022). The rising trend of these expenditures is frequently emphasized to affect economic growth negatively by reducing the incentive to enter the workforce. Consequently, eventually, this decreasing incentive to the workforce indirectly leads to a decrease in GDP per capita and negatively influence income, thus disrupting income distribution once again (Arjona et al., 2003). In his analysis, Clement (1997) identified that social protection expenditures disrupt income distribution, attributing this primarily to inadequacies in reform efforts in this field, deterioration in the financial structure due to the expenses related to goods and services provided by the state, inefficient use of resources by local and central governments, extremely low quality and standards of services offered by social institutions, lack of effective control by the central government over tasks delegated to local governments, and unequal distribution of resources for social expenditures among regions. When resources allocated for social protection expenditures are insufficient, these expenditures often become more limited for low-income groups. This situation can result in inadequate support for lower-income groups, leading to an increase in income inequality. Sometimes, even when social protection expenditures have sufficient resources, they may be directed towards unnecessary or ineffective areas. In this case, inefficient use of resources can exacerbate income inequality instead of improving it. Some social assistance programs may be directed towards higher-income or less needy individuals instead of reaching the truly needy. In such cases, improper distribution of resources can harm income distribution. The burden of budget transfers on the public and the relatively high proportion of indirect taxes in total tax revenues to invest in these transfers could be additional factors contributing to the observed effect on income distribution (Baylan, 2019).

Following social protection expenditures, the discussion will delve into the role of total social expenditures, encompassing the first three types of expenditures, in income

distribution. The total social expenditures and their coefficients for Model 4 are presented in Table 4.11.

Table 4.11. The coefficients of Model 4 estimated with AMG

Negative coefficient (1%)	Negative coefficient (5%)	Negative coefficient (insignificant)	Positive coefficient (insignificant)
Estonia (0.402)	Ireland (0.038)	Denmark (0.094)	Austria (0.012)
Finland (0.443)	Switzerland (0.317)	France (0.346)	Belgium (0.085)
Lithuania (0.132)		Greece (0.036)	Czechia (0.077)
Luxembourg (0.107)		Italy (0.006)	Germany (0.153)
Sweden (0.709)		Netherlands (0.105)	Hungary (0.073)
UK (0.282)		Norway (0.040)	Latvia (0.060)
		Poland (0.092)	Portugal (0.060)
		Slovakia (0.119)	Slovenia (0.034)
		Spain (0.328)	USA (0.106)

Source: Author's construction. The social expenditure coefficients of countries are shown in parentheses.

When health, education, and social protection expenditures are collectively tested as total social expenditures, Estonia, Finland, Lithuania, Luxembourg, Sweden, and the UK experience a positive impact on income distribution at the 1% statistical significance level; Ireland and Switzerland also are seen to have 5% significance level, with coefficients some 0.40, 0.44, 0.13, 0.11, 0.71, 0.28, 0.04, and 0.32 respectively. Additionally, for Denmark, France, Greece, Italy, the Netherlands, Norway, Poland, Slovakia, and Spain, the coefficients are negative, while for Austria, Belgium, Czechia, Germany, Hungary, Latvia, Portugal, Slovenia, and the USA, they are positive but statistically insignificant.

The findings of the thesis for Estonia, Finland, Lithuania, Luxembourg, Sweden, the UK, Ireland, and Switzerland are in line with the research in the literature on total social expenditures and inequality conducted by Niehues (2010), Martinez-Vazquez et al. (2012), Muinelo et al. (2013), Doerrenberg & Peichl (2014), Bastagli et al. (2015), İlgün (2015), Cimoli et al. (2017), Kiendrebeogo et al. (2017), Anderson et al. (2017), Haile & Niño-

Zarazúa (2018), Sánchez & Pérez-Corral (2018), Ulu (2018), Fotros et al. (2020), as well as Verberi & Yaşar (2021). From a different perspective, the finding discovering the correlation between total publicly provided social expenditures and income distribution to be meaningless, corroborate the findings of Vedder et al. (1988), Jones (2007), and Alamanda (2020).

Public choice theory (Buchanan, 1972), based on governmental failure or non-market failure theory, suggests that transfers made by governments are directed towards politically well-organized groups rather than the poor. So, many public social expenditures fail to benefit the poor and, as a result, do not alleviate income inequality (**Jimenez, 1986**). Consequently, desired outcomes in reducing inequalities through government intervention cannot be achieved. Tullock (1983) emphasizes that the modern welfare state explicitly reduces the incomes of the extremely wealthy but argues that many government transfers do not involve transfers from high-income groups to low-income groups, but rather transfers within the middle class. In this case, social expenditures prevent excessive increases in income inequality rather than eliminating it.

Bastiat (1848, 1964) argues that governments, through their social expenditure policies, do not solve income inequality but rather create more poverty. According to Bastiat, there exists an automatic mechanism that maintains social order, and interventions in the workings of this mechanism lead to harmful consequences instead of beneficial ones. Bureaucratic interventions in economic life result in inefficiency and worsen the existing situation. Moreover, the continuously increasing social expenditures create an exclusion effect for the private sector's charitable activities (Abrams and Schmitz, 1984). Therefore, the presence of excessive social expenditures by the government further burdens the state by distancing the private sector from this field. Gallaway & Vedder (1986) argue that social expenditures increase the number of individuals opting for poverty by enhancing their motivation to spend leisure time instead of working. Gwartney & Stroup (1986) also support the Tullock hypothesis, emphasizing that traditional transfers disrupt market equilibrium. For example, transfers to the agricultural sector may eventually increase land rent income.

The effectiveness of social expenditures in alleviating income disparity varies significantly based on the pre-existing inequality levels unique to each country (De Mello and Tiongson, 2006). For example, when realizing social expenditures, institutional

deficiencies can hinder the effective use of public resources, thereby impeding success in rectifying income distribution (Cyrek, 2019). Additionally, the capacity of social expenditures to alleviate income disparity is contingent upon the specific type of expenditure. Disability and unemployment benefits can reduce income inequality, while the impact of family assistance is limited (Hoeller et al., 2012). Some subtypes of social expenditures, such as unemployment benefits, can contribute to reducing income inequality more so than social expenditures as a whole (Niehues, 2010). In conclusion, the reason for the overall statistical insignificance of social expenditures may stem from the fact that while some expenditures within its subcategories are effective in influencing income distribution, others may be ineffective. Upon scrutinizing the analysis results, no statistically significant evidence supporting the notion that total social expenditures exert a negative impact on income distribution was discovered.

After discussing total social protection expenditures, the analysis will shift to examine the impact of total human capital expenditures, which include health and education expenditures, on income distribution. The total human capital expenditures and their coefficients for Model 5 are provided in Table 4.12.

Table 4.12. The coefficients of Model 5 estimated with AMG

Negative coefficient (1%)	Negative coefficient (5%)	Negative coefficient (10%)	Negative coefficient (insignificant)	Positive coefficient (5%)	Positive coefficient (10%)	Positive coefficient (insignificant)
Estonia (0.314)	Greece (0.045)	Ireland (0.022)	Austria (0.017)	Belgium (0.120)	Hungary (0.050)	Czechia (0.056)
Finland (0.325)	UK (0.133)		France (0.082)	Portugal (0.05)		Denmark (0.059)
Italy (0.293)			Netherlands (0.083)			Germany (0.051)
Lithuania (0.103)			Norway (0.004)			Latvia (0.036)
Luxembourg (0.076)			Poland (0.048)			Slovakia (0.021)
Switzerland (0.564)			Sweden (0.127)			Slovenia (0.033)
						Spain (0.032)
						USA (0.159)

Source: Author's construction. The social expenditure coefficients of countries are shown in parentheses.

When examining total human capital expenditures consisting of health and education expenditures together, Estonia, Finland, Italy, Lithuania, Luxembourg, and Switzerland are seen to show a positive impact on income distribution at the 1% statistical significance level. Greece and the UK also exhibit this positive effect at the 5% significance level, while Ireland shows the same effect at the 10% statistical significance level. The coefficients for these countries are approximately 0.31, 0.33, 0.29, 0.10, 0.08, 0.57, 0.05, 0.13, and 0.02 with negative signs respectively. In addition, the test results indicate that total human capital expenditures disrupt income distribution for Belgium and Portugal at the 1% significance level and for Hungary at the 10% statistical significance level. Belgium is assigned a coefficient of 0.12, while Portugal and Hungary are assigned a coefficient of 0.05.

The results point out that the coefficients are negative and statistically insignificant for Austria, France, the Netherlands, Norway, Poland, and Sweden. Conversely, for Czechia, Denmark, Germany, Latvia, Slovakia, Slovenia, Spain, and the USA, the coefficients are positive and statistically insignificant.

In conclusion, although the overall findings point to a negative relationship between healthcare expenditures and income inequality, the country-level coefficients presented in Table 4.12 reveal substantial heterogeneity. While several countries exhibit strong and statistically significant inequality-reducing effects, others display weak, insignificant, or even positive associations. This variation underscores the importance of country-specific economic, institutional, and social factors in shaping the effectiveness of healthcare spending as a redistributive tool.

Firstly, the findings of this thesis for Estonia, Finland, Italy, Lithuania, Luxembourg, Switzerland, Greece, the UK, and Ireland are in line with the research in the literature on total social expenditures and inequality conducted by Hoeller et al. (2012), Bastagli et al. (2015), Cimoli (2017), Şenol & Orhan (2017), Haile & Niño-Zarazúa (2018), and Wahiba & Dina (2023). Secondly, the findings for Belgium, Portugal, and Hungary align with the Jimenez (1986), Alesina's (1998) study and lastly, the finding discovering the correlation between total human capital spending and income distribution to be meaningless, corroborate the findings of Alamanda (2020) conclusion.

Government investments in health and education are recognized for their role in reducing income disparity by fostering a fairer allocation of human capital. But their effectiveness is contingent upon the accuracy with which they are targeted. In numerous emerging economies, a significant share of the advantages derived from government expenditures on healthcare and education tends to benefit intermediate income brackets residing in cities. This highlights the lack of equal access to these services among impoverished citizens (Alesina, 1998). Human capital expenditures typically yield results over the long term. This situation prevents the precise measurement of the full impact of expenditures (Anderson et al., 2017). Therefore, it is improbable that it will have a profound impact on income distribution within a short time frame. Yet, it will be necessary to maintain stable policies until the outcomes of the expenditures are realized. Policy changes driven by factors such as shifts in government leadership and economic crises during the implementation process may impede the attainment of the desired outcomes. Additionally, policies should be updated in a timely manner throughout the process, particularly in the case of education expenditures within human capital. This will ensure that the effects of human capital investments are maximized, leading to a fairer income distribution. Thus, human capital expenditures may or may not reduce income inequality depending on country-specific traits (Fields 1980).

When human capital expenditures are examined as components, it is observed that the allocation of health expenditure influences the well-being of the entire population irrespective of their income level to a large extent. However, expenditure on education could not have a statistically significant influence on income disparity. The finding may be ascribed to the composition of educational expenditures, whether in-kind or cash transfers, as well as to the distribution of expenditure across different levels of education Sánchez & Pérez-Corral (2018). For expenditures on human capital to generate a favourable impact on income distribution, the most important factors are to facilitate access to services for the low-income segments of society Jimenez (1986) in both health and education fields, to consistently update the steps taken during policy implementation, ensuring that previous positive outcomes are not negated by significant changes during these updates, and to be sensitive to allocating adequate funds since implemented policies generally require significant budgets.

In this section of the thesis, the control variables incorporated in the examination of the interaction between social expenditures and income disparity will be discussed and the correlation between GDPs per capita, the first control variable, and income distribution will be summarized in Table 4.13.

Table 4.13. The results of control variable-GDPpc

Negative coefficient (statistically significant)	Positive coefficient (statistically significant)	Negative coefficient (statistically insignificant)	Positive coefficient (statistically insignificant)
Estonia	Austria	Czechia	Denmark
France	Belgium	Finland	Germany
Greece	Norway	Lithuania	Italy
Hungary		Luxembourg	Latvia
Ireland		Poland	Netherlands
Spain		Portugal	
UK		Slovakia	
		Slovenia	
		Sweden	
		Switzerland	
		USA	

Source: Author's construction.

The increase in per capita income is frequently emphasized in the literature as having a positive effect on income distribution. In this regard, the test results obtained for Estonia, France, Greece, Hungary, Ireland, Spain, and the UK are in line with this expectation. On the other hand, the test results for Austria, Belgium, and Norway points out that an expansion of per capita income exacerbates income disparity. For Czechia, Finland, Lithuania, Luxembourg, Poland, Portugal, Slovakia, Slovenia, Sweden, Switzerland, and the USA, the same test yields, negative coefficients, but statistically insignificant for per capita income, while for Denmark, Germany, Italy, Latvia, and the Netherlands, it yields positive and statistically insignificant coefficients. The connection between growth and income disparity is a complex issue. To elucidate this matter, the contextual relationship between them will be systematically explained through the following steps:

- Growth may distort income distribution until a particular threshold but after that point, income inequality begins to decrease. This leading theory regarding the correlation between growth and inequality is attributed to Kuznets (1963). The writer argues that disparity will ascend up to a specific threshold with growth, after which it will tend to decrease. Subsequently, in an analysis conducted for 40 different countries in 1973, Kuznets' theory was once again confirmed by Ahluwalia (1976). Moreover, Crenshaw (1992) suggests that a curvilinear relationship may exist between growth and income inequality, asserting that education provides individuals with the necessary competencies and expertise necessary for entering modern economic sectors. He adds that in the initial stages of educational expansion, the elite receiving education and entering high-paying commercial sectors and state services increases income disparity. Yet, after this stage, with compulsory free education gradually embracing a larger population, and consequently, a greater number of people obtain jobs in the modern sector, leading to some degree of earning equality. So, efforts by governments to provide compulsory education have a positive impact on growth (Eckstein and Zilcha, 1994). Despite these findings, the authors cannot explain why income inequality is a pervasive issue across both industrialized and emerging countries.
- Growth may distort income distribution. While some authors argue that growth has the potential to improve income distribution, others contend that it distorts income distribution. According to Jimenez (1986), growth may increase inequality. Especially during slow growth periods, governments may not allocate enough social expenditures for the growing population. Faustino & Vali (2011) conducted a study of 24 OECD countries and found economic growth increases income inequality. So, many experiences demonstrate that economic growth does not reduce income inequality in the short or long term. Consequently, a mere increase in the economic progress is insufficient to address the issue of income inequality (Bağcı, 2019). It is emphasized that an increase in growth, especially combined with inequality in the education opportunities, would lead to significant income inequality (Chiswick, 1971). The empirical findings pinpoint the different outlooks of globalization advocates, who proclaim the favourable influence of openness on income disparity, they suggest that over the past two decades, many nations have experienced sluggish economic expansion alongside an upward trajectory in inequality (Cornia, 1999). So, growth with globalization cannot create income equality.

