T.C.
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İKTİSAT ANA BİLİM DALI
İKTİSAT (İNGİLİZCE) PROGRAMI

YÜKSEK LİSANS TEZİ

POST EUROPE 2020 STRATEGY: ANALYSIS OF POVERTY DYNAMICS AND INCOME INEQUALITY IN THE EU

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Prof. Dr. FERİDE GÖNEL

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Prof. Dr. Hüseyin Taştan	……
Dr. Öğr. Üyesi Türkan Turan	……

ÖZET

AVRUPA 2020 STRATEJİSİ SONRASI:
AB'DE YOKSULLUK DİNAMİKLERİ VE GELİR EŞİTSİZLİĞİNİN ANALİZİ

AB 2020 stratejisinin yoksulluk ve sosyal dışlanma ile mücadele dahil, pekçok iddialı hedefi bulunmaktadır. Plan çerçevesinde, 20 milyon insanı yoksulluk ve sosyal dışlanma riskinden kurtarmak en önemli hedefler arasındadır. Bu rakam 2011'de 120 milyon insandı ancak 2020'da neredeyse 109 milyon kişiye düştü, bu da hedefin yaklaşık % 50'sine ulaşıldığı anlamına geliyor (EAPN, 2020). Bu tezin ana konusu, yoksulluk profili ve politikalarının kapsamlı bir incelemesinin yanı sıra 2005-2020 döneminde AB'de yoksulluk ve gelir eşitsizliği arasındaki nedensellik ilişkisinin analizidir. Analizin merkezinde eşitsizlik olmasına rağmen, yoksulluk oranları üzerindeki etkilerini ölçmek için başka değişkenler de eklenmiştir. Bu değişkenler arasında sosyal koruma harcamaları, kişi başına GSYİH, işsizlik ve kamu verimliliği sayılabilir.

Bulunan sonuçlar, yoksulluğu ortadan kaldırma çabalarının bir düzelme sürecine girdiğini göstermektedir. Avrupa 2020 stratejisi, Lizbon stratejisine kıyasla yoksulluk ve sosyal dışlanmaya daha fazla önem vermişti, ancak bu yeni strateji, AB düzeyinde yoksullukta önemli bir düşüşe neden olmadı. En savunmasız gruplar 16-24 yaş arası insanlar, işsizler, kadınlar, bağımlı çocukları olan bekar yetişkinler, eğitim düzeyi düşük kişiler, kırsal kesimde yaşayanlar ve kiralık konutlarda yaşayanlardı. Panel gerilemesi, gelir eşitsizliğinin AROPE üzerinde en büyük etkiye sahip olduğunu ortaya koydu. Kamusal verimlilik dışındaki diğer değişkenler AROPE üzerinde, daha az da olsa, önemli bir etki göstermektedir.

Anahtar Kelimeler: Yoksulluk, eşitsizlik, gelir, sosyal harcamalar, AB, Avrupa 2020

ABSTRACT

POST EUROPE 2020 STRATEGY:

ANALYSIS OF POVERTY DYNAMICS AND INCOME INEQUALITY IN EU

The EU 2020 strategy had many ambitious goals including the fight against poverty and social exclusion. The plan was to reduce the number of people who live at risk of poverty and social exclusion by 20 million. This number was 120 million people in 2011 but by 2020 it decreased to 109 million people, meaning only 50% of the target was accomplished (EAPN, 2020). The central topic of the research is the analysis of the causal relationship between poverty and income inequality in the EU during the period 2005-2020 together with a comprehensive review of the poverty profile and policies. Even though inequality is central to the analysis, other variables were added to measure their effect on poverty rates. These variables include expenditure on social protection, GDP per capita, unemployment, and government effectiveness.

The results indicate that the poverty eradication efforts went through an improvement. The Europe 2020 strategy puts more emphasis on poverty and social exclusion compared to the Lisbon strategy. However, such a reassessment did not result in a substantial decrease in poverty at the EU level. The most vulnerable groups were people aged 16-24, unemployed, females, single adults with dependent children, people with low levels of educational attainment, inhabitants of rural areas, and people who live in rented accommodation. The panel regression revealed that income inequality had the largest impact on AROPE. Other variables besides government effectiveness also show a significant impact on AROPE but to a lesser extent.

Keywords: Poverty, inequality, income, social spendings, EU, Europe 2020

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Risolat TASHMATOVA

July, 2023; İstanbul

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LIST OF ABBREVIATIONS

AROPE	: At Risk of Poverty or Social Exclusion
ESF	: European Social Fund
EU	: European Union
EU-SILC	: EU Survey on Income and Living Conditions
GDP	: Gross Domestic Product
ISCED	: International Standard Classification of Education
MENA	: Middle East and North Africa
MIQ	: Minimum Income Question
NGO	: Non-Governmental Organization
OECD	: Organization for Economic Co-operation and Development
OLS	: Ordinary Least Squares
OMC	: Open Method of Coordination
OPHI	: Oxford Poverty and Human Development Initiative
SMD	: Severe Material Deprivation
SURE	: Support to Mitigate Unemployment Risks in an Emergency
TNC	: Transnational Company
WGI	: Worldwide Governance Indicators

1. INTRODUCTION

The EU 2020 strategy had many ambitious goals including the fight against poverty and social exclusion. Poverty is considered one of the most acute social problems of modern society. The plan was to reduce the number of people who live at risk of poverty and social exclusion (AROPE) by 20 million. This number was 120 million people in 2011 but by 2020 it decreased to 109 million people, meaning only 50% of the target was accomplished (EAPN, 2020). AROPE is an indicator used to monitor the progress of tackling poverty and social exclusion. It has been developed specifically for the Europe 2020 Strategy but still remains in use. The central topic of this research is the analysis of the causal relationship between poverty and income inequality in the EU during the period 2005-2020 together with a comprehensive review of the EU poverty profile and poverty policies. The notorious pandemic outbreak in 2019 has posed a threat to improvements in poverty and inequality reduction gained before that. So, the debates on this matter draw increased attention due to the increasing awareness. This research aims to contribute to the debates together with the analysis of poverty in the EU before the pandemic. Even though inequality is the central part of the analysis, I decided to add other significant variables that can be found in many EU poverty studies to measure their effect on poverty rates. These variables include expenditure on social protection, GDP per capita, unemployment, and government effectiveness.

This study is significant for several reasons. Firstly, it employs the latest data therefore, it provides updated evidence on the effect of income inequality, GDP per capita, and social protection expenditures on poverty in the EU. The statistical methods used in this research can assist in designing future policies against poverty. It greatly contributes to the existing literature because the literature lacks thorough studies with a similar methodology on what can be an effective tool for improving poverty based on the latest data available. The analysis shows how income inequality, GDP per capita, social protection expenditures, unemployment, and government effectiveness affected poverty between 2005 and 2020.

The results of the study indicate that the poverty eradication efforts went through development and improvement in the period 2005 to 2020. The Europe 2020 strategy put more emphasis on poverty and social exclusion compared to the Lisbon strategy which mainly stressed the importance of economic growth and job creation. However, such a reassessment did not result in a substantial decrease in poverty at the EU level. Nonetheless, some individual countries (Bulgaria, Hungary, Latvia, Poland, and Lithuania) could achieve a solid decrease in the number of people at risk of poverty and social exclusion. The graphical analysis showed that the most vulnerable groups in the EU are people aged 16-24, unemployed individuals, females, single adults with dependent children, people with low levels of educational attainment, inhabitants of rural areas, and people who do not own but live in rented accommodation (see Figures 2-8). Next, the empirical analysis of all 27 EU member countries has shown that unemployment, economic development, expenditure on social protection, and government effectiveness Granger cause AROPE, and they mutually influence each other (see Tables 5-6). In contrast, income inequality is Granger caused by AROPE but not the other way. However, Granger causality is about the ability of a variable to forecast another one. In contrast, prediction is not always about the forecast, so it is vital to conduct regression analysis to reveal the causal relationship. The panel regression revealed that when income inequality increases by one unit, AROPE increases by 2.4% ceteris paribus. Other variables included in the analysis besides government effectiveness namely, unemployment, economic development, and expenditure on social protection also show a significant impact on AROPE. The Gini coefficient shows the strongest impact on AROPE; therefore, the results suggest that the policymakers in the EU need to focus on inequality problems more to achieve the goal of poverty alleviation because, in the period 2005-2020, it had the strongest influence on AROPE.