- ❑ The correlation between growth and income inequality is too complex to definitively determine; it may even be insignificant in some cases. In the 1950s and 1960s, scholars like Nicholas Kaldor and Simon Kuznets posited that there is a trade-off between diminishing disparity and stimulating economic growth, although, numerous East Asian economies experienced remarkable growth alongside relatively low levels of inequality, challenging this notion. Conversely, numerous nations in Latin America exhibited markedly higher levels of inequality and experienced slower growth compared to the East Asian average. The contrasting trends generated a heightened interest in exploring the correlation between disparity and economic growth. Specifically, there was a re-evaluation of how a nation's level of income inequality forecasts its future economic growth (Forbes, 2000). In opposition to scholars who contend that a direct negative or positive correlation may exist between economic growth and income equality, an analysis conducted by Simpson (1990) suggested that economic growth did not exert a direct influence on income disparity. Correspondingly, Deininger and Squire (1998) did not find a systematic correlation between growth and income disparity besides Weede (1997) emphasized that it is not possible to claim a strong correlation between income disparity and growth.
- ❑ The relationship between growth and income disparity may vary among countries. Unlike all these findings obtained, Barro (2000) found the link between income disparity and growth to be extremely weak and varies among countries. Barro (1999) contended that disparity hampers growth in low-income nations, while it increases growth in richer countries. Scully (2002) also emphasized, in his study like Barro that, the connection between economic growth and disparity can be positive, albeit of a relatively small magnitude. There may also be periodical variations in the correlation between income disparity and growth. An analysis conducted for 49 nations highlighted that while income disparity exerted a detrimental effect on growth during the 1980s, this relationship became statistically insignificant in the 1990s (Ogus Binatli, 2012).
- ❑ Inequality can affect growth, but this effect can vary in different directions. Firstly, inequality can increase growth. In societies with greater levels of inequality, the median voter tends to elect higher taxation rates to fund public education. This is aimed at bolstering aggregate human capital, consequently stimulating economic growth (Saint-Paul and Verdier, 1993). To clarify this phenomenon, various scholars undertake distinct studies. For example, Benabou (1996) presented a model based on

heterogeneous individuals, illustrating that if a stronger complementarity exists between individuals' human capital in local interactions as opposed to global ones, segregated and more unequal societies may face to higher growth rates, particularly in the short term. Galor & Tsiddon (1997) proposed a positive correlation between disparity and growth. They suggest that a home environment externality influences an individual's human capital level, and when the externality is sufficiently pronounced, a substantial amount of inequality can be required to catalyze economic growth in emerging economies. Secondly, inequality can decrease growth in the long run. Forbes (2000) conducted a study of 45 countries between 1966 and 1995 and found that income inequality increases growth in the mid to long span. However, the writer explained that this inequality creates social and political imbalances, which in turn hampers investments and reduces growth. In the same vein, Alesina & Perotti (1996) proclaimed that increasing income inequality may decrease growth. Thus, income inequality can affect growth positively or negatively. Social expenditures have an expansionary effect on growth. An increase of one unit in social expenditure points out approximately a 0.1 increment in GDP. With the multiplier effect, this increase can go up to 0.6. The reason for the multiplier effect not being greater is the different subtypes of social expenditures and their varying effects on output (Furceri-Zdzienicka, 2012).

- There may also exist a correlation between publicly provided expenditures, particularly social expenditures, and income disparity. When it comes to the tie between public spending and economic progress, the first author to emphasize the linear association between government spending and economic growth was Wagner (1883). He proclaimed that the rise in public expenditure occurs alongside the increasing demand for public goods due to cultural and social welfare improvements. It can be inferred from this reality that economic growth and social expenditures exhibit increases or decreases in the same direction. However, whether the additional social expenditures resulting from economic growth can positively affect income distribution will depend entirely on the effectiveness of social expenditures. Therefore, concluding that economic growth always exerts a positive influence on income distribution may not be a universally applicable outcome for every country. Without achieving equality among the lower levels in income distribution or ensuring proper targeting of social expenditures, institutional structure, and strategic planning of social expenditures, as well as efficiency in the usage of public resources, an increase in per

capita income will not bring about income equality. In the same way, Muinelo-Gallo & Roca-Sagalés (2013) suggested that well-designed welfare states can redistribute income via social expenditures without harming growth, however, this depends on how these expenditures are financed and served.

When investigating the effects of reducing or increasing social expenditures on growth, various assumptions will be encountered. Some authors argue that cutting social expenditures can trigger growth by creating incentives for employment. Specifically, it can be observed that social protection expenditures tend to decrease growth (Arjona et al., 2003). Fournier & Johansson (2016) elucidated that an expansion in government expenditure might result in a deceleration of economic growth, supported by evidence indicating that excessively large governments could impede potential growth in the absence of highly efficient government functioning. However, the writers proclaimed that while some public spending items, such as public investment and education, is accepted to enhance potential growth, others, like pensions and public subsidies are known to diminish potential growth. Thus, although total public social expenditures may not exhibit a significant correlation with GDP growth, it is inversely proportional to income inequality (Cammeraat, 2020).

Various factors contribute to the differing findings regarding the correlation between economic growth, public expenditures, and income allocation. Milanovic (1994), critiquing Kuznets and other scholars' direct approach to evaluating the connection between earning distribution and growth, proposed an alternative perspective. He puts forward the Augmented Kuznets Curve hypothesis, emphasizing that inequality is not solely determined by growth and that social preferences affecting inequality should also be considered in calculations. Furthermore, the writer highlights that another reason for inter-population equality is that as countries become richer, they tend to choose a society with less inequality. Moreover, when viewed from an econometric analysis perspective, suggesting a substantial adverse impact of disparity on growth many estimates lack robustness. Upon conducting sensitivity analyses, including incorporating additional explanatory indicators or regional dummy, the parameter associated with disparity frequently loses significance but it typically remains negative (Deininger and Squire, 1998). The limitation of multinational research on disparity and growth lies in its failure to directly tackle the crucial policy issue of how changing a nation's level of disparity impacts

its growth within that nation. While multinational regression findings illustrate the long run trend that nations exhibiting lower disparity tend to experience faster growth, interpreting this as an indication that governments implementing inequality-reduction policies could enhance long-term growth is valid. However, these cross-country results fail to precisely examine how changes in disparity within a particular nation correlate with growth within that nation (Forbes, 2000). Upon analysing the correlation between growth, as the first control variable, and income distribution, the thesis will then explore the link between income distribution and unemployment as the second control variable in the econometric model. This connection will be depicted in Table 4.14.

Table 4.14. The results of control variable- unemployment

Negative coefficient (statistically significant)	Positive coefficient (statistically significant)	Negative coefficient (statistically insignificant)	Positive coefficient (statistically insignificant)
Austria	Estonia	Belgium	Czechia
Hungary	Greece	France	Denmark
UK	Ireland	Germany	Finland
USA	Italy	Lithuania	Latvia
	Netherlands	Luxembourg	Poland
	Norway	Portugal	Slovakia
	Slovenia		Sweden
	Spain		
	Switzerland		

Source: Author's construction.

The majority of the studies in literature argues that an increase in the unemployment rate negatively affects income distribution in society. The test results for Estonia, Greece, Ireland, Italy, the Netherlands, Norway, Slovenia, Spain, and Switzerland support this argument. These findings are in line with the studies executed by Niehues (2010), Faustino and Vali (2011), Cosmin (2012), Cimoli et al. (2017), Şenol & Ayhan (2021), as well as Verberi & Yaşar (2021). However, for Austria, Hungary, the UK, and the USA, the test results suggest that rising unemployment exerts beneficial influence on income distribution.

These results for Belgium, France, Germany, Lithuania, Luxembourg, and Portugal show that the coefficients are negative and statistically insignificant. Conversely, for Czechia, Denmark, Finland, Latvia, Poland, Slovakia, and Sweden, the same test results provide positive and statistically insignificant coefficients. These findings are also consistent with authors in the literature who claim that there can be both negative and positive relationships between unemployment and income distribution. For example, Cantillon et al. (2003) provided empirical evidence suggesting that despite stable social expenditures and decreased unemployment rates income inequality did not decrease during the 1990s in several OECD countries.

Though the literature generally anticipates a positive correlation between unemployment and the deterioration in income distribution, various modelling has shown that this relationship may not always be as expected and they can exhibit both positive and negative coefficients (Nielsen and Alderson, 1997). The key determinant of the observed negative correlation between unemployment and income inequality lies in the evolving socioeconomic conditions, which have led to shifts in the unemployment framework and its relationship with income distribution over time. Primarily, the increasing preference of women for forming single-parent households and consequently their heightened participation in the workforce led to a decrease in unemployment. However, because of this participation, instead of an improvement in income distribution, a tendency towards its deterioration was observed. This can be explained via two main reasons. Firstly, due to lower wages and more frequent part-time work for women, their increased labour force participation reduces unemployment but disrupts income distribution (Thurow, 1987). Secondly, although the entry of women into the workforce reduces the unemployment rate, marriages between high-earning women and high-earning men result in both spouses being part of the labour force, which undermines income distribution by favouring higher-income households (Nielsen and Alderson, 1997).

Previous examinations have sought to establish the inverse connection between income inequality and unemployment based on the sectors and jobs. For instance, in the early 1970s, industrialization led to a decline in the manufacturing sector, resulting in two consequences. Firstly, there was an increase in the proportion of low-wage employment, and secondly, income inequality increased. The manufacturing sector typically offers higher wages and a more equal wage distribution compared to the service sector. As a

result, the transition from the production industrial sector to the service-oriented industries not only exacerbated inequality but also led to greater inequality (Bluestone, 1990). Therefore, it became apparent during those years that a decrease in unemployment did not always result in a positive effect on income dispersion.

The conclusion that the decrease in unemployment negatively affects income distribution has emerged in many studies lately, moreover. Researchers have endeavoured to explain the phenomenon by examining the incomes of employed. The research findings have revealed significant income disparities among those currently employed. This phenomenon is termed job polarization, was first introduced by Goos & Manning (2007) in their study conducted for the UK, indicating a decline in the employment rate in middle-skilled, routine occupations. Additionally, during periods when the demand for skilled laborers increases while the supply of skilled laborers remains constant (Lorenzen, 1999), job polarization intensifies further. Around the same period, Autor et al. (2003) observed a decline in the employment proportion of routine occupations, typically associated with middle-wage positions, in the USA. Subsequent studies revealed a similar situation in many advanced countries (Böhn, 2019). Over time, with technological advancements, the demand for skilled laborers has increased significantly, making job polarization one of the most pressing issues in public finance. Acemoglu (2002) argues that the recent surge in global inequality is primarily attributed to the acceleration in skill bias resulting from technological advancements favouring skilled workers over unskilled ones. This technological change enhances the relative productivity of skilled workers, thereby increasing their relative demand and the associated skill premium.

Another agent considered when examining income inequality is the minimum wage. Minimum wage policies not only shape national income distribution patterns across countries but also hold the potential to influence income distribution within individual economies (Filauro et al., 2003). Thus, the minimum wage has been considered a crucial component of public policy aimed at reducing poverty and inequality. Increasing the minimum wage is expected to elevate earnings for numerous low-wage workers, thereby potentially reducing earnings inequality (Lin and Yun, 2016). The analysis indicates that rising the statutory minimum wages to 60% of national median earnings has the potential to decrease the EU-level Gini coefficient for disposable incomes by 0.75% (Filauro et al., 2003). Determining the minimum wage at a level that does not align with cyclical market

conditions and the increasing number of minimum wage workers can hurt income distribution. In such a scenario, although unemployment may appear to decrease, the outcome would be a distorted income distribution. In conclusion, while the changing role of women in the family structure, their entry into the workforce, and the increasing number of laborers with minimum wage may lead to a decrease in the unemployment rate, this decrease alone is insufficient to rectify income distribution. Additionally, the wage disparities between jobs create income inequality among laborers.

Examining the relationship between unemployment as the second control variable and income distribution, the thesis will then explore the link between income distribution and trade openness as the third control variable in the econometric model. This connection will be depicted in Table 4.15.

Table 4.15. The results of control variable- trade openness

Negative coefficient (statistically significant)	Positive coefficient (statistically significant)	Negative coefficient (statistically insignificant)	Positive coefficient (statistically insignificant)
Austria	Estonia	Belgium	Denmark
Hungary		Czechia	France
Ireland		Finland	Greece
Lithuania		Germany	Italy
Luxembourg		Latvia	Poland
Norway		Netherlands	Spain
Slovenia		Portugal	Sweden
Switzerland		Slovakia	UK
		USA	

Source: Author's construction

The countries for which the coefficient between trade openness ratio and income distribution is negative and statistically significant, indicating that decreasing openness disrupts income distribution, are Austria, Hungary, Ireland, Lithuania, Luxembourg, Norway, Slovenia, and Switzerland. In contrast, for Estonia the coefficient is positive, emphasizing that increasing openness disrupts income distribution. On the other hand, for Belgium, Czechia, Finland, Germany, Latvia, Netherlands, Portugal, Slovakia, and the

USA, the coefficients are negative and insignificant, while for Denmark, France, Greece, Italy, Poland, Spain, Sweden, and the UK, they are positive and insignificant.

Firstly, the findings of the thesis regarding the adverse effect of a decline in the openness rate on income distribution in Austria, Hungary, Ireland, Lithuania, Luxembourg, Norway, Slovenia, and Switzerland align with the findings obtained from the studies of Barro (1999), Heshmati (2007), Faustino & Vali (2011), Zhou et al. (2011), Holzner (2010), Cimoli et al. (2017) and Fischer (2001). Secondly, conversely, the findings regarding the beneficial effect of the decrease in openness rate on income distribution in Estonia aligns with the conclusions drawn from the studies of Spilimbergo et al. (1999) Atkinson (2015), Aghion et al. (1999), Beer & Boswell (2002), Lundberg & Squire (2003), Gourdon et al. (2008), Bergh & Nilsson (2010), Cassette et al. (2012), Eroğlu et al. (2017), Verberi & Yaşar (2021), and Gorjon et al. (2023), lastly, the finding discovering the connection between trade openness and income dispersion to be meaningless, corroborate the those of the results of Edwards (1997), Dollar & Kraay (2001), as well as Pavcnik et al. (2004).

Globalization has brought about the phenomenon of openness. Advancing technology since the 1980s has accelerated international trade and capital flows, seemingly eliminating borders between countries, and transforming the world into an interconnected market through invisible networks. This situation has given rise to two distinct phenomena: financial openness and trade openness. These two types of openness have altered the inflow and outflow of capital and goods between countries, leading to various social, economic, and financial outcomes. The literature presents diverse perspectives on these outcomes. In this context, we will endeavour to analyse the association between trade openness and the dispersion of income.

Authors who argue that a growth in openness ratio would positively affect income distribution primarily reference the Stolper-Samuelson Income Distribution Theory (1941). Depending on this theory the authors proclaim that trade openness increases the real remuneration of the factor that is abundant in a nation while decreasing the real income of the factor that is scarce. So, with increased trade volume due to trade liberalization, the income of the abundant factor in the country will increase, thereby resulting in positive outcomes for income distribution. This situation arises through two channels. Firstly, trade liberalization can affect income distribution by altering the relative demand or supply of

production factors, thereby influencing the relative shares of production factors in national income. Secondly, openness can affect income distribution both by influencing the sources of asset inequality and by directly altering relative factor incomes, thereby impacting income distribution (Değer, 2006: 81).

Studies argue that openness has a positive impact on income distribution because open economies provide more growth compared to closed economies (Krueger, 1980). This can be true as openness can increase total welfare; however, the welfare generated is not evenly distributed among individuals in society, thus having a disruptive effect on income distribution. This effect, arising from wage distribution, can vary among countries depending on their level of development and the educational level of their workforce (Figini and Görg, 2011). The main reason for this phenomenon, an increase in the openness ratio, supported by technological advancements raise the demand for qualified labor. When this demand encounters limited growth in the supply of qualified labor, this exacerbates the income disparity between highly skilled and low-skilled workers (Atkinson, 2015). Thus, in countries with an abundance of highly skilled workers and capital and workers who have very low levels of education, trade openness can create increases in income inequality (Gourdon et al., 2008). In this situation trade openness not only increases vulnerability of emerging countries but also it increases this vulnerability in advanced market economies (Beer and Boswell, 2002). Trade flows also facilitate the introduction of new technologies and ideas, which in turn enhance the productivity of all workers, with a particularly pronounced effect on skilled workers again. As a consequence, the impact of openness to global trade on income distribution will differ based on the labour capacity of individual countries (Aghion et al., 1999). Spilimbergo et al. (1999) suggest that for countries abundant in land and capital, the coefficient between income inequality and openness is positive, whereas, for countries abundant in skills, this coefficient is negative but Sauer et al. (2023) advocates that the impacts of globalization on income inequality vary by region. As for the global impact of openness, it is inferred that wealthy individuals in affluent countries accelerate the disruption of global income distribution by investing in other countries to generate more income.

At this juncture, examining the influence of openness on income allocation necessitates concurrently analysing the relationship between openness and public expenditures. According to the open economy hypothesis (Lindbeck, 1976, Cameron, 1978),

open economies need to increase public spending over time compared to closed economies. The literature proposes two different theories to explain tax and expenditure policies in the case of trade openness. First, compensation theory is related demand side, according to this theory, the irregular flow of income and uncertainty brought about by globalization will lead to increased demand for social protection (Martin and Steiner, 2013). This heightened risk is anticipated to drive an increase in expenditures. Secondly, the efficiency theory underscores the supply-side effects of globalization in the competitive environment brought about by globalization, governments are compelled to reduce taxes to protect local firms competing with foreign direct investment. Decreases in corporate taxes and income taxes from capital at the international level result in a drop in central government expenditures, especially in social transfers (Gemmell et al., 2008). A decrease in transfers will disrupt income distribution.

Trade openness as the third control variable has been examined about income distribution. Following this, the thesis will investigate the association between income inequality and population within the econometric model. This relationship is illustrated in Table 4.16 below.

Table 4.16. The results of control variable-population

Negative coefficient (statistically significant)	Positive coefficient (statistically significant)	Negative coefficient (statistically insignificant)	Positive coefficient (statistically insignificant)
Finland	Austria	Czechia	Belgium
France	Germany	Hungary	Denmark
Greece	Ireland	Portugal	Estonia
Poland	Norway	USA	Italy
Slovakia	Sweden		Latvia
Slovenia	Switzerland		Lithuania
Spain			Luxembourg
UK			Netherlands

Source: Author's construction.

Many studies emphasize that an increasing proportion of the elderly population disrupts income distribution as they consume without contributing to production. This expectation is confirmed for Austria, Germany, Ireland, Norway, Sweden, and Switzerland, whereas the opposite result is found for Finland, France, Greece, Poland, Slovakia, Slovenia, Spain, and the UK. Alternatively, the test findings indicate that the coefficients are negative and statistically insignificant for Czechia, Hungary, Portugal, and the USA, while for Belgium, Denmark, Estonia, Italy, Latvia, Lithuania, Luxembourg, and the Netherlands, they are positive as well as statistically insignificant.

The increase in retirement pension and elderly assistance benefits, which are the components of social protection expenditures, can elevate the position of elderly citizens in the income distribution, potentially moving those in the lowest income brackets toward the middle-income bracket. In this scenario, it could be observed that the relatively high proportion of the elderly citizens does not have a negative influence on income dispersion (Levy and Michel, 1991). Upon examining the coefficient estimation results, it is observed that, for Finland, Slovakia, Spain, and the UK, social protection expenditure yields a 1% statistically significant level of positive outcomes in income distribution under Model 3. Hence, social protection expenditures can be attributed as a reason for not adversely affecting income distribution amidst the increase in elderly population rates in these countries. Conversely, social protection expenditures in France and Poland are seen to have negative coefficients but statistical insignificance. In this regard, conducting new analyses centring on the second level of social protection expenditures according to the COFOG may contribute a clearer and expanded viewpoint to understand the impact of old-age benefits' expenditures on income distribution.

Beyond the assertion that social expenditures positively influence income distribution and the adverse effects of an aging population on income distribution can be alleviated, other arguments explain this relationship in the literature. For example, based on the life-cycle hypothesis (Modigliani and Brumberg, 1954; Ando and Modigliani, 1963), individuals can reach the peak of wealth just before retirement. Therefore, they can use the cash they accumulated when they were young to offset income loss as they age. Saving money for retirement prevents an increase in inequality during old age. In wealthy countries where intergenerational wealth transfer through inheritance is high, inequality

may not be experienced during old age. So, if the next generation is better off than the previous one, income distribution will not be disrupted during old age.

To mitigate income loss during retirement, various types of retirement income can be generated. This approach is implemented in industrialized nations like the Netherlands and the UK. These nations feature three distinct sources of retirement income. Firstly, there is income provided by the state; secondly, there is the occupational pension system, which is facilitated by the government and entails mandatory participation; and finally, there is the individual pension system. Government-provided income in both countries represents half of all retirement income, with the remaining half derived from the mentioned two systems (Schils, 2008). Consequently, private pension and occupational pension systems are well-developed in both countries. To foster this development, employees are supported in entering the private pension system (Schils, 2005). Meuwissen (1993) estimates that apart from social security benefits provided by the state, approximately 80% of households aged 65 and above began receiving income from various supplementary pension schemes, such as occupational pensions, after 1989 in the Netherlands (Kerkhofs et al., 1999). In this study, the coefficient for the Netherlands was identified as positive yet statistically insignificant. Despite the implementation of a system aimed at elevating the elderly to the mid-levels of income distribution in the country, it appears that the desired outcome in income distribution has not been achieved through this system. The issue may stem from institutional structures or ineffective investment of the collected funds. Conducting a country-specific case study can be advisable to comprehensively ascertain this situation.

Retirement pensions are typically lower than regular incomes, which means aging usually exacerbates income inequality. However, the ultimate impact of this is significantly dependent on the tax and transfer system, retirement savings, various types of retirement income, individual retirement decisions, governance capabilities of state, its capability to collect contributions, manage investments, and pay benefits (Turner, 1998). Indeed, this situation will vary from country to country. After examining the connection between population aging and income dispersion, this section of the thesis will proceed by examining the effect of crises on income distribution.

Periods of crisis possess the capacity to engender significant social challenges and disruptions. Households, employers, and employees all feel the economic problems during these times. In particular, when economic crises become financial crises, bankruptcies

increase, unemployment becomes a major problem, consumption declines and a path to social turmoil begins. Social expenditures are the most effective instrument for governments to prevent economic crises from becoming social crises. However, during times of crisis, income distribution is likely to worsen considerably. This necessitates an investigation into the implications of crises on income disparity. To explore this, a crisis dummy variable is integrated into the models. The outcomes illustrating the connection between income distribution and the dummy variables are detailed in Table 4.17.

Table 4.17. The results of the dummy variable

Negative coefficient (statistically significant)	Positive coefficient (statistically significant)	Negative coefficient (statistically insignificant)	Positive coefficient (statistically insignificant)
Hungary	Denmark	Belgium	Austria
Spain	Greece	Czechia	Estonia
	Poland	Finland	France
	Switzerland	Ireland	Germany
	UK	Latvia	Italy
		Luxembourg	Lithuania
		Netherlands	Norway
		Portugal	Slovakia
		Slovenia	Sweden
		USA	

Source: Author's construction.

According to the results of the coefficient estimation, the countries that exert a positive impact on income distribution during times of crisis—indicated by negative and significant dummy coefficients—are Hungary and Spain. In contrast, in Denmark, Greece, Poland, Switzerland, and the UK, the Gini coefficient increases, reflecting a deterioration in income distribution during periods of crisis. The same test results show negative and insignificant coefficients for Belgium, Czechia, Finland, Ireland, Latvia, Luxembourg, the Netherlands, Portugal, Slovenia, and the USA. However, for Austria, Estonia, France, Germany, Italy, Lithuania, Norway, Slovakia, and Sweden, the coefficients are positive and insignificant. The impacts of various social expenditures on income dispersion during

the crisis period can be summarized as follows, if we assume that the results obtained from the dummy variable are related to social expenditures:

- **Health Expenditures and Crises:** Periods of crisis are challenging times that affect the population as a whole both socially and economically. Many commentators express concern that crises can have adverse effects on public health. These effects may stem from job losses, which can contribute to mental health issues or addiction problems. According to a study, each 1% rise in unemployment corresponds to a 0.79% increase in suicide rates among individuals under the age of 65. Additionally, as a response to stress, individuals may resort to unhealthy behaviours, like consuming inexpensive, low-nutrient foods or smoking. Moreover, overburdened healthcare services or delays in seeking care due to concerns about additional costs can result in poor disease management (Stuckler et al., 2009). The recent COVID-19 crisis has once again highlighted that during periods of crisis, inequalities in health exacerbate, leading to further disparities in living conditions and access to services. The extent of inequality is influenced by local community factors, including age demographics and the availability of healthcare services within the area. It is observed that socially deprived communities are more vulnerable than others (Königs and Vindics, 2021). While the expectation from health spending during crisis periods is to have favourable effect on income distribution (Sánchez and Pérez-Corral, 2018), there may also be instances where the opposite effect occurs. For instance, the deteriorating financial structure because of the negative effects of the crisis may lead to an increase in the quantity of healthcare spending, but a decline in its quality. Constrained by the crisis, governments cannot increase the number of healthcare workers. Additionally, there may be a tendency to opt for cheaper and lower-quality healthcare materials from less expensive sources. As a result of the high burden in healthcare facilities, health-related problems may not be fully resolved, leading to long-term unresolved problems and a decrease in human capital. Because of this declining trend of human capital, unemployment can rise, and a decrease can be seen in income earned, ultimately leading to a deterioration in income distribution. While healthcare spending during crisis periods is thought to exert a short-term positive effect on income disparity and may prevent any social turmoil, its long-term effect remains uncertain.