This thesis is structured as follows. Section 2. provides a general overview of the definition of poverty, its types, and means of poverty measurement. It also discusses factors affecting poverty by examining empirical evidence in broad literature. Section 3. looks into poverty dynamics and the development of poverty policies in the EU member countries in 2005-2020. Then, Section 4. provides information about the data and methodology applied in this research. The results of the analysis,

together with the discussion, can be found in Section 5. Section 6. concludes and offers some policy implications.

2. CONCEPTUAL FRAMEWORK ON POVERTY AND ITS TYPES

Humanity was not as rich as it is now. Poverty is how nature reminded society of itself, and the fact that the limited food supplies and the boundless ability of humankind to reproduce came into conflict precisely when the prospect of unlimited growth of material goods suddenly opened up to people, made the irony of this even crueler. The concept of poverty is ambiguous; it is constantly being concreted and modified. Whatever the method of measuring poverty, the presence of measurement attempts indicates the importance of identifying groups of the population and households that need the support of society.

2.1. The issue of measuring poverty

The current body of studies on poverty provides numerous indicators to estimate poverty. Understanding what type suits best is essential for two reasons: (1) it helps to determine the measures to alleviate poverty, and (2) it allows monitoring the progress in reducing it.

Sen (1976) has distinguished two main steps in analyzing poverty: (1) the identification of the poor and (2) the aggregate assessment of poverty. The first step involves choosing a unit (household), monetary or non-monetary resources, and setting a poverty line. In addition, an analyst should also consider the difference in the consumption of resources based on age and the cost of living alone or with other people so that the amount of the resources is determined by the household size and composition. Poverty line selection is in the hands of the analyst. The poverty line is a sort of threshold, so if a person happens to be below the cutoff point, it signals poverty. Setting the line is arbitrary and challenging as it rests on relative or absolute terms, the subjective or objective perception of poverty, and monetary or non-monetary dimensions.

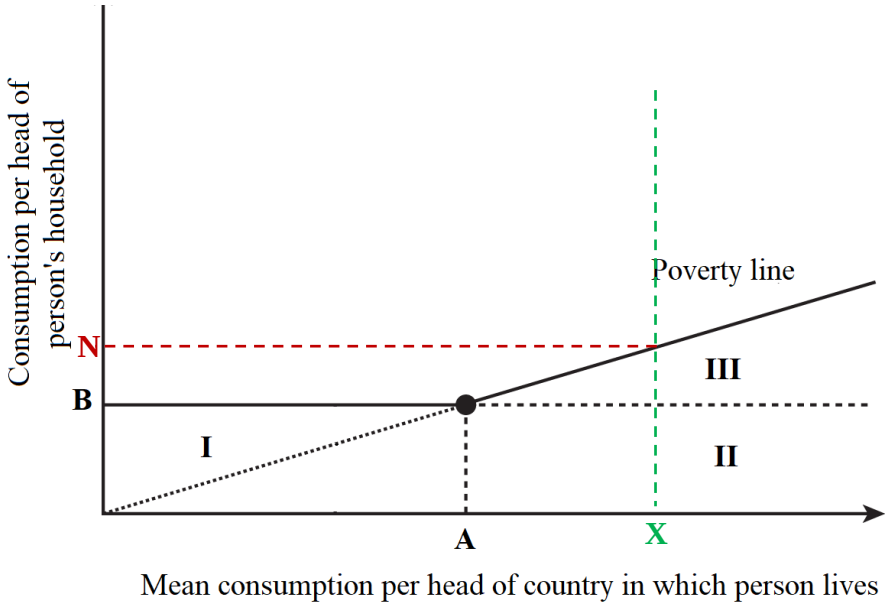
Conventionally, the poverty rate builds on this objective perception of an expert who defines the profile of the poor. This method bumps into an ethical dilemma because poverty is also a subjective feeling. If a person who is not poor by the standards

determined by objective terms still feels deprived, it indicates the ineffectiveness of objective poverty in capturing public sentiment. The subjective approach to poverty rests on assessing respondents' wealth and minimum income to meet needs. The researcher should be careful with the selection of the wording of the question. For instance, when asking Minimum Income Question (MIQ), the responder might consider their current lifestyle, which distorts the final poverty line as individuals in the same society have heterogeneous perceptions of “minimum”. Misinterpretation can be avoided if a pollster asks about “minimum expenses necessary for survival” (Steiger et al., 1997). MIQ helps to set a poverty line based on monetary factors; on the contrary, questions about subjective welfare, like life satisfaction and happiness, can help to measure non-monetary dimensions. Again, the results can be highly biased due to trivial factors such as a person's character, current personal problems, weather, etc. (Bussolo et al., 2020). The Easterlin paradox also undermines the subjective approach because it suggests that the nation’s gradual or rapid welfare growth over a longer period is not accompanied by a similar increase in the happiness level of residents (Easterlin, 1974). In defense of the subjective approach, Diener, Lay, and Oishi (2013) claim that Easterlin did not consider that economic growth does not always lead to a parallel increase in household income. If it is the case, then subjective well-being rises. The subjective perception of poverty should enhance the poverty measurement, but the priority should be given anyway the objective approach given limited resources for reducing poverty (Mahmood et al., 2019).

The absolute poverty line (basic needs/commodities) is a relatively fixed threshold, still researchers have operated with different lines in different periods of human history, resulting in its changing nature in the long run. It is often thought to be the lowest value, but societies and policymakers are the ones who set it, so having a swimming pool or jacuzzi can also become a basic need. The relative poverty line varies depending on the living standards in a society. Living conditions are heterogenous in all countries, so the line becomes affected by social context. It is often associated with inequality. Both absolute and relative poverty lines are vital as they show different facets of poverty: basic needs and social inclusion (Bourguignon,1999). Some studies suggest mixing the lines to capture both aspects

(Decerf, 2022). The World Bank[1] and the EU[2] have already used a hybrid poverty line (Tetteh Baah et al., 2022). Figure 1 depicts Atkinson's (2019, p. 56) graphical interpretation of the adjustment path of these poverty lines. At first, the poverty line is fixed, representing absolute poverty, then at point A (absolute threshold), the slope of the line changes. At the switching point poverty line splits into absolute and relative ones, where the former becomes irrelevant because after point A mean consumption exceeds threshold B. Say, the mean consumption of country X is at point X and the X resident's consumption per head of person's household is at point N, then the resident is not poor in absolute terms as the consumption is above poverty line B but he/she is relatively poor because their consumption is below average consumption per person in this country.

Figure 1. Absolute and relative poverty in global poverty measurement



Source: Atkinson, A. B. (2019). Measuring Poverty around the World. Princeton University Press., the author's adaptation

[1] Societal Poverty Line (SPL) is calculated using the following formula:

SPL=max ($2.15, $1.15 + 0.5*Median)

[2] At risk of poverty and social exclusion (AROPE)

Towsend (1987) wrote about the importance of measuring relative poverty, for whom there were no "absolute" needs" and who insisted that people's needs for material goods in different societies are different. However, Sen (1985) argues that this is true only for material goods, the very essence of people's needs is absolute, it is just that in different societies these needs are met with a separate set of goods. Therefore, according to Sen, absoluteness always lies at the basis of any relativity. The increase in mean consumption triggers the relative poverty line cutoff point also increases. The threshold for the absolute poverty line is the international extreme poverty line which was $1.9 per person per day until 2022. The World Bank has raised it to $ 2.15 (base year - 2017). The necessity for change is explained by the increase in global price level but its real value has remained the same (World Bank, 2022).