- Education Expenditures and Crises: Economic crises are the most significant factor disrupting income inequality and exacerbating poverty. However, an important tool that can be employed to combat poverty is to increase human capital through education expenditures. So, what is the expected nature of the correlation between education spending and income dispersion during crisis periods? The nature of this correlation may be uncertain. Increasing education expenditures can enhance human capital and skills, thus possibly alleviating income disparity in the long run. Yet, in the short term, due to the crisis, there may be cutbacks in education spending or a decline in educational quality, which could exacerbate income disparity. The net influence of education spending on income dispersion during the crisis can vary depending on policy decisions taken, the nature of expenditures, and the severity of the crisis (Sánchez and Pérez-Corral, 2018). Unemployment is the most crucial issue regarding human capital. As unemployment increases, skills decline, which means that individuals at the bottom of the socio-economic spectrum have less human capital at the end of the crisis than their wealthier counterparts. This exacerbates inequality and prolongs the effects of the crisis (Stiglitz, 2015). In the event of crises, governments can initially resort to expanding their social expenditures to diminish the harmful impacts on the less affluent sections of society. However, fiscal constraints force them to make significant reforms to their social expenditures, including substantial cuts to public services. Furthermore, if the crisis is a debt crisis, which tends to last longer than banking and currency crises, spending cuts may last longer. This situation disproportionately impacts low-income groups, who rely more heavily on government support during crisis, thereby diminishing their human capital and hindering their ability to break free from poverty. Additionally, when a crisis begins, incumbent governments, uncertain about their future re-elections, are less inclined to benefit from long-term social policies. Instead, they often prioritize short-term policies over long-term development goals. In this scenario, economic actors are also less inclined to invest in human capital formation, including education, training, skills development, and healthcare services. As a result, with fewer people engaged in high-skilled activities and accessing quality education services, income inequality between the rich and the poor may widen (Nguyen, 2022).
- Social Protection Expenditures and Crises: Social systems undeniably serve as a pivotal mechanism for automatic stabilization in the initial stages of a crisis; however, they can also show signs of weakening over time. Accordingly, the efficient

functioning of the social system will have beneficial effect on income distribution during the crisis. However, as the crisis progresses, decreasing tax revenues and increasing expenditures, especially social expenditures, will disrupt fiscal balances and lead to budget deficits. Although social protection expenditures implemented at the beginning of the crisis, which directly affect income distribution, prevent further deterioration of income distribution in the short term, they will hurt this distribution because of austerity measures in the long term (Bontout and Lokajickova, 2013). The extent of social protection expenditures during crisis periods varies across countries, as the effects of the crisis can spread differently depending on each country's degree of integration with the global economy, as well as their domestic financial systems and policies. Within each country, the influence has also varied determined by the structure of the labour force sector. The crisis first affects formal-sector workers and then extends to unregistered workers, and consequently the broader economy through various channels. To summarize, macro-level shocks can affect those at the different levels of income distribution through five main channels: transfers from public and private sectors, price levels, assets, workforce participation, and accessibility to goods and services. The way in which these shocks are transmitted through these channels dictates who is affected, the severity of the impact, and the duration of the consequences (McCord, 2010). These channels and their level of influence will also have an impact on any disruption to income distribution. In this case, spending on social protection can be negatively associated with income inequality in times of crisis, since of all the components of social expenditures, the redistributive function is performed exclusively by spending on social protection (Sánchez and Pérez-Corral, 2018). Formal authorities play a central role in economies by providing public services, altering income distribution, and mitigating the volatility of the business cycle through automatic stabilizers and possibly through active fiscal policy. Their financing methods, such as taxation and borrowing, and the size, structure, and purpose of their spending have a significant impact on other economic units (Wahrig and Gancedo Vallina, 2011). For workers, unemployment insurance is the main protection they receive if they are made redundant in times of crisis. For households, cash transfers are the most frequently used social protection expenditure in times of crisis to support their consumption. Although the effect of the crisis and the extend of social protection spending differ across countries, a positive correlation exists between social protection expenditure, employment rates, and GDP per capita, while a

negative correlation is observed with income disparity and poverty during crisis periods (Emmanouil-Kalos and Prokakis, 2021).

Regarding the influences of social expenditures on income dispersion, some authors argue that social expenditures during times of crisis exerts a favourable effect on income distribution, as recommended by Kiendrebeogo et al. (2017), while others, such as Verberi & Yaşar (2021), claim the opposite, asserting that such expenditures adversely affect income distribution. Sánchez & Pérez-Corral (2018) advocate those public social expenditures correlate negatively with income inequality during periods of economic crisis, although not all expenditure components have the same impact, moreover, findings indicate that public social expenditures and their components have varying effects on income distribution across different countries.

This section of the thesis presents the coefficient estimates obtained for each country collectively, and they are analysed collectively as well. For this purpose, Table 4.18 is compiled, summarizing the countries that have the potential to positively effect income distribution through social expenditures.

Table 4.18. Countries potentially mitigating income inequality through social expenditures

Health Expenditure	Education Expenditure	Social Protection Expenditures	Total Social Expenditures	Total Human Capital Expenditures
Estonia	Estonia	Estonia	Estonia	Estonia
Finland	Finland	Finland	Finland	Finland
Greece	Greece	Lithuania	Ireland	Greece
Italy	Ireland	Luxembourg	Lithuania	Ireland
Lithuania	Luxembourg	Slovakia	Luxembourg	Italy
Luxembourg	Switzerland	Spain	Sweden	Lithuania
Poland	UK	Sweden	Switzerland	Luxembourg
Switzerland		UK	UK	Switzerland
				UK

Source: Author's construction.

As clearly evident from Table 4.18, Estonia, Finland, and Luxembourg emerge as the most effective among the analysed countries in achieving income equality through their social expenditures across all five models. Additionally, Lithuania demonstrates effectiveness in income distribution through its expenditures other than education expenditures, while Switzerland and the UK effectively affect income distribution through expenditures other than social protection and health, respectively. Greece, with its success in both health and education, has the capacity to beneficially influence income distribution in the field of human capital. Furthermore, the results suggest that Ireland can improve income distribution through both total social and human capital expenditures, given its effective coefficient in the education domain. Italy appears effective with its health and human capital expenditures, whereas Sweden's effective status in social protection expenditures suggests its ability to improve income distribution through total social expenditures. Slovakia and Spain achieve a drop in the Gini coefficient solely through social protection expenditures, while Poland records a fall in the Gini coefficient through total health expenditures. Thus, some selected countries successfully achieve the desired positive impact on income distribution through their social expenditures, while others fail to do so. Countries that do not show effective results on income distribution through their social expenditures are summarized in Table 4.19.

Table 4.19. Countries ineffective in mitigating income inequality through social expenditures

Health Expenditure	Education Expenditure	Social Protection Expenditures	Total Social Expenditures	Total Human Capital Expenditures
Denmark	Belgium	Italy		Belgium
Hungary	Poland			Hungary
Portugal				Portugal
USA				

Source: Author's construction.

According to the results obtained from coefficient estimation, countries experiencing a detrimental effect on income distribution through social expenditures do not encounter this effect in every model. Table 4.19 apparently shows that Denmark and the USA faced a detrimental effect only through health expenditures, Poland solely through education expenditures, and Italy merely through social protection expenditures. Additionally,

Hungary and Portugal faced a detrimental effect through both health and human capital expenditures, while Belgium encountered this effect through education and human capital expenditures on income distribution.

The results indicate that when total social expenditures are examined without disaggregating into sub-components, they either positively influence income distribution, as expected in the literature, or yield statistically insignificant results. In this thesis, among the selected OECD countries, none exhibit a statistically significant negative impact on income distribution via total social expenditures. However, it becomes apparent that social expenditures may exert an adverse influence on income distribution only when disaggregated into sub-components in some countries. Therefore, examining social expenditures based on their sub-components can provide a more accurate approach when implementing policies to improve income distribution.

When examining the country-specific results on income inequality in times of crisis, two countries stand out, namely Hungary and Spain, which were able to record positive improvements in income distribution during these times. According to test results, in Hungary during the non-crisis period, unlike Spain, a positive coefficient has been identified in all five models. However, among these coefficients, only the detrimental effect of health expenditures and human capital expenditures on income distribution has been found statistically significant. On the other hand, Spain's coefficients for health and total social expenditure are negative and statistically insignificant, while the coefficients for education and human capital expenditure are positive and insignificant during the non-crisis period. Social protection expenditures in Spain, however, have a beneficial effect on income distribution at a significance level of 1% during this time. From this perspective, the test results for Hungary during crisis periods appear to be more noteworthy. Hungary is particularly determined to generate a statistically remarkable positive effect on income distribution during crisis periods at the 1% significance level. If Hungary managed to achieve this effect through social expenditures in times of crisis, the reason it could not maintain this success in the post-crisis period could be investigated.

In certain circumstances, social expenditures have the potential to generate a favourable and transformative impact on the dispersion of income during times of crisis, while the same expenditures can harm this distribution in non-crisis times, or vice versa. The key point to consider here is whether there is a direct link between the allocation of

social expenditures in the budget and the distribution of income, both in times of crisis and in non-crisis times. In general, it has been shown that countries with higher social expenditures are less effective in reducing inequality. Researchers therefore recommend a balanced approach between the inequality dimension, effect and efficiency of social expenditures. The reduction in the effectiveness of social expenditures during crisis periods is primarily due to the poverty dimension. In these times, both the extent and the prevalence of poverty increase, leading to an expected decrease in the favourable influence of social expenditures (Cyrek, 2019). It is clear from this discussion that simply increasing social expenditures is not the solution to eliminating income disparity in society. Instead, it is imperative to clearly define the components, target groups, and objectives of expenditures and measure their results to increase the efficiency of spending and achieve the expected positive impact on income distribution. However, it should also be noted that social expenditures have the characteristic of promoting human capital, which means that some results may not be measurable in the short term.

Times of crisis are difficult times that may require the implementation of extraordinary reforms to solve certain problems. Governments have limited time to act in times of crisis, and the effective management of that limited time is crucial to the backbone of all reforms. Support from parliament and the public is also crucial to the success of these reforms. While the absence of checks and balances, including the Constitutional Court, may not be ideal in terms of public financial management, it can speed up the process of activating reforms like in Hungary (Szikra, 2014). Governments that adopt this approach are expected to foster a favourable effect on income distribution in times of crisis. However, this approach also harbours certain risks. In times of crisis, the active use of fiscal policy may require exceeding the natural limits of the budget. Governments that finance social expenditures through borrowing can successfully influence income distribution. However, austerity measures after the crisis, which are often linked to cuts in social transfers, can harm income distribution again. Although the correlation between social expenditures and the intended outcomes of these expenditures in terms of income distribution can be precisely established in times of crisis, how these expenditures are financed could turn short-term positive outcomes into negative ones in the future and cause long-term disruption to fiscal balances. Furthermore, the decision to abandon the implementation of the reforms introduced during the crisis due to changes in government and to return to the previous system will result in the gains made during the crisis being lost again. Therefore, the ability to correct income

distribution in the short term is not so much an achievement as a temporary solution. The most important element in public finances is sustainability. If this element is not guaranteed, temporary successes will be seen as failures in the long term.

Suppose the situation is briefly examined on a country-specific basis. In that case, Hungary is seen to be recognized for its significant investment in family policies, particularly in childcare services and extended periods of parental leave, which adhere to the income replacement principle. Perhaps as a result of this generosity's influence, between 2001 and 2006, the Hungarian government pursued an unsustainable fiscal policy. In 2006, austerity measures were introduced to rectify the deteriorating financial structure, primarily consisting of significant tax hikes and expenditure cuts. Despite these efforts, insufficient spending cuts resulted in a reduction in the nation's economic growth rate. Nevertheless, these measures enabled the reduction of budget deficits to a reasonable level by 2008. Amidst the onset of the global economic crisis, Hungary promptly made necessary adjustments, secured substantial loans from international organizations, and implemented various reforms in social protection (Simonovits, 2016). The implementation of austerity measures in Hungary before the 2008 crisis, resulting in a balanced financial statement, could have potentially exerted a positive influence on income distribution during this period. Otherwise, in response to the initial phase of the COVID-19 outbreak, Hungary enacted comprehensive measures to safeguard employment and businesses. The prompt response of the Hungarian government involved the declaration of a State of Emergency. The social policy initiatives implemented by the government primarily focused on preserving employment opportunities and deferring loan and tax obligations. Additionally, measures related to family and housing policies were introduced to alleviate the hardships faced by the populace (Aidukaite et al., 2021).

Due to the 2008 financial crisis, Spain witnessed a cumulative decline in GDP from 2009 to 2013, amounting to 6.4 % overall. However, the recession experienced in Spain was not as severe compared to its surrounding countries (Serrano et al., 2016). Cyrek (2019) examined the performance of Spain regarding poverty and inequality dimensions with social expenditures efficiency, the writer found that the country experienced an improvement in reducing inequality via social expenditures. This enhancement is attributed primarily to the reforms mandated in the public sector as a response to the economic crisis. Rodríguez & Barac (2019) examined Spain between 2006 and 2016 to assess the influence

of the economic crisis on household expenditures. They claimed that expenditure inequality decreased during the studied period and added that a downward equalization tendency was particularly evident during the economic crisis period from 2008 to 2013. When examining social expenditures and income inequality during the COVID-19 outbreak in Spain, it is apparent that government transfers have been highly effective in mitigating the expected increase in inequality and offering essential safety nets to the most affected segments of the population. In the absence of government intervention, inequality would likely have risen substantially, particularly due to job losses and wage reductions among low-income workers. Public transfers and unemployment insurance programs served as a crucial safety net for the most affected groups, proving highly effective in stabilizing income distribution (Aspachs, et al., 2022). While Hungary experienced the 2008 global financial crisis and the pandemic, Spain deeply felt both crises alongside the European debt crisis. Both countries attempted to positively affect income distribution through active fiscal policies and social expenditures during times of crisis. In this context, conducting country-specific case studies would be appropriate to fully understand the varying effects of crisis-period social expenditures and post-crisis social expenditures on income inequality.

5. SUMMARY CONCLUSIONS AND POLICY IMPLICATIONS

Income, representing the ability of citizens in a country to meet their needs, is considered one of the best indicators that can be used to measure the well-being of different members of society. It cannot be expected that every member of society will have equal conditions of well-being, so, there can be welfare and income gaps among individuals and households. These societal disparities may arise from inherent differences among people, such as individual abilities like educational capacity and openness to entrepreneurship and innovation, as well as wealth passed down from past generations. Additionally, the gap may stem from institutions and governments distributing the total income among society members unfairly. Fundamentally, fiscal policy implemented by governments can significantly influence household disposable income. This policy can directly affect this income through taxation and transfer payments. Moreover, it can have an indirect effect through expenditures like infrastructure investment and human capital spending. Based on this mentioned effect of governments, attributing the recent rise in income inequality to administrative factors is a widespread argument, however, the issue is more intricate than commonly portrayed, and accurately measuring income inequality within society poses significant challenges. This complexity arises from the multidimensional nature of factors influencing income distribution inequality, the limited availability of sufficient data on many of these factors, and the challenge of analysing them collectively. Research conducted on income inequality offers only a partial view of the issue, considering the many social, political, and economic factors influencing income distribution inequality. Nevertheless, countries, irrespective of their developmental stage, are dedicated to addressing this issue and they engage in diverse research efforts to understand its underlying causes of disparity in income distribution.

Continuous fluctuations in income distribution are evident worldwide. According to Milanovic (2006) the global Gini index increased by nearly 3 points between 1988 and 1993, then declined 1 point by 1998, followed by subsequent 1 point increase by 2002. Similarly, Human Development Report (UNDP, 2010) indicates that inequality declined substantially, with the global Gini coefficient falling from 0.68 to 0.61 between 1970 and 2006, primarily

driven by China's economic growth. Nevertheless, some studies have claimed that global income inequality worsened after 1988, with the Gini coefficient reaching a striking 0.71. Additionally, the World Development Report (Kanbur and Lusting, 2001) indicates that in the wealthiest 20 countries, GDP per capita increased by 37 times compared to the poorest 20 countries. By the year 2000, inequality had doubled compared to the levels observed 40 years earlier. As indicated by various estimations, trends in global income inequality remain highly sensitive to differences in estimation methods and datasets. So, despite occasional improvements, global income distribution continues to deteriorate over time. To address global inequality, prioritizing fair income distribution among individuals within societies is paramount. This holds significant importance in discussions surrounding the fundamental drivers of disparities in social and economic well-being worldwide.

The level of inequality pertains to the factors, mechanisms, and implications of disparities in income distribution within a society. While the literature acknowledges the possibility of market-based inequalities in income distribution within society, it emphasizes the crucial role of government-implemented social expenditures in minimizing these inequalities to the greatest extent possible. Additionally, the literature frequently underscores that the basis of social expenditures is closely tied to the financial capacity of countries. Indeed, high-income countries allocate significantly more resources to social expenditures relative to low-income nations. Consequently, it can be logically inferred that the extent of economic development may influence social expenditures; in high-income countries, more resources may be available to allocate towards social programs to mitigate the negative impacts on vulnerable populations while less affluent nations may face greater constraints with regard to financial resources, limiting their ability to maintain or increase social expenditures. However, can increasing social expenditures in quantity alone suffice to combat income inequality? If so, why does income inequality persist as a problem in both advanced and emerging countries? The pursuit of answers to these questions is often at the forefront of discussions aimed at comprehensively understanding the association between income inequality and social expenditures.

While social expenditures are generally viewed as a unified category, they are systematically classified into meaningful components. In broad terms, social expenditures are typically divided into three main categories: health, education, and social protection. These three types of expenditures are designed to support individuals at the lower end of the

income strata and ultimately improve income distribution. Yet, they differ in terms of contents, outcomes, and the time required to achieve their goals. For instance, health and education expenditures are highly effective in fostering growth, both independently and synergistically, and they can enhance human capital. However, it may take a considerable amount of time to create the impact of these investments. Health and education expenditures predominantly cover the service sector. Meanwhile, social protection expenditures, typically in the form of cash transfers, can have an immediate impact on income distribution, allowing for rapid assessment of their effectiveness. Social protection expenditures can significantly affect the consumption levels of financially vulnerable households, especially during periods of unemployment and economic crises. The literature has extensively examined the role of these three expenditure types in shaping income distribution, both individually and collectively under the category of social expenditures. Based on the findings, while social expenditures, when considered in their entirety, exert a favourable influence on income distribution, certain individual components of social expenditures may have the opposite effect. In such cases, unexpected negative impacts, namely the disruptive effects of social expenditures on income dispersion, may prompt the presentation of diverse and meaningful insights regarding the origins of the issue. The main reason for the adverse influence of certain social expenditures on income dispersion arises from the unequal access to these allowances. Particularly, the disproportionate consumption of state-provided education and health expenditures by individuals in the middle and upper-income brackets exacerbates existing disparities in income distribution. Furthermore, effective planning, targeted expenditure allocation, and the establishment of necessary institutional frameworks for efficient resource utilization are crucial factors in ensuring that expenditures positively affect income distribution.

In this context, an empirical analysis is conducted in this thesis to explore the interplay between social expenditures and income distribution across 26 selected OECD countries, utilizing available data from 1995 to 2021. The analysis employs the AMG coefficient estimator, recognized as one of the more recent methods in the field, capable of estimating coefficients for both panel and cross-section data. Social expenditures, alongside various control variables, are integrated into the analysis as the three primary expenditure categories representing the first breakdown of the COFOG. According to the panel results, a decrease of approximately 0.04% in health expenditures, about 0.11% in social protection expenditures, 0.11% in total social expenditures (encompassing health, education, and social

protection), and 0.06% in total human capital expenditures (comprising education and health expenditures) lead to an increase in the Gini coefficient. Therefore, the results demonstrate that social expenditures impose a significant positive outcome on income distribution. Nevertheless, while a positive influence of education expenditures on income distribution is noted, the obtained result lacks statistical significance.

Examining the estimation results for the panel in the context of control variables reveals that changes in per capita income do not significantly affect income inequality. A rise in the unemployment rate amplifies income inequality, whereas a drop in the openness ratio similarly produces harmful consequences on income inequality. Furthermore, although the aging of the population disrupts income distribution, the obtained result is statistically insignificant. As expected, crisis periods disrupt income distribution.

When analysing the correlation between social expenditures and income distribution at the country level, the results differ from those of the overall panel analysis. The coefficient estimation results of social expenditures, which encompass the combined sum of health, education, and social protection expenditures, reveal a negative coefficient for 17 out of 26 countries. This implies that total social expenditures are effective in rectifying income distribution. However, this result is statistically significant in only 8 out of the 17 nations. In the remaining 9 countries, the coefficients are positive but statistically insignificant. The results demonstrate that social expenditures do not produce a statistically significant distortion in income distribution within the countries under analysis.

On the other hand, when examining social expenditures on a component level, it is evident that healthcare expenditures possess a statistically significant promising effect on income distribution in eight of the countries studied. Conversely, it has been found that these expenditures distort income distribution in Hungary, Portugal, the USA, and Denmark. In the remaining countries, the coefficients are statistically insignificant, regardless of whether they are negative or positive. When considering education expenditures, a statistically significant positive effect on income distribution is observed in only seven countries. Conversely, it is observed that these expenditures hold a distorting influence on income dispersion in Belgium and Poland. In relation to social protection expenditures, a statistically significant positive influence on income distribution is apparent in eight countries, with a significance level of 1%. However, the distorting effect is found to be significant only in Italy. When analysing the issue within the framework of human capital, which includes both health and education

expenditures, a statistically significant positive effect on income distribution is identified in nine countries. However, a distorting effect is detected in Belgium, Portugal, and Hungary.

When examining the country-specific coefficients of the control variables incorporated into the empirical analysis, notable differences among countries become apparent. Considering growth as a control variable, it appears to positively influence income dispersion in a significant number of countries, while it has a distortion influence in Austria, Belgium, and Norway. Similarly, while the increase in unemployment negatively affected income distribution in numerous countries, the rising unemployment in Austria, Hungary, the UK, and the USA does not hurt income distribution. Additionally, while an increase in openness can improve income distribution in many countries, it produces the opposite result in Estonia and Spain. Although a deterioration in income distribution is expected in countries with an aging population, the opposite result was observed in Finland, France, Greece, Poland, Slovakia, Spain, and the UK. Finally, when analysing the repercussions of crisis periods on income distribution, it is found that the coefficients are statistically insignificant in many countries. However, the distorting effect of crisis periods on income distribution is statistically significant only in Denmark, Greece, Poland, Switzerland, and the UK. Moreover, a positive effect on income distribution is observed during crisis periods in Hungary and Spain. The most significant finding of the thesis pertains to this matter. While Hungary and partly Spain failed to achieve a positive effect on income distribution with their social expenditures during non-crisis periods, they experienced a positive effect during crisis periods. In Hungary, unlike Spain, a positive coefficient has been identified in all five models during the non-crisis period. However, among these coefficients, only the detrimental effect of health and total human capital expenditures on income distribution has been found statistically significant. Nevertheless, according to the analysis, Spain's coefficients for health and total social expenditure are negative and statistically insignificant, while the coefficients for education and human capital expenditure are positive and insignificant during the non-crisis period. Social protection expenditures in Spain, however, have an improvement in income distribution at a significance level of 1% during this time. From this perspective, the test results for Hungary during the crisis and non-crisis periods appear to be more noteworthy. Fundamentally, immediate action on social expenditures and the implementation of reform initiatives are the primary factors contributing to this accomplishment. The failure to sustain reform efforts after the crisis period and the reduction in social expenditures can be regarded as the primary reasons for the generally negative

outcome. Moreover, financing social expenditures with debt during the crisis may require austerity measures following the crisis, potentially increasing income inequality after the crisis.

The most important findings of the thesis are that first when total social expenditures are examined without disaggregating into sub-components, they either positively affect income distribution as expected in the literature or yield statistically insignificant results. Among the selected OECD countries, none exhibit a statistically significant adverse influence on income distribution via total publicly provided social expenditures. However, it becomes evident that social expenditures may have an adverse impact on income distribution exclusively when disaggregated into sub-components in specific countries. Therefore, examining social expenditures based on their sub-components can provide a more accurate approach when implementing policies to improve income distribution. Second, while some countries may fail to address income inequality with their social expenditures during crisis periods, they may experience a positive impact on income distribution during non-crisis periods. Lastly, while some countries may succeed in improving income distribution through social expenditures during crisis periods, they may fail to address it effectively during non-crisis periods. To encapsulate the matter policy suggestions can be outlined as follows:

- During the planning phase of social expenditures, it is crucial to identify areas distorting income distribution and to tailor social expenditure plans accordingly. A comprehensive understanding of the political, economic, and social landscape is essential to identify these areas, and expenditures should be strategically planned, considering the current economic conjuncture, their components, amounts, target groups, and expected outcomes. The formulation of the expenditures should consistent policies aimed over short and prolonged durations goals.
- The financing of social expenditures should be given careful consideration, ensuring their effectiveness through cost-benefit analyses. Heavy burdens of the expenditures on the budget could result in future austerity policies, which may undermine the positive outcomes achieved in income distribution.
- Without straining budget constraints, tax reductions could be implemented, particularly for middle and low-income groups, to support private insurance and expenditures in the education and healthcare sectors.

- ❑ As social expenditures increase, it is essential that the tax burden on middle and lower-income groups does not rise disproportionately. To maintain equity, policies should be designed to ensure that the financial responsibilities of these groups remain manageable, safeguarding their economic well-being while still supporting the growth of vital public services. However, the government should also implement policies that prevent tax evasion among the higher income groups, ensuring a more equitable income distribution.
- ❑ Consideration should be paid to the institutional structure through which expenditures will be realized, as inefficiencies in the institutional structure can diminish the potential of expenditures to rectify income distribution. So, the institutional framework for expenditure management should be meticulously prepared to minimize administrative errors and to eliminate unnecessary bureaucracy.
- ❑ Strategic plans should determine the extent to which each social expenditure will contribute to reducing income inequality. Ensuring that the target audience of social expenditures consists of those in need rather than wealthy individuals will prevent these expenditures from having a negative effect on income distribution. Thus, target recipients of expenditures should be accurately determined. The utilization of government social expenditures by middle and upper-income levels could worsen rather than improve income distribution.
- ❑ It is essential to monitor the social and economic impacts of social expenditures. Additionally, evaluating results as sub-components rather than total expenditure and directly addressing issues in these areas if desired effects on income distribution are not achieved are fundamental aspects of social expenditure administration.
- ❑ The favourable impacts of social expenditures on income distribution, particularly in education and health, may take time to manifest their outcomes. Despite the time required to observe these results, the combined benefits of these expenditures, known as human capital, can outweigh those of individual benefits. However, the lengthy timeframe for observing outcomes may lead governments to hesitate in investing in these areas, potentially hindering the nation's enduring development.
- ❑ It is imperative that comprehensive legal frameworks be established to promote the inclusion of women and disadvantaged groups within the labour market. Furthermore, these individuals should be granted access to free educational, especially vocational skill training, opportunities, enabling their rapid and effective integration into the workforce, thereby fostering greater social and economic equity.

- ❑ Government social protection expenditures, predominantly through cash transfers, may exhibit populist tendencies, focusing solely on this area. Yet, these expenditures may reduce long-term work incentives. Consequently, it is crucial to assess the effect of cash transfers on individuals and economic advancement.
- ❑ Consideration of social expenditures, particularly on a component basis, is crucial during the crisis. These periods present opportunities to identify and address the social, economic, and administrative problems, facilitating significant reforms. However, it is essential to prepare reforms that will be sustainable even after the crisis period.
- ❑ In addition to social expenditures, legal structures governing labour rules should be designed. Preventing informal employment and setting the minimum wage at a level that does not disrupt income distribution and widespread unionization are also crucial for improving income distribution.

In conclusion, by diligently adhering to these principles, governments can use social expenditures as potent tools for fostering positive and enduring effects on income distribution. Through meticulous planning, targeted implementation, and careful monitoring, social expenditures possess the potential to alleviate disparities in income distribution and foster broader societal welfare. Policymakers must recognize the importance of sustainable and effective social expenditure strategies in achieving equitable economic outcomes and promoting inclusive growth.