Sen (1976) suggests using the axiomatic approach when designing a poverty measurement for the second step of the poverty analysis. This approach is based on the following three axioms:

– Focus axiom – poverty indicators are not affected by the non-poor

– Monotonicity axiom – a decrease in the income of the household below the threshold should increase the poverty index

– Weak transfer axiom – a pure income transfer from a poor household to any relatively richer one must increase the poverty index

Later the poverty literature added other axioms (Xu & Osberg, 2002):

– Strong upward transfer axiom – if a redistribution of income among the poor resulted in an upward transfer, the poverty index must increase

– Continuity axiom – poverty index must be sensitive to the change in incomes

– Replication invariance axiom – the poverty index does not change if it is computed based on an inequality measure generated by the k-fold replication of an original income distribution.

A sound poverty measure should consider income distribution among the poor and be sensitive to income inequality among the poor. If an almost poor household gets above the threshold at the expense of a poor one, the total poverty rate should

decrease as a result, but this causes more deprivation to the latter group. Therefore, it is controversial to argue that poverty is alleviated. Measuring the incidence of poverty is not sufficient, adjusting the measurement for the depth of deprivation is essential according to the axiomatic approach. Many conventional measures do not satisfy Sen's axioms and are often misleading. For instance, the headcount index[3] or ratio is a conventional measure showing the percentage of the population living below the poverty threshold and classified as poor. The limitation is that it does not provide any information on how far the poor are below the threshold and the income distribution among the poor; therefore, it is not a "Sen-type" measurement. If this measure is used to monitor the progress of some poverty alleviation programs, then improving the lives of the people close to the threshold would work best, but that is a controversial policy (Xu & Osberg, 2002). On the contrary, the poverty gap index allows us to see not only the incidence of poverty but also its depth meaning how poverty is distributed among the poor, however, it is not sensitive to the income inequality among the poor. Thus, Sen developed his index that satisfies all his axioms but later it had to be transformed to satisfy the strong upward transfer, continuity, and replication invariance axioms. Shorrocks (1995) devised the Sen-Shorrocks-Thon Index[4] that does not violate any above-mentioned axioms. Headcount and poverty gap ratios[5] and the Gini coefficient of poverty gap ratios calculate this index. (Osberg & Xu, 2000). Some argue that developing an ethically sound index is extremely complex, but Osberg & Xu (2002) claim that Sen-type indices[6] have simple geometric and numeric interpretation; hence, the researchers

[3] Headcount ratio is calculated using the following formula: $HR = \frac{q}{N}$, where q – the number of poor, N – total population. It indicates the fracture of the total population that lives below the set national poverty line.

[4] $SST = \frac{1}{N^2}\sum_{j=1}^{q}(2N - 2j + 1)\frac{Z - Y_j}{Z}$, where z – the poverty line, y – income of household j that lives below the poverty line, N – total population.

[5] $PGR = \frac{1}{N}\sum_{j=1}^{q}\left(\frac{z - y_j}{z}\right)$, where z – the poverty line, y – income of household j that lives below the poverty line.

[6] For example: $S = HI + \frac{q}{q+1}(1 - I)G_p$, where G_p – Gini coefficient for income inequality among the poor, q – the number of poor, I – income gap ratio, H – fraction of population in poverty

believe this index has practical implications and provides a more accurate measurement of poverty.

If poverty is defined as a lack of resources, the most important problem is determining which resource is the most suitable for measuring it. Initially, the main resource for measuring poverty was money; the monetary concept helped to identify poverty. Yet, measuring poverty only in monetary terms might not provide the bigger picture, so various non-monetary and multidimensional indices were introduced to improve the measurement. Despite seemingly solving the problems caused by using the monetary approach, the novel approaches also had inherent problems. To begin with, it is important to understand that all approaches can be divided into 2 main groups: unidimensional and multidimensional approaches. Income or expenditure approaches are prime examples of the former. In addition, the food security threshold is another possible resource. Given the inefficiency of the unidimensional approach, researchers have tried to develop a multidimensional approach. Sen can be considered an ardent advocate of the use of the capability approach to poverty, which formed the basis of the concept of human development (Robeyns, 2005). Sen criticized income-based or resources-based theories claiming that they represent instrumental factors that help to reach the end goal but do not necessarily represent the end goal, whereas well-being, justice, and development shape the end goal and have intrinsic importance (Sen, 2001). If these factors expand human capabilities, then poverty means that these opportunities – the opportunity to lead a long healthy creative life and enjoy high standards of living – are denied to a person. The assessment of public policy within the framework of this approach is based on the question, "Does this policy lead to the improvement of people's opportunities?", and the measurement of poverty is based on multidimensional indices, for example, the human development index, and the multidimensional poverty index. Another well-known approach is the multidimensional poverty index designed by the Oxford University Initiative on Poverty and Human Development (OPHI). The Global Multidimensional Poverty Index is based on the Alkire-Foster Method and is measured in equal parts by three components: health, education, and quality of life (Alkire et al., 2021). This index allows not only to determine who is poor but also the degree of deprivation. However, as the level of poverty is determined using several dimensions, it is demanding to decide what to include. Thus, the evolution of the

interpretation of the concept of "poverty" has gone through stages from its one-dimensional perception based on some indicator: whether it is a monetary or non-monetary resource to multidimensional (cultural, political, social poverty, etc.).

2.2. What affects poverty: theories and evidence

Poverty has many facets, causes, and effects that differ in every society, so the theory of poverty today does not have a clear structure formed. However, it is possible to consider the main factors influencing poverty through the prism of behavioral, structural, and political theories (Brady, 2019).

Proponents of behavioral or individualistic theories argue that the cause of poverty lies in the poor, in their lifestyle, character, race, ethnicity, family, sex, age, etc. Reducing poverty is possible only by decreasing the number of people with characteristics that trap them in poverty, so, for instance, some eugenic practices like sterilization were seen as a way to alleviate poverty in the US (Keely, 2002; Ladd-Taylor, 2017; Price & Darity, 2010). One of the first ardent supporters of this idea was social Darwinists (Litinskaya & Matyushina, 2016). The analysis of socio-economic processes under this approach is based on Darwin's theory which states that the main factor of evolution is hereditary variability and natural selection. Poverty, according to Social Darwinists, is a consequence of natural selection (Rogers, 1972). For example, Spenser, one of the founders of this approach, believed that poverty is a personal problem, and the state should not help the poor, since they are responsible for their lives (Litinskaya & Matyushina, 2016). Social Darwinists also condemned people engaged in charity. The thinkers of that time believed that “pauperism and progress were inseparable” (Polanyi, 1944, p. 108). However, not all supporters of social Darwinism shared this point of view, mainly the so-called liberal social Darwinists. Towards the end of the 19th century, liberal social Darwinists began to advocate for the abolition of segregation of the poor, arguing that education and good living conditions could change the process of evolution for them. Carnegie, one of the brightest representatives of this trend, believed that the constant rivalry inherent in capitalism created an unequal distribution of resources, and if a person is not successful in this struggle, it does not mean that he becomes “unfit”. Reduced self-perception can block a person's motivation, paralyze the will, and eventually form a fatal attitude to life that contributes to the entrenchment of poverty. Thus, the

poor are under moral pressure from the affluent strata of society: arrogant attitude, sometimes even condemnation. Therefore, he believed that the rich should donate to the patronage of schools, hospitals, libraries – institutions to help the poor (Carnegie, 1906). So, basically, they advocated for fixing the system, not the poor (Wray & Bell, 2004; Ladd-Taylor, 2017).

Today behavioral approach does not get irrelevant because some articles show that it is impossible to completely deny the influence of personal characteristics on the causes of poverty and psychological therapy can help to fix poor (Fan & Xu, 2022; Majumdar & Chatterjee, 2020; Thompson, 2015). It is important to stress that current research does not deny system failures, as it is also one of the main causes of poverty. Eventually, the idea proposed by liberal social Darwinists laid the foundations for structural and political theories. Advocates of egalitarianism have also supported this view but unlike Darwinists, they believe that the capitalist system is the root of all evil. Charity does not eliminate the cause of the problem but deals with the symptoms, structural changes starting from the mode of production are necessary otherwise complete poverty eradication is impossible. Trying to explain the double movement, Polanyi (1944) wrote that the self-protection of society is not compatible with the functioning of the market-based economic system as it dehumanizes and leads to the degradation of human lives.