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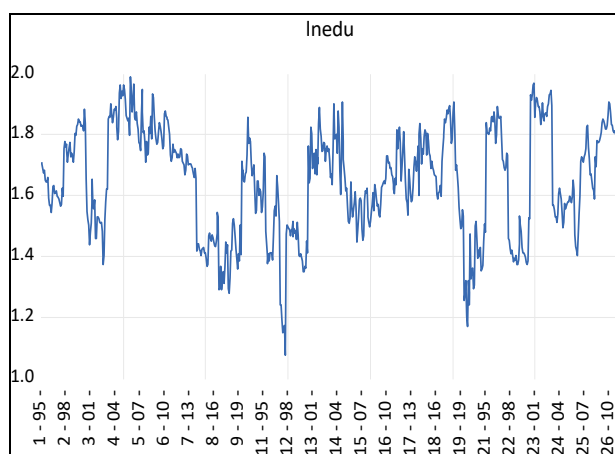
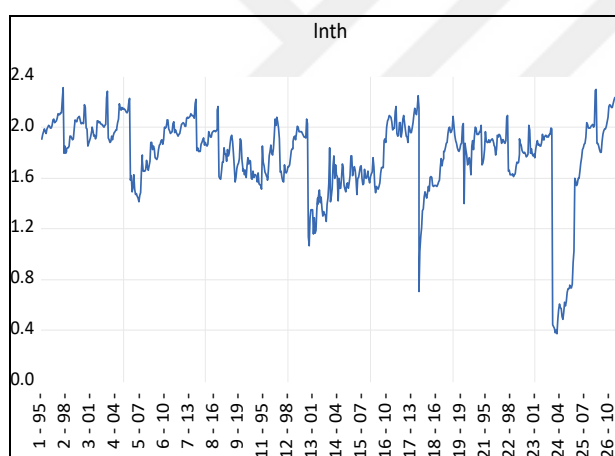
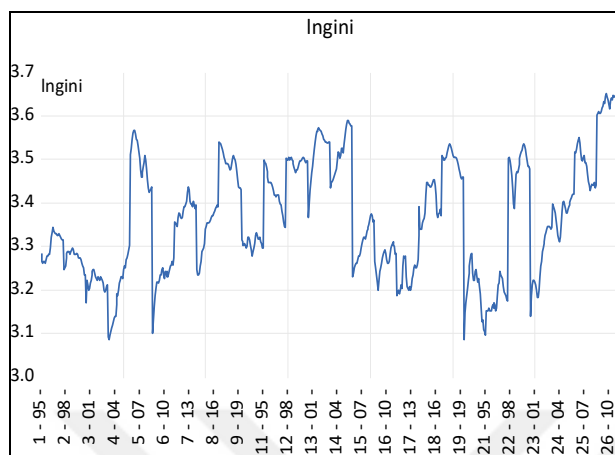
7. APPENDICES

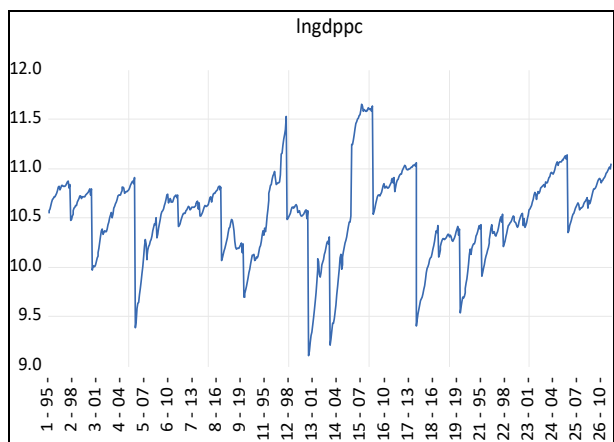
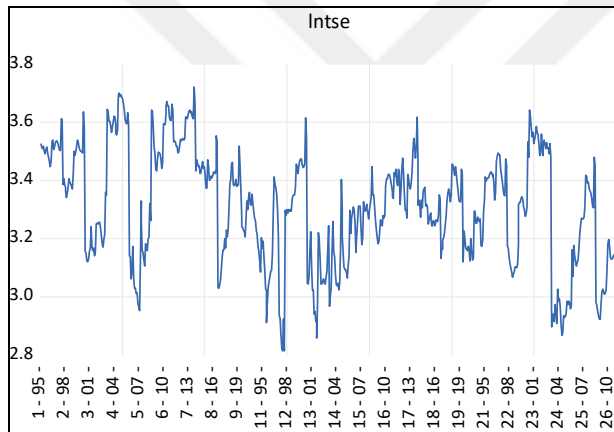
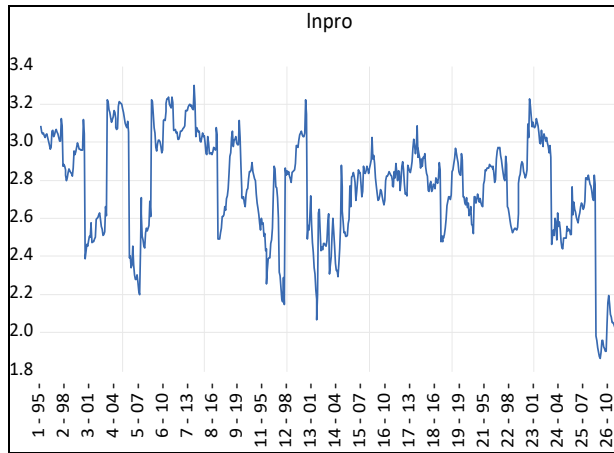
7.1. Appendix-A. Classification of the Functions of Government by OECD

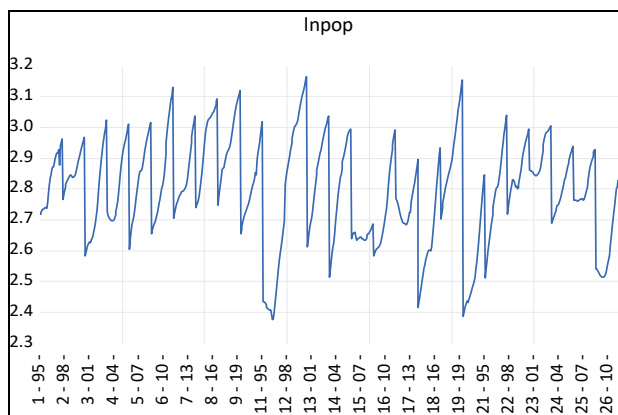
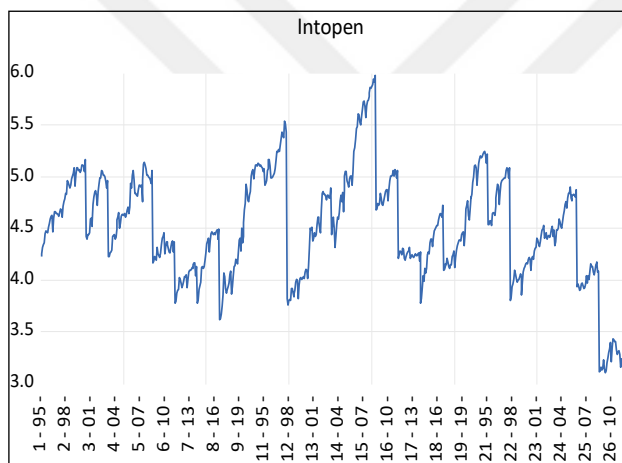
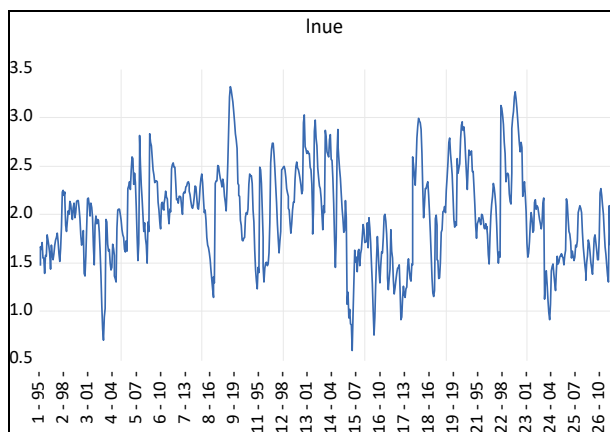
FIRST-LEVEL COFOG	SECOND-LEVEL COFOG
General public services	Executive and legislative organs, financial and fiscal affairs, external affairs
	Foreign economic aid
	General services
	Basic research
	R&D general public services
	General public services n.e.c.
	Public debt transactions
	Transfers of a general character between different levels of government
Defence	Military defence
	Civil defence
	Foreign military aid
	R&D defence
	Defence n.e.c.
Public order and safety	Police services
	Fire-protection service
	Law courts
	Prisons
	R&D public order and safety
	Public order and safety n.e.c.
Economic affairs	General economic, commercial and labour affairs
	Agriculture, forestry, fishing and hunting
	Fuel and energy
	Mining, manufacturing and construction
	Transport
	Communication
	Other industries
	R&D economic affairs
	Economic affairs n.e.c.
Environmental protection	Waste management
	Waste water management
	Pollution abatement
	Protection of biodiversity and landscape
	R&D environmental protection
	Environmental protection n.e.c.

Classification of the functions of government by OECD (continued)	
Housing and community amenities	Housing development
	Community development
	Water supply
	Street lighting
	R&D housing and community amenities
	Housing and community amenities n.e.c.
Health	Medical products, appliances and equipment
	Outpatient services
	Hospital services
	Public health services
	R&D health
	Health n.e.c.
Recreation, culture and religion	Recreational and sporting services
	Cultural services
	Broadcasting and publishing services
	Religious and other community services
	R&D recreation, culture and religion
	Recreation, culture and religion n.e.c.
Education	Pre-primary and primary education
	Secondary education
	Post-secondary non-tertiary education
	Tertiary education
	Education not definable by level
	Subsidiary services to education
	R&D education
	Education n.e.c.
Social protection	Sickness and disability
	Old age
	Survivors
	Family and children
	Unemployment
	Housing
	Social exclusion n.e.c.
	R&D social protection
	Social protection n.e.c.

7.2. Appendix-B. Diagrams of Variables







7.3. Appendix-C: Selected Empirical Studies on the Relationship between Social Expenditures and Income Inequality (1913-2024)