Structural and political theories suggest that poverty is caused by the imperfection of economic, social, and political systems. Thus, the responsibility for poverty is assigned to society and the state, and not to the individual. The solution to the problem is seen either in changing the social structure or in a higher level of social protection (Muzdybaev, 2001). These structural factors, i.e., socio-economic, and political settings can lead to and contribute to poverty. In the following paragraphs, an attempt will be made to identify the most common factors described in the literature.

One of the most crucial factors is labor market imperfections: joblessness, working poor, a significant wage gap between the lowest- and highest-paid workers, income skew depending on the sector, etc. Minsky (1965), who worked on solving poverty in the US in the 60s, stressed the importance of creating jobs and effective and adequate minimum wage at the initial stages of the fight against poverty:

> A necessary ingredient of any war against poverty is a program of job creation; and it has never been shown that a thorough program of job creation, taking people as they are, will not, by itself, eliminate a large part of the poverty that exists. (p. 175)

It is the shortage of jobs that creates poverty, i.e., poverty can be eradicated only with a low level of unemployment. Often, the state organizes vocational training or retraining programs so that people can start working. But with a shortage of jobs, these programs are useless. Speaking of working conditions, the Global Poverty Chain approach describes that the activities of transnational companies (TNCs) in the global south led to further impoverishment not enrichment as it was believed. Selwin (2019) says that workers in China and Cambodia are super-exploited as they are paid much less amount than people in the global north for the same amount of work but under much worse working conditions. The author argues that even if people overwork to earn more, it is still extremely insufficient, so the proclaimed benefit from the expansion of TNC does not match reality in many cases but leads to further labor exploitation due to the unregulated labor market. However, Goldberg and Pavcnik (2004) claim that trade liberalization might improve labor regulations and increase the minimum wage, but it depends on the labor institutions in each country. In some countries, the reason for the working poor may be the lack of effective indexing of wages. That is, if the cost-of-living increases and the level of income remains at the same level, a person earns less means of subsistence. Outstripping the growth of household incomes can solve this problem, but there is a risk of a wage-price spiral (Boissay et al., 2022). Minsky, who has been working on this problem for a long time, argued that for an effective anti-poverty policy, the state should set limits on the growth of prices and profits (Minsky, 1972). The COVID-19 pandemic has only exacerbated these problems. Jain et al. (2020) found that the job losses amid COVID-19 increased the poverty rate by 20-33% in South Africa due to ineffective employment insurance and social protection policies.

Unequal distribution of resources due to established institutions, regulations, and laws is also seen as one of the main factors for increasing poverty. It can take the form of income, wealth, and consumption inequality. Pareto's theorem states that the effective allocation of resources occurs only if it complies with the following condition: no redistribution can make one of the members of society better off

without someone else becoming worse off. However, effective allocation does not say anything about social justice. The desire to allocate resources in the interest of achieving maximum efficiency in the economy and the desire to observe the fairness of distribution may contradict each other. An attempt to increase equity via income and wealth redistribution can reduce efficiency. But high inequality level increases social tensions, so society should make sure that there are as few dissatisfied people as possible. This means that it must take measures to ensure that benefits are distributed among people fairly. However, there is a risk that attempts to reduce inequality will lead to economic decline. Kuznets also proved the possibility of a positive relationship between economic growth and an increase in inequality at the initial stages of the countries' economic growth (Kuznets, 1955). Bergstrom (2020) conducted a study that includes poverty, inequality, and income data for 135 countries from 1974 to 2018. The author suggests that poverty reduction was mainly driven by income growth in the studied period, and in the following years, this channel will become less effective than inequality reduction. However, Bergstrom (2020) refrains from suggesting reducing poverty through lower inequality as it may increase poverty through income channels if the economy starts to decline. In the literature, it is also known as a double dividend effect: decreasing inequality today alleviates poverty today. In the future, it will be even higher than the initial level due to negative economic growth (Alvaredo & Gasparini, 2015).

The next factor is related to trade, namely trade liberalization. The different availability of resources and conditions for production in individual countries explains the fact that the production of the same goods is cheaper in some countries and more expensive in others. This forms the economic basis for international specialization and foreign trade, from which all trading countries are supposed to benefit. Yet, in many countries, due to the low competitiveness of products in world markets especially with imported goods, poverty can worsen (Kis-Katos & Sparrow, 2015; Topalova, 2007). Low-skilled workers who work in import competing sectors might suffer due to lower wages or the risk of losing their job as local firms try to gain price competitiveness. Prices might increase substantially after trade liberalization and this is one of the most significant effects so if wages are not indexed this aggravates poverty (Goldberg & Pavcnik, 2004; Winters & Martuscelli, 2014). Trade liberalization is a part of globalization and as Polanyi (1944) believed,

is the dis-embedding force aggravating social tensions and causing double movement. Thus, trade liberalization might negatively affect welfare and contribute to poverty dynamics.

The next factor gaining more attention due to the growing popularity of the green agenda today is ecological problems. Poverty is how nature reminded society of itself, and the fact that the limited food supplies and the boundless ability of humankind to reproduce came into conflict precisely when the prospect of unlimited growth of material goods suddenly opened to people made the irony of this paradox even crueler. More emphasis is being made on the impact of climate change and environmental problems on poverty, especially for people dependent on climate-sensitive natural resources for income. At the global level, this factor threatens food security. Poor segments of the population suffer more from the negative effects of climate change: falling agricultural productivity, less access to consumable water and air, unsafe infrastructure, and homes, etc., therefore, given the dependence of people working in agriculture on climate change, the state should provide support (Chancel et al., 2023; Skoufias et al., 2011). It is important to note that if we focus on the risks that climate change and environmental problems entail, the way out of this situation may be a slowdown in economic growth in attempts to reduce emissions that adversely affect the environment. This path often pursued in post-growth or ecological economics, paradoxical as it may sound, can reduce the rate of poverty reduction (Son & Kakwani, 2004). However, Hallegatte (2022) argues that emissions and economic growth can be decoupled in the future, the long-term benefits of sustainable/green growth will protect people's well-being in the future (Kousar et al., 2022). Environmental change also results in migration especially if these changes undermine food security (e.g., Myanmar, Tanzania (Morales-Muñoz et al., 2020))

Cumulative and cyclical economic shocks are also considered as a source of poverty formation, they undermine the stability of society in the sphere of creation and distribution of social products and benefits (Ayala et al., 2017; Meyer & Sullivan, 2011). There is another less scientific explanation of the causes of poverty – the fatalistic approach (Muzdybaev, 2001). In a word, neither the individual himself nor the social system is responsible for poverty, but factors beyond the control of the subject: the vagaries of fate, a fatal combination of circumstances, illness, or lack of abilities and talents.

3. POVERTY IN EUROPEAN UNION

Europe 2020 was adopted in June 2010. In 2011 AROPE was 24.2%, which was equal to 120 million people. Before the enlargement of the European Union, it was customary to measure poverty by income threshold[7], which was determined by each EU member independently. The accession of new members of the union, especially the countries of Eastern Europe, has significantly increased the difference in the level of poverty in the EU countries. To achieve the right policy in addressing the issue of poverty at the EU level, it is important to determine which level is considered poor and which is non-poor in the EU context. Due to heterogeneity in income levels and living standards in EU countries, the national income threshold method becomes ineffective. Fahey (2007) suggests having the EU median for indicators measuring different dimensions of poverty as a sort of the EU norm for reducing regional poverty and strengthening the EU convergence. Put differently, the necessity of having this median in tackling poverty in the EU is not for implementing social policies at the national level because in this case, national poverty indicators are sufficient but for convergence policy aimed to achieve a unified EU welfare state. A person might not be poor having their income above the income threshold but becomes poor in an EU-broad context. For instance, people living in Bulgaria feel poor compared to the ones living in Austria, even though living conditions are decent by the living standards of Bulgaria. This is very much in line with what the subjective approach to poverty says.