Study	Period	Sample country or countries	Method	Variables	Empirical Findings
Yılmaz & Rakıcı (2024)	1987-2018	Türkiye	ARDL	GINI- total social expenditure, both in cash and in-kind for various components of social spending	Expenditures other than on health can reduce income inequality.
Yalçın et al. (2023)	2010-2019	33 OECD countries	AMG	Education expenditures-GINI	Although the results of the coefficient estimation vary by country, expenditures on education can decrease income inequality across the panel.
Makhlouf & Lalley (2023)	1870-2016	20 OECD countries	ARDL	GINI-educational inequality-educational attainment-GDP per capita-urbanization-R&D intensity-trade openness-age dependency ratio-inflation	Measures to expand education increase income inequality overall but have no significant effect in the short term.
Yun (2023)	2000-2019	Indonesia, Malaysia, Singapore, and Thailand	RE	GINI-GINI(t-1)-primary and secondary education expenditures-tertiary education expenditures-corruption-voice and accountability- political stability-unemployment	Education expenditures are unable to exert a substantial effect on income inequality. However, when government spending on education is divided into compulsory (primary and secondary) and non-compulsory (tertiary) education, substantial yet opposing effects can be observed. Government spending on compulsory education can help to diminish income inequality, but government spending on non-compulsory education can exacerbate it because tertiary education tends to benefit wealthier individuals.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Dibo (2022)	2004-2017	20 OECD countries	FE	The poorest 20%- total tax revenues-social expenditures-unemployment	While the share of social expenditures in national income reduces inequality up to a certain level, the effect is reversed when it exceeds this point.
Hannan & Quazi (2022)	1991-2009	Bangladesh	Johansen Cointegration Test and the Vector Error Correction (VEC)	Poverty rate, GINI growth-GDP public social security expenditures-GDP per capita-active working-age population aged 15-64-elderly population aged above 65-gross capital formation-share of population aged 25-64 with tertiary (post-secondary) education-inflation-export earnings as a share of GDP	Public social security expenditures fail to exert a significant influence on income inequality, whether in the short term or over the long term.
Wang & Thi (2022)	2004-2017	36 OECD countries	Quantile Panel-Type Causality Framework	GINI- current expenditure on health-GDP	Health expenditures can reduce income inequality.
Verberi & Yaşar (2021)	2009, 2011 (crisis years), and 2015 (non-crisis year)	30 OECD countries	OLS	GINI-the ratio of imports and exports to GDP-the rate of social spending	Social expenditures and trade openness can reduce income inequality, but unemployment can increase this inequality. The positive effect of social expenditures on income distribution may be attenuated during periods of economic crisis.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Şenol & Orhan (2021)	2002-2018	15 OECD countries	RE	GINI-Education Expenditures- Health expenditures- unemployment	Expenditures on education and health have the potential to mitigate income inequality, but an increase in unemployment can increase this inequality.
Yu & Li (2021)	1978-2018	China	Granger Causality Test	Urban and rural income gap-social security expenditure- rural poverty headcount with the old poverty line	Social protection expenditures cannot reduce income inequality.
Sauer et al. (2020)	1981- 2010	73 low income, lower middle income, and high- income countries	GMM	GINI- labour income share- total factor productivity- imports- total exports-FDI- education, health, and social protection spending- income taxes in total revenue- market capitalization- private debt	The influence of technological change, financial globalization, and public social spending on income inequality differs across regions. Education, however, cannot serve as an equalizing factor between high- and low- income countries.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Haelg et al. (2020)	1981-2016	31 OECD countries	Extreme Bound Analysis	Social expenditures-economic and demographic determinants (unemployment-GDP per capita-crisis-dependency ratios)-globalization indexes-political and institutional determinants (left-wing government-union density-presidential system-election properties-GINI-ethnicity-fiscal rules-EU membership-public debt and deficit	Trade globalization can be negatively associated with social expenditures, while aging, unemployment, and social globalization can be positively associated with social expenditures.
Arshed et al. (2020)	2017-2018	Pakistani	GMM	Income inequality-educational inequality-household size- age of the individual-gender of the individual	Income inequality can lead to education inequality.
Öztürk (2020)	1987-2016	Türkiye	Causality Test developed by Dolado-Lütkepohl	Social expenditures and market GINI	Social expenditures can reduce income inequality.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Cammeraat (2020)	1990-2015	22 EU countries	OLS-2SLS	Poverty-GINI-GDP-total social expenditures and their components like old age, survivors, incapacity, health, family, unemployment, and housing expenditures	Total social expenditures can reduce income inequality but are not significantly correlated with GDP growth. Moreover, there can be considerable differences between the various categories of social spending.
Polat (2020)	1996-2018	36 OECD countries	Dumitrescu-Hurlin Causality Test	GINI-transfer payments economic growth rate, population growth rate- dummy variable representing the 2008 global economic crisis	A bidirectional causal relationship exists between transfer payments and income distribution inequality.
Kalkavan & Ersin (2020)	1980-2015	15 OECD countries	Padroni-Kao Dumitrescu-Hurlin Panel Causality Tests	GINI-social expenditures	Social expenditures are a Granger cause of income distribution, whereas income distribution does not Granger cause social expenditures.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Alamanda (2020)	2005-2017	33 provinces of Indonesia	FE-RE-SURE	GINI-GDP per capita-human capital index-trade openness-share of ICT in capital-unemployment-inflation-total expenditures-education, health, infrastructure, social, defence expenditures-personal income tax rate	Social protection expenditures can reduce income inequality.
Doumbia & Kinda (2019)	2000-2010	83 Countries across all income groups	FE	GINI-GDP per capita-human capital index-trade openness-share of ICT in capital-unemployment-inflation-total expenditures-education, health, infrastructure, social, defence expenditures-personal income tax rate	Social protection expenditures can reduce income inequality.
Agostino et al. (2019)	1980-2015	26 OECD countries	OLS	GINI- social transfers- electoral system and political party winning-GDP per capita-government consumption-health expenditures-direct tax-corruption-union-young and adult employment-different population variables	Social transfers have the potential to mitigate income inequality.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Cyrek (2019)	2007-2016	EU countries	DEA	Social protection expenditures education expenditures-health expenditures-Impact of social transfers- Impact of state intervention on income inequality reduction	Social expenditures are unable to reduce income inequality due to their lower efficiency.
Baylan (2019)	1975-2010	Türkiye	Johansen - Jesulius Cointegration	GDP % of budget transfers made to social security institutions- Theil Index- Economic Growth	Social security expenditures cannot reduce income inequality, but growth can reduce this inequality.
Kotlánová (2018)	2000-2014	34 OECD countries	GMM	GINI-real GDP- GINI coefficient before taxes and transfers- taxes- social expenditures-unemployment	Social expenditures can reduce income inequality.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Ulu (2018)	2004-2011	21 OECD countries	Granger Causality test	GINI-total social expenditures-openness-secondary school enrolment-population ages above 65-unemployment-population growth rate	Social expenditures can reduce income inequality.
Haile & Zarazúa, (2018)	1990-2009	55 low-income and middle-income countries	SGMM	Social spending-GDP per capita-openness-inflation, bureaucracy-democracy-age dependency	Social expenditures can increase human capital and aggregate welfare.
Seefeldt (2018)	1987-2015	50 US states	OLS	GINI-Atkinson Index- Theil Index-shares of Top 10% -education expenditures-tertiary education expenditures- GDP per capita-GDP per capita squared- high school attainment- college attainment- unemployment-manufacturing employment-farm employment	Expenditures on education have the capacity to mitigate income inequality.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Andersson et al. (2017)	different time-interval	Low- and middle-income countries	Meta-Regression Analysis	84 Separate studies containing over 900 estimates	Evidence suggests a negative relationship between government social expenditures and income inequality; however, this relationship is shaped by various factors, including the control variables employed, the estimation method used, and potential publication bias.
Cimoli et al. (2017)	1990-2010	A sample of both developed and developing Latin American countries	OLS	GINI- role of structural change (technological intensity of production and labour productivity)-social expenditure	An increase in transfer payments and social expenditures, which expands access to fundamental services such as health and education for a larger segment of the population, coupled with economic growth and the reduction of unemployment and informality, has the potential to alleviate income inequality.
Eroğlu et al. (2017)	2004-2011	21 OECD countries	Granger Causality	GINI-social expenditures- openness- education expenditures- education levels-inflation- population (65+ population growth rate)-unemployment	Social expenditures can reduce income inequality.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Fournier & Johansson (2016)	1987-2014	OECD countries	OLS-FE	GDP-population-schooling-PISA score-investment-size of government-capital stock of general government-spending shares-openness-net export-inflation- credit ratio-rule of law-employment protection registration-spending decentralization-political stability	Expenditure on social protection such as family benefits or subsidies can reduce income inequality. Certain public expenditures such as education and investment expenditures can boost growth, while others such as pensions and public subsidies reduce growth.
Hedén (2015)	2004-2011	OECD countries	FE	Life expectancy-GDP per capita-GINI-trust-education-public health expenditure-tobacco consumption-alcohol consumption-consumption of fruits and vegetables-pollution	Income inequality can increase health inequalities at the population level.
İlgün (2015)	1995-2012	17 OECD countries	FE	Disposable income GINI- national income per capita - population - total public expenditures - total social expenditures - urbanization rate	The impact of social expenditures on income distribution in OECD countries fluctuates between positive and negative effects.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Bastagli et al. (2015)	1990-2010	General analysis for advanced, developing, Latin American-Middle east-Asian-Sub-Saharan Africa countries	Descriptive Analysis	Health -Education- social protection- tax	The expansion of conditional cash transfer programs, which target the most impoverished households and tie transfers to access to education and healthcare services, has the potential to enhance the redistributive capacity of public spending.
Doerrenber & Peichl (2014)	1982-2005	24 OECD countries	GMM	LIS GINI-UTIP GINI-WIID GINI-Real GDP per capita- openness to trade- squared GDP per capita-total social government spending-tax inflation-unemployment-union density- levels of higher education-globalization	Social expenditures can reduce income inequality.
Fiszbein et al. (2014)	2013	There were 59 countries in the data set in 2013, but not all of them are used	Questionnaire	The World Bank's ASPIRE dataset is based on household surveys that contain questions on social protection or modules that can be used to determine the recipients of social programs	Social protection programs have contributed to poverty reduction in numerous countries; however, the current level of social protection spending remains insufficient to generate a significant impact on poverty, primarily due to inefficiencies.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Joumard et al. (2013)	1990s-2000s	OECD countries	Descriptive Analysis	Different tax and transfers	Transfers can reduce inequality in disposable income, but the effects are various across OECD countries.
Muinelo-Gallo & Roca-Sagalés (2013)	1972-2006	21 OECD countries	SURE- 3SLS	GDP growth -inequality of gross income and net income-distributive public expenses-non-distributive public expenses-direct taxes-indirect taxes-other revenues-government surplus/deficit-population growth-human capital international trade-inflation-education inequality -civil liberties -population of 65 years-political system	An increase in distributive spending in countries with a well-established welfare state can reduce income inequality without necessarily hindering GDP growth, depending on the method of financing such public spending. Conversely, an increase in non-distributive spending tends to reduce GDP growth and exacerbate income inequality, regardless of its financing structure.
Hoeller et al. (2012)	1994-2009	OECD countries	Cluster Analysis	Social security contribution-labour income inequality-taxes	Transfer systems, along with publicly provided services, especially in education and healthcare, have a more pronounced redistributive effect in specific countries.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Devaux & Looper (2012)	2008-2009	19 OECD countries	Descriptive Analysis	Ethnicity- the size of the household- education level- job status- public or private health insurance	Horizontal inequalities and inequalities in healthcare utilization persist in the 19 OECD countries surveyed.
Cosmin (2012)	2001-2012	29 European countries	OLS- FE-RE	GINI-social protection public expenditures-GDP per capita-employment rate-tertiary education attainment- corruption perception index- children dependency rate- the old age dependency rate	Social protection expenditures have the potential to reduce income inequality. However, an increase in the old-age dependency ratio and unemployment may exacerbate inequality.
Martinez et al. (2012)	1970-2009	150 developed, developing, and transition countries	GMM	Four categories of social spending: social protection, education, health, and housing expenditures- population growth rate-youth age dependency rate-elderly dependency rate- level of education of individuals-unemployment-GDP per capita-globalization-corruption-total revenues	Social expenditures can reduce income inequality.
Niehues (2010)	1993-2007	EU-15 countries	Pooled Cross-Sectional Time Series (CSTS) GMM	Post-government GINI coefficient- pre-government GINI coefficient- social benefits means-tested- unemployment family-related invalidity health and sickness old-age survivor-housing and exclusion GDP per capita (in 1000\$)-GDP per capita squared (in 1000\$)- dependency ratio- proportion higher education- union density	Unemployment benefits and pensions can reduce income inequality, but not all benefits are associated with lower levels of inequality.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Holzner (2010)	1989-2006	28 Transition economies from Central, East, and Southeast Europe	GLS-SUR-EC 2SLS	GINI- equation economic affairs-health social protection-privatization trade and foreign exchange system-agricultural value-added manufacturing value added-secondary school enrolment tertiary school enrolment-research and development- fuel exports-real interest rate	Social protection and health expenditures can reduce income inequality. Trade openness seems to have reduced inequality.
Köse & Güven (2007)	1975-2001	67 Provenances of Türkiye	OLS	GINI-secondary education enrolments- education expenditures-higher education expenditures-social security expenditures-inflation-two-time dummies	Education expenditures can reduce income inequality, but this is not the case for all levels of education.
Jones (2007)	Between the mid-1980s and 2000	Japan	Cross-Country Descriptive Analysis	Total population working-age population- elderly population- GINI -the impact of taxes and public social spending on income distribution-social insurance and welfare programs in Japan	The effect of social expenditures on income inequality is weak.
De Mello & Tiongson (2006)	1970-1998	56 countries with different development levels	OLS and Tobit	Social security expenditures-government transfers GINI-GDP per capita- population (+65)-democracy index	The redistributive impacts of social expenditures are contingent upon the degree of inequality within a society, as governments in societies with higher levels of inequality are less inclined to allocate funds toward redistributive initiatives. The efficacy of these expenditures in enhancing income distribution may be compromised due to the potential for the non-poor to benefit from public spending.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Murthy (2006)	2002	27 OECD countries	OLS	GDP per capita-number of doctor-GINI-level of education-% of female smokers-infant mortality	Income inequality can cause health inequality.
Schwabish et al. (2004)	1973-1993	17 OECD countries	OLS	Social expenditures-inequality, values, growth, institutions, immigrants' inequality, and values (as measured by trust) have on social expenditures; the remaining covariates are included as controls for various social, economic, and political institutions	The disparity in social spending between the middle class and the poor, as reflected by the 50/10 percentile ratio, demonstrates a modest but positive influence. In contrast, the disparity between the extremes of the income distribution and the middle class, as measured by the 90/50 percentile ratio, has a significant and negative impact on social spending.
Cantillon et al. (2003)	1980-1990	14 developed countries	Descriptive Analysis	Cross-country correlations between key variables, such as employment, low-wage incidence, social expenditures, and poverty	Social spending provides an effective pathway to reducing poverty. However, increasing financial allocations to social transfer systems does not guarantee positive outcomes on poverty reduction in all countries.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Moene & Wallerstein (2003)	1980-1955	18 different developed countries	OLS	Inequality (90/10) Inequality (90/50) Inequality (50/10) lagged one period (five years)-unemployment-the share of elderly-voter turnout-a measure of conservative party participation in government	Education expenditures have the potential to mitigate income inequality; however, a higher share of the elderly population and rising unemployment rates can exacerbate income inequality.
Gregorio & Lee (2002)	1960-1990	49 different developed and developing countries	SUR	Educational inequality-educational attainment-GDP per capita-square of GDP per capita-social expenditures (t-1)-regional dummies	Government social expenditures can cause more equal distribution of income. However, despite this there is still significant unexplained cross-country variation.
Sylwester (2002a)	A single family	OECD and less-developed-country subsamples	General Equilibrium Models	Initial levels of human capital-public education-family factors	Education expenditures can increase or decrease income inequality. The way it does so is determined by several circumstances.
Sylwester (2002b)	1960-1990	50 different developed and developing countries	OLS	GINI-education expenditures-school attainments- growth of output per capita- dummy variables for countries like 1 is country is in OECD in 1970 =0 otherwise	Education expenditures can reduce income inequality by enhancing human capital and stimulating economic growth.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Checchi (2001)	1960-1995	Different regions including OECD countries	FE-RE	GINI- GINI index on educational attainment-inequality-average years of schooling-GDP	Income inequality can be alleviated through education, provided two specific conditions are met. First, the initial level of educational attainment must be sufficiently low. Second, there must be a substantial and rapid increase in the average level of educational attainment.
Burniaux et al. (1998)	1974-1995	33 OECD countries	Questionnaire	The role of market income, taxes and transfers and the number of household members in employment	Public transfers can reduce income inequality.
Clements (1997)	1960-1994	Brazil	Descriptive Analysis	Analytical issues like real exchange rate- social indicators- political issues like public sector prices- policy options to improve education	Public expenditures on education, health, and social insurance have often contributed to the exacerbation of income inequality.
Zhang (1996)	Two-period lived agents	An economy with two different generation	Two Generation Model	Private education-public education-growth	Education expenditures have the potential to reduce both the growth rate of average income and the welfare of the median agent.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Eckstein & Zilcha (1994)	Individuals live for two periods in an OLG economy	An economy where heterogeneity among individuals in each generation	OLG Model	Human capital-growth-labour effectiveness	Education expenditure can reduce income inequality via social mobility.
Easterly & Rebelo (1994)	1970-1988	100 countries having different development levels	LS	GDP per capita-primary enrolment-secondary enrolment-revolution and coups-war casualties per capita-taxes-general public services-median share of income	Education expenditures can increase income inequality.
Ram (1989)	1963-1987	Selected less-developed countries	Correlation Analysis	GINI-schooling of labour force-real GDP per capita	There is limited evidence to strongly support the notion that increasing educational attainment within the population effectively reduces income inequality.
Vedder et al. (1988)	1979	USA	OLS	GINI- central and federal public aids- unemployment-real GDP growth-tax revenue as central and federal governments levels	Social expenditures can increase income inequality because of transfers and tax.

Summary of empirical studies on the relationship between social expenditures and income inequality (continued)					
Jimenez (1986)	1969-1983	Different advanced, developed and less-developed countries	Descriptive Analysis	Previous theoretical and empirical papers	Social expenditures cannot decrease income inequality because of inequality of education.
Fields (1980)	Countries having different development levels	Selected developing countries	Descriptive Analysis	Different levels of education-education inequality-quality of education	Income inequality cannot be effectively reduced through an increased allocation of resources to public education due to factors such as taxation, unequal access to opportunities, and an unfavourable cost-benefit ratio.
Chiswick (1971)	1950-1968	Selected developed and developing 9 countries	Multiple Regression Analysis	Income inequality, is based on the population of employed nonfarm males- level of training-inequality of training-average rate of return and technology	Education inequality can increase income inequality.
Schults (1963)	Different time intervals	USA	Descriptive Analysis	Book	Human capital expenditures can reduce income inequality.