Instead of designing the EU norm, the policymakers developed AROPE, which stands for At Risk of Poverty or Exclusion. Under the Europe 2020 strategy, being at risk of relative monetary poverty and/or being severely materially deprived (SMD indicator) and/or living in households with extremely low work intensity means being At Risk of Poverty or Exclusion (Eurostat, 2013). Therefore, AROPE is an

[7] The amount of money allowing to determine the poverty status. If the income is below the threshold, then the household/individual is in poverty.

example of a combination of monetary and non-monetary approaches[8]. The risk of relative monetary poverty is based on median incomes in a country, earning less than 60% of it puts a person at risk of monetary poverty. Determining the minimum point or cutoff point poses a great challenge. In addition, the indicator does not show what percentage of the median income is earned and the length of duration of poverty. The next component is SMD (severe material deprivation) which by Europe 2020 is identified as the ability of a person to afford at least 4 of 9 things that provide a minimum standard of living: being able to pay rent or utility bills, to keep home adequately warm, to face unexpected expenses, to eat meat, fish or a protein equivalent every second day, to take a week's holiday away from home, run a car, a washing machine, a color TV, or a telephone. This approach has been severely criticized because of including only 9 items and the others questioned the relevance of some parameters. As the AROPE methodology has been revised for Europe 2030, the severe material deprivation rate has been replaced with the severe material and social deprivation rate. As the new name suggests, the currently used rate has material as well as social items. Today the list has 13 items, the inability to afford at least 7 of which are considered to suffer from severe material and social deprivation. The new list includes the ability to afford to pay rent or mortgage, utility bills, keeping home adequately warm, facing unexpected expenses in the amount at-risk-of-poverty threshold, eating meat, fish, or a protein equivalent every second day, having a week of holiday away from home, a car, replacing worn-out furniture and worn-out clothes with some new ones, having two pairs of properly fitting shoes, getting together with friends/relatives for a drink/meal at least once a month, having regular leisure activities, spending a small amount of money each week on him/herself ("pocket money"), or having an internet connection. The last component is the work intensity indicator which is the proportion of the number of months that all adults in the household have worked and their work-time potential for one year. The cutoff point is 20%, when the indicator falls below it then people in the household are at risk of poverty and social exclusion. The updated methodology mentioned earlier has also introduced changes to this rate: the Europe 2020 age limit was 59 years, whereas, under the Europe 2030, it has been increased to 64. Students between 18-24 are excluded as well as retired people from the calculation.

[8] See Section 2.1 for more details.

The EU AROPE rate was 21.7% which corresponded to 95.4 million people in 2021. However, this number is not precise because AROPE statistics are based on surveys so some groups might be underrepresented e.g., homeless people, undocumented migrants, and travelers (Nicaise et al., 2019). For instance, migrants avoid speaking to pollsters because this might expose that their stay does not fulfill the legal conditions (Lelkes & Zólyomi, 2011). In 2018 alone, 601,500 illegal migrants were identified, which means that the real number of such migrants may greatly exceed this figure (Eurostat, 2019). Since it is a compound indicator, it captures various forms of poverty and/or exclusion which complicates the interpretation and does not tell anything about the cases of extreme poverty. The focus shift from extreme poverty to relative indicators like AROPE bears the risk of leaving behind the groups that need financial and moral support the most (Gaisbauer et al., 2019). Also, despite the fact that the index covers not only economic but also working conditions, political freedoms and rights are a missing dimension. As to SMD component, it is still questionable as societies even within a country can be heterogenous, so the addition of several other criteria to the list is not really effective in solving this particular issue. Moreover, the reliability of data collection is another problem, as the process has not been standardized and thus is not adequately monitored. These problems indicate that despite the fact that the index has many advantages over a basic national poverty line based on income threshold is still in use in individual EU countries, AROPE has several flaws and in fact does not meet one of Sen's axioms described earlier (see Section 2.1 for more details). The degree of deprivation is not observable, but differently, the income inequality among poor is omitted. Thus, the index should be improved to provide a deeper understanding of poverty incidence. Clerici (2021) claims in spite of the recent revision of the index for the EU 2030 strategy, the aforementioned challenges are still persistent.

3.1. Poverty profile in the EU

Table 1 shows the changes in income inequality and poverty in the EU in the period 2005-2020. Croatia joined the EU in 2013 so the data before 2010 is not available. Almost half of the countries show a decline in the Gini coefficient which suggests an improvement in income inequality. The largest decrease was in Poland, constituting 8.4-point decrease, followed by an almost 7-point decline in Portugal. Bulgaria

presents a completely opposite picture of an 8.8. point increase in the Gini coefficient. The income inequality has also significantly worsened in Germany and Sweden due to weakening wealth redistribution policies (Bach et al., 2019; Health–Europe, 2023).

Table 1: Trends of poverty rates and income inequality, 2005-2020

	AROPE				Gini Coefficient			
	2005	2015	2020	Change 2005-2020	2005	2015	2020	Change 2005-2020
Belgium	22.6	21.1	18.9	-3.7	28	26.2	25.4	-2.6
Bulgaria	61.3	41.3	32.1	-29.2	31.2	37	40	8.8
Czechia	19.6	14	11.9	-7.7	26	25	24.2	-1.8
Denmark	17.2	17.7	15.9	-1.3	23.9	27.4	27.3	3.4
Germany	18.4	20	21.6	3.2	26.1	30.1	30.5	4.4
Estonia	25.9	24.2	23.3	-2.6	34.1	34.8	30.5	-3.6
Ireland	25	26.2	20.1	-4.9	31.9	29.7	28.3	-3.6
Greece	29.4	35.7	28.8	-0.6	33.2	34.2	31.4	-1.8
Spain	24.3	28.6	26.4	2.1	32.2	34.6	32.1	-0.1
France	18.9	17.7	18.2	-0.7	27.7	29.2	29.3	1.6
Croatia	-	29.1	23.2	-	-	30.4	28.3	-
Italy	25.6	28.7	25.3	-0.3	32.7	32.4	32.5	-0.2
Cyprus	25.3	28.9	21.3	-4	28.7	22.6	29.3	0.6
Latvia	46.3	30.9	26	-20.3	36.2	35.4	34.5	-1.7
Lithuania	41	29.3	24.8	-16.2	36.3	37.9	35.1	-1.2
Luxembourg	17.3	18.5	20.9	3.6	26.5	28.5	31.2	4.7
Hungary	32.1	28.2	17.8	-14.3	27.6	28.2	28	0.4

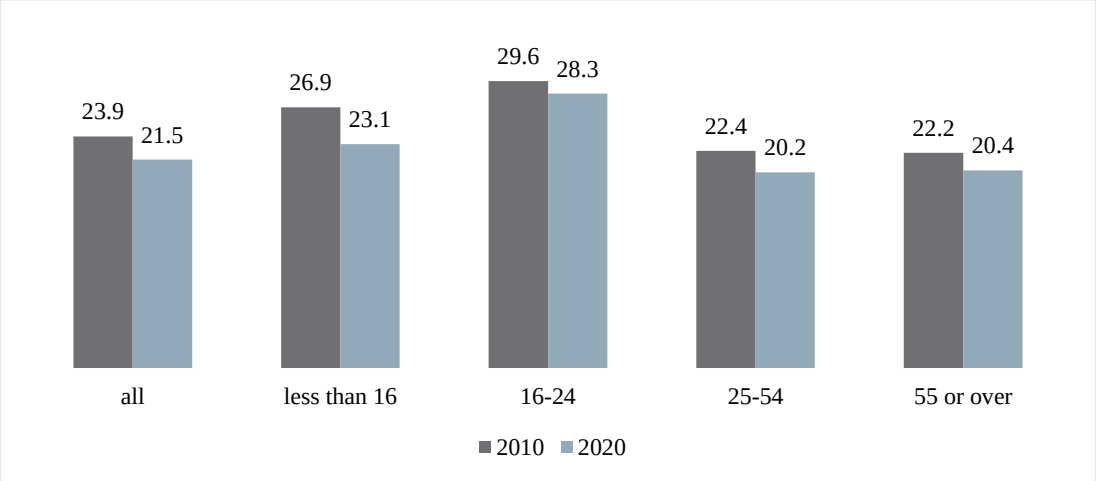
Malta	20.5	23	19	-1.5	27	28.1	30.3	3.3
Netherlands	16.7	16.4	16.1	-0.6	26.9	26.7	28.2	1.3
Austria	17.4	18.3	17.5	0.1	26.3	27.2	27	0.7
Poland	45.3	23.4	17.3	-28	35.6	30.6	27.2	-8.4
Portugal	26.1	26.6	19.8	-6.3	38.1	34	31.2	-6.9
Romania	-	37.4	30.4	-	-	37.4	33.8	-
Slovenia	18.5	19.2	15	-3.5	23.8	24.5	23.5	-0.3
Slovakia	32	18.4	14.8	-17.2	26.2	23.7	20.9	-5.3
Finland	17.2	16.8	16	-1.2	26	25.2	26.5	0.5
Sweden	14.4	18.6	17.9	3.5	23.4	26.7	26.9	3.5

Source: Eurostat Online Database

The EU member states demonstrate a more optimistic result in terms of AROPE. Over the 15-year period it declined in all states except for Germany, Spain, Luxembourg, Austria, and Sweden. All countries show an interesting pattern in AROPE dynamics that worths a close investigation. This study covers the period 2005-2020, it is important to divide this period into pre- and post- the 2008 Financial crisis to analyze the poverty dynamics more accurately in the EU. The well-being of the EU citizens boosted from 2005 to 2008, hence AROPE tended to fall. The biggest decline in this period was in Bulgaria from 61 to 45%. However, there was an increase in AROPE in France, Italy, Germany, and Sweden during the same period. After 2008, the growth of AROPE is quite expected amid a reduction in world GDP, a reduction in world trade, and a reduction in economic activity. But not all EU countries experienced an increase in AROPE. In Germany, the value fell steadily from 2008 to 2019, but in 2020 the indicator rose sharply to 21.6 – the highest level of AROPE since 2005. The same situation was in Cyprus, Greece, and Italy, where AROPE started to grow only in 2011 against the backdrop of the Eurozone crisis and austerity policies, but in 2020 AROPE fell to the level of 2008. In Belgium, the indicator did not change much in 15 years, the dynamics were quite passive. It is important to note that AROPE did not grow in the country in 2020. The growth of AROPE after the financial crisis was replaced by a stable decline in Bulgaria only after 2014, it declined even in 2020. Similar dynamics were in the

Czech Republic, Hungary, Malta, and Estonia. The dynamics were similar in Iceland and Slovenia, but in 2020 AROPE increased. The reduction starting in 2014 can be explained by two factors. Firstly, the economies of the EU countries gradually began to recover, and the outlook was improving in 2014 (Bilbao-Osorio et al., 2014). Secondly, the Regulation for the European Social Fund (ESF) 2014-2020 came into force in 2014, according to which at least 20% of the fund's resources should be allocated to reduce people living at risk of poverty and social exclusion (Farrell, 2021). Ireland, which was severely affected by the crisis, demonstrated a steady decline AROPE after 2011. Lithuania and Latvia showed a growth in AROPE from 2009 to 2011, which was replaced by a steady decline thereafter that continued even in 2020. Compared to the above-mentioned countries, the Netherlands demonstrated a completely different AROPE dynamics, the indicator continued to grow from 2009 till 2017, a similar pattern could be observed in Luxembourg since 2012. However, it is worth noting that the Netherlands could manage to achieve a decrease in the indicator from 2018 to 2020, which cannot be said about Luxembourg. France, Finland, and Sweden did not show a stable trend in AROPE since 2005, every year or two growth was followed by decline and vice versa. In the midst of a pandemic, in 2020, the decline was only in Sweden, whereas AROPE increased significantly in France and Finland. Until 2014-15, AROPE did not have a constant trend in Portugal and Austria, but later the indicator continuously fell to the end of the studied period. In 2020 Denmark reached its lowest AROPE since 2005., AROPE data for Croatia is available from 2010, it is striking that from 2010 to 2020 this indicator continuously

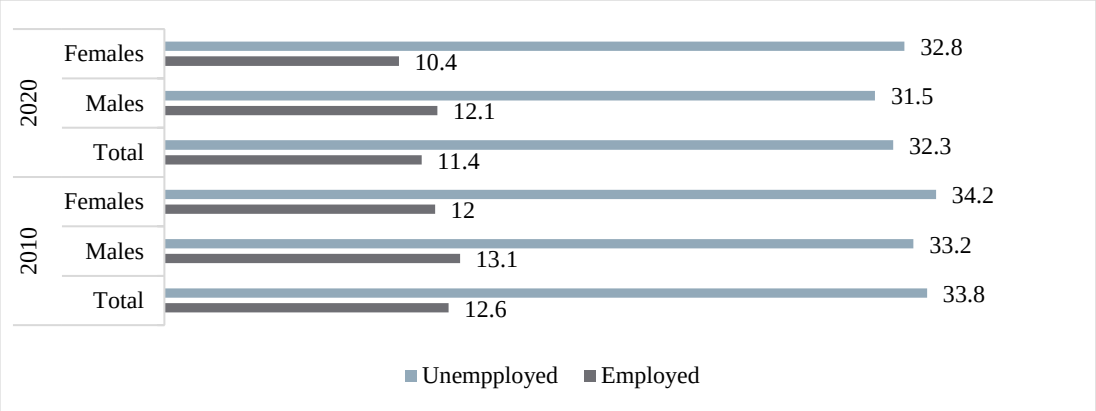
Figure 2: EU-27 AROPE % of population, by age group



Source: Author's representation based on data collected by Eurostat

declined. Similarly, AROPE never increased in Romania, Slovakia, and Poland over the period 2005-2020. Figure 2 shows the percentage of people who were at risk of poverty and social exclusion in different age groups at the launching of Europe 2020 in 2010 and its end in 2020 in the EU. In 2020, the percentage of people at AROPE was 21.5% which decreased only by 2.4%. The highest AROPE in 2010 was among people aged 16-24, it remained the highest in 2020. The second most affected group was people under the age of 16, i.e., children, while the cases of AROPE among people from 25 and above were on average 2-3% less than among children in both 2010 and 2020. Therefore, the statistics show that the most vulnerable age group in

Figure 3: EU-27 AROPE % of population, by employment status and sex

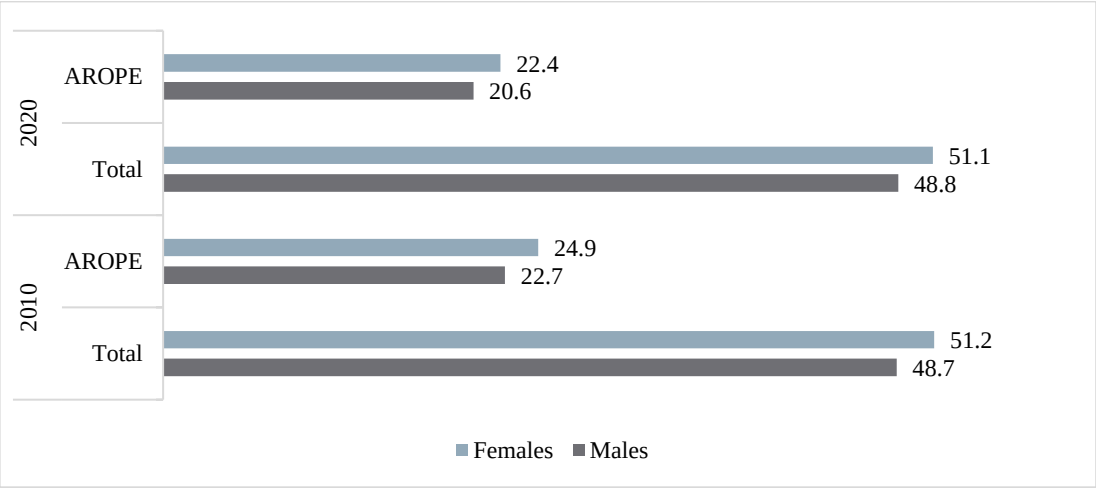


Source: Author's representation based on data collected by Eurostat

the EU is people between the age of 16-24. Figure 3 shows the gender and employment status difference in AROPE for 2010 and 2020. In 2010 unemployed people were almost three times more at the risk of poverty and exclusion than employed people, it did not change in 2020. Hence, this might indicate that employment played a significant role in improving poverty and exclusion in the EU. Interestingly, the figure shows that when the unemployed female group is analyzed it tends to have less people at AROPE compared to males whereas once the employed group is analyzed the picture changes. Now, AROPE among employed females was higher than among males in both 2010 and 2020. This could be a sign of gender pay gap that adds to income inequality problem in the EU. Compared to 2010 the picture slightly improved by 2020 but not substantially. Figure 4 shows the total number of females and males at risk of poverty and exclusion. The graph clearly depicts that female poverty is more observed in both 2010 and 2020. Females especially mothers

usually tend to be at higher risk of poverty after childbirth or divorce. Popova and Navicke (2019) studied such poverty incidents in the EU. The results showed that mothers are exposed to such a risk but to varying degrees due to different income