Not: Inverse chronological order

7.4. Appendix-D: Summary of Empirical Studies on the Relationship between Income Inequality and Control Variables (1955-2023)

Study	Period	Sample country or countries	Method	Variables	Empirical Findings
Parvaei et al. (2023)	Latest available data	36 OECD countries	Pearson Correlation Coefficient Test and Multiple Linear Regression Analysis	poverty rates among older persons, net pension replacement rates, mandatory pension contribution rates, public expenditure on old age and survivors' benefits-public expenditure on old age and survivors' benefits level-income sources of the older persons - coverage of old-age pensions-value of old-age pension benefits	Income poverty among older adults showed significant correlations with several factors, including the proportion of gross domestic product allocated to older adults, coverage by targeted pension schemes, income from public transfers, income from employment, statutory pension contribution rates, and net pension replacement rates.
Wahiba & Dina (2023)	1992-2019 and 1995-2019	21 developing countries	FE	GINI-inflation- economic growth-human capital-investment- technological change	Human capital can increase growth and it can decrease income inequality.
Gorjon et al. (2023)	1989-2013	29 OECD countries	PVAR	Globalization-compensatory institutions-Palma ratios-union density	Globalization can raise income inequality.
Çelikay (2022)	1991-2018	30 OECD countries	ARDL-ECM	Unemployment- social spending	Social expenditures can increase unemployment.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Königs & Vindics (2021)	1995-2018	OECD countries	Descriptive Analysis	Geographical inequality- demographic trends- GDP per capita	The COVID-19 pandemic exacerbates income inequality.
Bağcı (2019)	1995-2014	Different developed and developing countries	Descriptive Analysis	Human development index- economic growth- Income inequality	Growth cannot reduce income inequality.
Şen et al. (2018)	1995-2012	8 developing countries	Bootstrap Panel Granger Causality	Health and education expenditures- annual GDP growth	There may be a significant causal relationship, either positive or negative, from education and health expenditure to economic growth.
Kiendrebeogo et al. (2017)	1984-2010	40 developing countries	GMM	Poverty headcount- poverty gap index- social spending- crisis dummy- GDP per capita-private credit ratio- inflation- trade openness- age dependency ratio- population growth	Social expenditures can reduce poverty especially during crisis.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Yilmaz et al. (2016)	2011-2012	32 developed and developing OECD and EU countries	OLS	GINI-GDP per capita- labour force participation rate-central government debt- social expenditure-marginal and effective income tax-inflows of foreign population-trade Openness-depth of the financial system	Labour force participation and income inequality have a positive relation.
Atkinson (2015)	1945-2010	OECD countries	Descriptive Analysis	Tax and transfers	Globalization can increase income inequality.
Förster & Tóth (2015)	1995-2015	OECD countries	Descriptive Analysis	Structural macro-economic sectoral changes-globalization and technology change-labour market and other relevant institutions-politics and political processes-tax/transfer schemes, and demographic and other microstructural changes	To discover the level of inequality there is no ideal datasets.
Furceri & Zdzienicka (2012)	1980-2005	OECD countries	OLS	Growth (with lagged values), openness-investment-population growth-social spending (with lagged values), debt, election dummies	Social expenditures can increase growth with multiplier effect.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Joumard et al. (2012)	2000s	A group of four Nordic countries	Cluster Analysis	Tax-transfer and in-kind service-old-age pensions, disability, family and unemployment-the shares of consumption-personal income and property taxes-the share of education and health in total in-kind transfers- a Kakwani progressivity indicator for both total household taxes and total cash transfers and specific progressivity indicators for old-age pensions, unemployment, personal income tax and social security contributions	Disability and unemployment benefits play a significant role in reducing income inequality, whereas the redistributive impact of family and housing benefits remains limited.
Cassette et al. (2012)	1980-2005	10 OECD countries	ECM	Decile ratio of earnings-trade openness-FDI-education-GDP per capita-inflation-technology-union density	Education exerts a negative effect on income inequality; however, the coefficient is not consistently significant. In contrast, trade openness has the potential to exacerbate income inequality.
Ogus Binatli (2012)	1970–1985 and 1985–1999	Two sample countries (49 and 42 countries having different income levels)	Regression Analysis	GDP-GINI-education-population-government expenditures	The impact of income inequality on growth may be insignificant.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Zhou et al. (2011)	Benchmark year 2000	62 countries (24 of them are OECD countries)	OLS	GINI-Kearney index-education level-urbanization level	Globalization can decrease income inequality.
Faustino & Vali (2011)	1995-2007	24 OECD countries	GMM	GINI-GDP per capita-trade openness-foreign direct investment-unemployment-inflation-total domestic companies	Trade openness can reduce income inequality, but unemployment and growth can increase income inequality.
Figini & Görg (2011)	1980-2002	103 countries with different development levels	OLS-GMM	GINI-Theil Index-Inward FDI-GDP-education-trade openness	Globalization affects wage distribution in countries differently depending on their stage of development and the educational level of their workforce.
Bergh & Nilsson (2010)	1970-2005	80 high incomes, middle-, and low-income countries	GMM	GINI-GDP per capita-higher education-dependency ratio-KOF index of globalization and the economic freedom index	Trade openness can induce income inequality.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Gourdon et al. (2008)	1980-2000 and 1988-1998	41 Latin American and developed countries-21 African and 12 Asian countries	OLS	GINI-trade openness-inflation-education-ethnicity-GDP per capita-tax	Trade openness can induce income inequality.
İsagiller (2007)	1954-2006	Different studies	Descriptive Analysis	Trade liberalization-financial liberalization-technological change-labour market- transition of socialist to capitalism	Growth has no systematic effect on income distribution in any direction.
Heshmati (2007)	1995-2000	62 industrialized and developing countries	OLS	GINI-Kearney composite index of globalization-regional dummies	Globalization can reduce income inequality.
Brown & Prus (2006)	2000s	7 OECD countries	Descriptive Analysis	GINI-annual money income of older-headed (45+) households as the income measure	Income inequality tends to decrease during old age due to the more equitable distribution of public benefits compared to income from work. Stronger public income security programs, characterized by their progressive nature, enable countries to mitigate income inequalities more effectively among the elderly.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Arjona & Pearson (2003)	1970-1998	21 OECD countries	PMG	GDP per working-age population (aged 15 to 64)-Lagged real GDP per working-age population (aged 15 to 64)-investment-human capital-population growth	There is insufficient evidence to determine whether inequality is beneficial or detrimental to economic growth. Social protection expenditure hurts economic growth. Reductions in social transfers can incentivize labour market participation, thereby boosting economic growth, but simultaneously exacerbating income distribution inequality.
Lundberg & Squire (2003)	1960-1990	125 countries	SURE -3SLS	Growth-Education-government expenditures-M2/GDP-inflation-openness-trade-liberty index-land GINI-dummy	Openness can increase income inequality.
Lee & Mason (2003)	1978-1998	Taiwan	OLF	Workers aged 30-34, pensioners aged 60-64, and children aged 0-4 and the family cohort consisting of workers aged 45-49, pensioners 75-79, and children 15-19	The aging of the population has had a limited impact on income inequality, as the negative effects of composition have been counterbalanced by positive pooling effects.
Beer & Boswell (2002)	1980-1995	65 different countries having different development levels	Linear Regression Model	Top quantile income share-TNC penetration-GDP per capita-average disarticulations-sector dualism-agricultural labour force-secondary school enrolment-urban population-female labour force-manufacturing	Globalization can raise income inequality.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Ghura et al. (2002)	1950-1999	85 different countries having different income levels	GMM	Private investment-public investment-GINI-population growth-export-inflation-secondary education-trade openness-life expectancy-financial depth-democracy index	There is no strong or consistent relationship between growth and income inequality.
Scully (2002)	1975-1980-1985-1990	86 Advanced and rapidly industrializing Asian countries	OLS-2SLS-3SLS	GINI- real growth rate of per capita, investment and government consumption- index of economic freedom, government enterprise, and government taxation-black-market exchange premium- exports plus imports- transfers and subsidies- index of capital transactions with foreigners-dummies	There is a relatively modest trade-off between economic growth and inequality; however, trade openness is linked to higher growth.
Dollar & Kraay (2001)	1950-1999	137 different countries having different income levels	OLS-2SLS-GMM	GDP per capita- export and import-government consumption-inflation-education-financial developments	There is no discernible relationship between income inequality and growth. Public expenditure on health and education does not reduce income inequality, and the effect of trade openness on income is insignificant.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Förster & Pellizzari (2000)	2000	21 OECD countries	Questionnaire	Poverty-income inequality-tax and transfers-unemployment trends	Job polarization can increase income inequality among the working population. Social expenditures can reduce income inequality for this group.
Barro (2000)	1965-1992	84 countries located in different parts of the world	Panel Regression	GDP per capita-GDP per capita squared-government consumption/GDP- rule-of-law index-democracy index-democracy index squared-inflation rate-years of schooling-total fertility rate-investment/GDP-growth rate of terms of trade	The relationship between income inequality and growth is weak. Higher inequality tends to hinder growth in poorer countries while fostering growth in wealthier countries. The Kuznets' inverted-U curve remains a notable empirical pattern; however, this relationship does not account for much of the variation in inequality across countries or over time.
Forbes (2000)	1966 –1995	45 different countries having different development levels	GMM	Growth- income-male and female education- market distortions-Price level of investment-period dummy variables	Income inequality can raise growth.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Spilimbergo et al. (1999)	1965-1992	34 different industrial, Latin America, African and Asian countries	OLS	GINI-arable land per capita-capital per worker-skill intensity- GDP per capita-trade openness	The relationship between trade openness and income inequality varies: for countries rich in land and capital, the coefficient is positive, whereas for countries abundant in skilled labor, the coefficient is negative.
Aghion et al. (1999)	Past twenty years	OECD countries	Different Theories and Arguments	The key components of growth process like trade liberalization, technical change, and organizational structure	Trade openness can increase income inequality because of skill-biased and growth cannot reduce income inequality.
Barro (1999)	1965-1995	68 countries located in different parts of the world	3LS	GINI-GDP per capita-average years of male secondary and higher schooling-government consumptions-investment-democracy index-inflation-fertility-trade-rule of law index	Higher inequality tends to hinder growth in poorer countries, while it fosters growth in wealthier countries.
Deininger & Squire (1998)	1960-1995	Asia, Eastern Europe, and industrial and high-income economies	Descriptive Analysis	Real income received by different quintile groups in the population-GINI-poverty	There is no consistent relationship between growth and income inequality.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Edwards (1997)	1970s and 1980s	44 countries, 27 of which are developing and the rest are developed	Regression Analysis	GINI-secondary education-inflation-GNP per capita-reforms	There is no evidence of a link between trade openness and an increase in inequality.
Nielson & Alderson (1997)	1970-1990	3100 Countries of the USA	RE	GINI-Median family income-population density-sector dualism-population-unemployment-labour force in manufacturing	Inequality decreases with economic development, if the wage gap between the educated and uneducated narrows, income inequality decreases.
Weede (1997)	1960-1985	48 different countries having different development levels	OLS	GDP per capita-primary school enrolment-agricultural labor-top 20%income share-middle 20% income share-low 40% income share-GINI land ownership-middle 20% times democracy-democracy	The relationship between equality and growth, or inequality and slower growth in democracies, is a subject of ongoing debate.
Alesina & Perotti (1996)	1960-1985	70 Asian, African, Latin American, and developed countries	2SLS	Socio-political instability-primary school enrolment-investment deflator-deviation of investment deflator-GDP-mid-class=share of the third and fourth quantile of the population-urban population-main ethnic groups	There is an inverse relationship between income inequality and investment, which can subsequently enhance growth.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Von Weizsacker (1995)	German Pension Reform Act of 1992	Germany	Two-Generations OLG	The persons who are gainfully employed, and those who receive old-age pensions-old age dependency ratio-social transfers-reform elements-relative income disparity	Depending on the response to public transfers, aging can result in either an increase or a decrease in income inequality.
Milanovic (1994)	1980s	22 OECD- 8 European-17 Asian -16 African and 17 Latin American (80 countries)	OLS	GINI-share of state workers-social transfers-ratio of per capita income between the richest and poorest administration units-GDP-dummies	The level of development can change income inequality, as suggested by Kuznets. The extent of income distribution is also determined by societal choices. Societies can opt for a more or less equal distribution of income, and they tend to opt for less inequality the richer they become.
Crenshaw (1992)	1965–1975	46 Developed and developing countries	OLS	GINI-energy consumption per capita-school -political democracy index- enrolment labour force in agriculture, dummy variable-population-total foreign capital penetration agricultural density	Growth may exhibit a direct curvilinear relationship with income inequality. Education plays a role in increasing human capital. In the early stages of educational expansion, elite segments tend to receive schooling and enter high-paying industries and government services, thereby exacerbating income inequality. However, the implementation of compulsory, free education can contribute to greater income equality.

Summary of empirical studies on the relationship between income inequality and control variables (continued)					
Simpson (1990)	1965–1975	62 countries located in different parts of the world	OLS	GINI-Political democracy index-GNP-GDP per capita-population-periphery index-economic system-age of democracy-education enrolment ratio-dummy variable for three Eastern bloc nations	GNP does not have a consistent direct effect on income inequality, whereas educational enrolment levels exhibit an inverted U-shaped relationship with income inequality.
Ahluwalia (1976)	1965-1971	40 developing-14 developed-6 socialist countries	Multivariate Regression	GNP-education-structure of production-demographic characteristic-government activity-dummy for socialists	Growth and income inequality may exhibit an inverted U-shaped relationship.
Kuznets (1955)	1913-1955	the USA, England, Germany, and cross-sectional data encompassing these three countries as well as Ceylon, India, and Puerto Rico	Regression	Large-scale inter-sectoral labour transfers	Growth and income inequality exhibit an inverted U-shaped relationship.

Not: Inverse chronological order

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