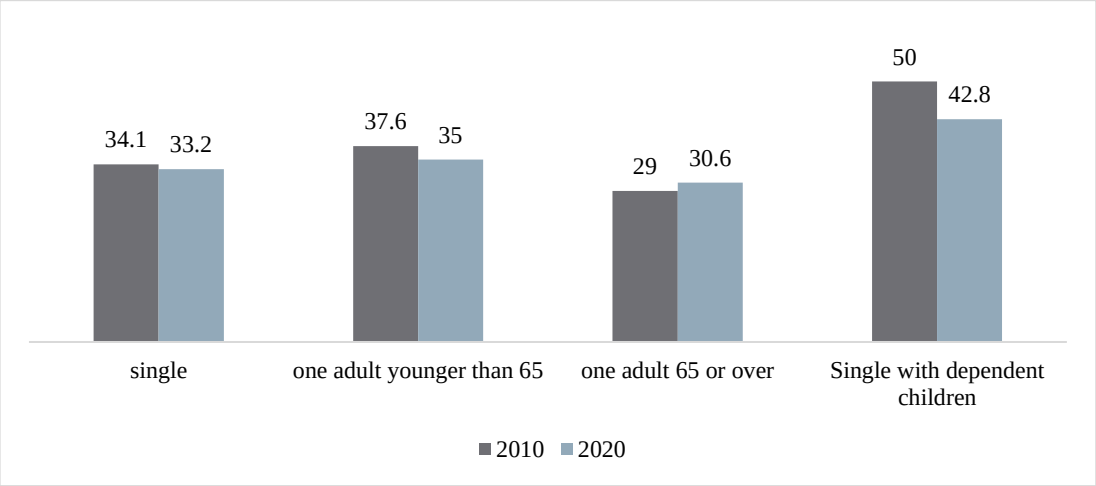
Figure 4: EU-27 AROPE % of population, by sex



Source: Author's representation based on data collected by Eurostat

stabilizers. The authors differentiate between income replacement paid directly to relieve the income shock and compensation in the form of benefits and social

Figure 5: EU-27 AROPE % of population, by household composition

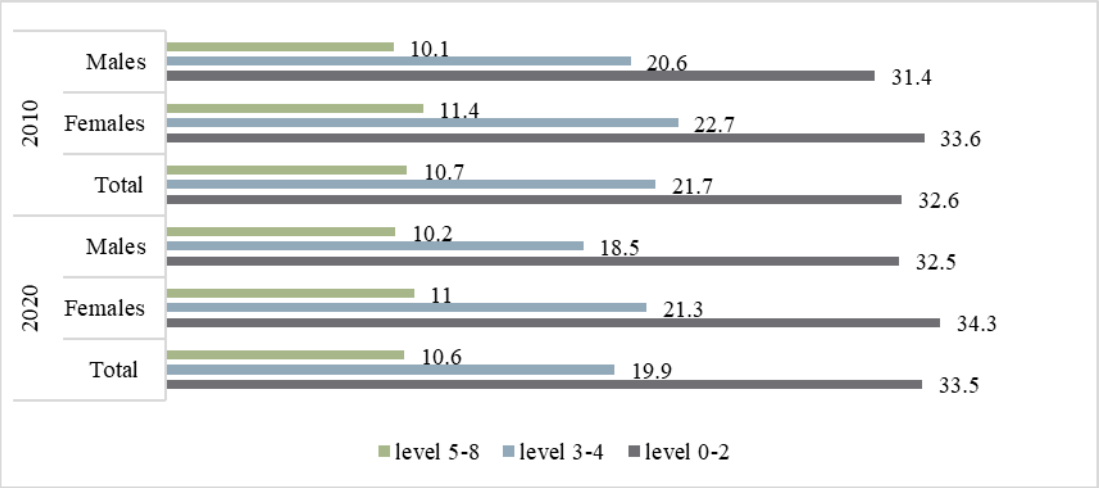


Source: Author's representation based on data collected by Eurostat

assistance. For instance, the median replacement rate in Ireland was a third of the lost income, whereas France ensured 100% replacement. In the case of divorce, the mothers in the EU had less generous opportunities, the highest replacement rate was in Austria making up only 15%. In the EU context, 23-43% of mothers were at risk of poverty after childbirth and 8-24% were at risk after divorce because of the

difference in compensation rates. Mothers social class mattered in risk exposure to poverty in countries like Czech Republic and Lithuania, whereas it had a weak effect in Finland, France, Norway, and Sweden. Figure 5 demonstrates AROPE levels in different household compositions. Quite high AROPE is in households consisting of a single adult with dependent children.

Figure 6: EU-27 AROPE % of population, by educational attainment level (ISCED 2011)



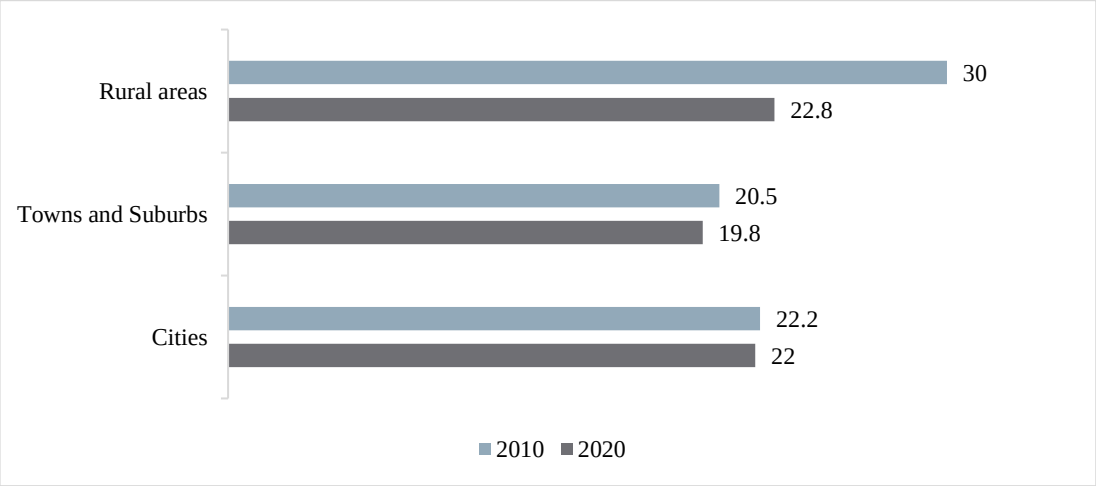
Source: Author's representation based on data collected by Eurostat

Figure 6 shows the level AROPE by education attainment level and gender. The figure presents 3 educational levels: (1) ISCED 0-2: low (less than primary, primary, and lower secondary education), (2) ISCED 3-4: medium (upper secondary and post-secondary non-tertiary education), and (3) ISCED 5-8: high (tertiary education i.e., education provided by universities and other higher education institutions). The highest AROPE level can be seen among females with low level of educational attainment in both 2010 and 2020, whereas AROPE among males in the same educational group was nearly 1% less in both periods. By 2020 the number of people with low education living at risk of poverty and social exclusion did not significantly decrease. This figure shows how impactful education in lifting out of poverty as people with medium and elevated level of educational attainment tend to be at lower risk of being exposed to poverty and social exclusion. However, still on average 10% of people with higher education lived in poverty.

Next, Figure 7 demonstrates the composition of AROPE according to the degree of urbanization. In 2010 rural areas had higher AROPE than towns/suburbs and cities, almost 10% higher, while in 2020 AROPE in all three categories became almost

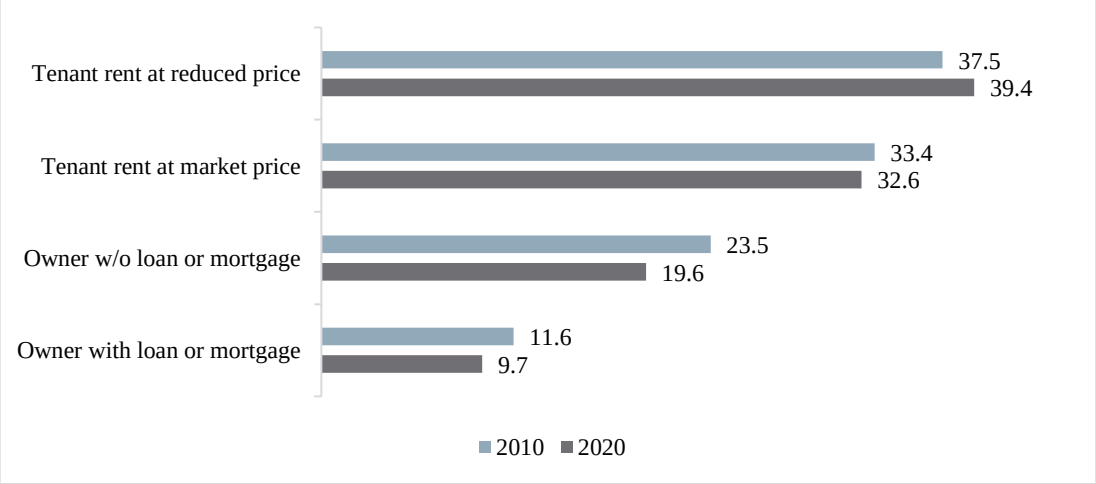
equal. While rural poverty declined by 8% between 2010 and 2020, a decrease in AROPE was less than 1% in both towns/suburbs and cities in the EU.

Figure 7: EU-27 AROPE % of population, by degree of urbanization



Source: Author's representation based on data collected by Eurostat

Figure 8: EU-27 AROPE % of population, by tenure status



Source: Author's representation based on data collected by Eurostat

Finally, Figure 8 depicts AROPE levels by tenure status. Tenure status here is similar to housing tenure which states ownership structure under which someone has the right to live in a house or apartment – Eurostat identifies two tenure statuses: owner and tenant. The graph clearly shows that tenants are more likely to be at risk of poverty and social exclusion compared to owners. In both 2010 and 2020 owners tended to have 15-20% lower AROPE rates. In addition, people suffering from

energy poverty were more likely to have physical and mental health problems than non-energy poor (Thomson et al., 2017).

The Europe 2020 goal was to decrease poverty by 25% or pull 20 million Europeans out of poverty and social exclusion. Unfortunately, the data shows that this goal could not be reached. Lecerf (2016, p. 1) wrote that social groups affected by the crises the most were "women, children, young people, people living in single parent households, those with less education, and migrants". The 2020 statistics demonstrate that the vulnerable groups were still the same.

3.2. Evolution of the EU poverty policies

In the EU, various models of social policy coexist, differing in the degree of state intervention in public life and the obligation to guarantee their citizens a certain acceptable standard of living. This heterogeneity poses a difficulty to form a unified social policy program for all members. In the period 2005-2020, the Lisbon and Europe 2020 Strategies were developed in the EU aimed at converging EU countries, including on issues of national welfare. The poverty alleviation efforts were challenged by at least 6 major events in the analyzed period: (1) the EU enlargement, (2) the refugee crisis, (3) the 2008 Financial crisis, (4) the Eurozone crisis, (5) Brexit, and (6) the COVID-19 pandemic. Each of these shocks required additional actions on the part of the EU countries to achieve significant poverty reduction. In this part, EU policies in the fight against poverty and social exclusion within the framework of the Lisbon and Europe 2020 Strategies will be considered in detail against the background of the above-mentioned economic and political upheavals.

The EU adhered to the Lisbon Strategy for 10 years before Europe 2020. An innovation in the Lisbon Strategy was the Open Method of Coordination (OMC), a platform where governments can share practices to achieve the goals of the strategy. It is important to note that the OMC is the soft power of the European Commission, the goals and indicators set by the OMC are not a legal obligation of EU members, and measures to achieve them remain within the competence of national governments (Yakubova, 2018). Another development during this decade was mandatory data collection for EU SILC in the mid-2000s (Jenkins, 2020). After the enlargement of the EU and the beginning of increased competition between EU members, creating a strategy aimed at greater cohesion within the union became

necessary. The European Council encouraged the member states to join forces so that the EU can become “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion, and a sustainable environment” (European Parliament, 2009). For this purpose, it was necessary to create a unified social model, so soon the OMC was given a social dimension to enable close cooperation of the EU members, NGOs, and stakeholders in developing social strategies that could be implemented at the national level. In the literature, this is better known as the Open Method of Coordination on Social Protection and Social Inclusion (‘Social OMC'). The EU member countries also agreed to use Laeken indicators, covering four main dimensions: financial poverty, employment, health, and education, to track the progress of poverty eradication (Sebastian et al., 2011). These indicators set a portfolio for social protection and social inclusion. Many researchers criticize the absence of binding policy coordination and recommend that OMC has more leverage to fulfill obligations and can apply sanctions where necessary. The Lisbon Strategy focused much more on growth and job creation, so it was often severely criticized due to insufficient multidimensionality and especially insufficient emphasis on social issues like poverty (Silva Peneda, 2008). This is why The Europe 2020 has more social dimension and promoted inclusive growth. Indeed, inclusive growth is crucial and should be more promoted in the EU poverty agenda. Despite setting this goal for the Europe 2020, it was not fully accomplished as numerous studies show that the EU households could not equally benefit from the economic growth (Michálek & Výbošťok, 2019). Interestingly, one can assume the relatively flat poverty rate after 2008 was due to the crisis but if you review the data prior to 2008, it becomes obvious that such a trend was a general rule even before the crisis. This can be explained by (1) too much emphasis on growth and job creation and (2) the OMC ineffectiveness. Higher employment decreases poverty only if the work is paid enough, however during the Lisbon Agenda the cases of in-work poverty started to increase (Jenkins, 2020; Marx & Nolan, 2014).

The 2008 Financial crisis and the following Eurozone crisis have exacerbated the poverty level in the EU states. These economic shocks have shown the urgent need for coordination, especially within the eurozone. The establishment of the European semester in 2010 was associated with solving the issue of coordination and

inefficient implementation of national economic policies, which are considered the main reasons for the unsuccessful result. The European semester is specific recommendations of supranational bodies of the European Union for EU member states to carry out national reforms, their implementation, and a platform for ensuring dialogue between EU members and representatives of the European Commission and the European Council, respectively. These recommendations also relate to social and poverty reduction policies. 2010 was proclaimed the European Year for combating Poverty and Social Exclusion. Zeitlin and Vanhercke (2018) analyzed the country specific recommendations and found that in 2010, at the very beginning the European Semester stressed more the importance of fiscal consolidation and economic recovery imperatives and also suggested austerity policies to meet these goals. Fiscal policy was a way to stabilize the EU economy, but later countries were forced to implement the austerity policies. When a country with increased number of poor cuts public spending, it negatively affects the disadvantaged people. In the EU in addition to the cuts, social assistance eligibility criteria also became stricter (Lecerf, 2016). Several studies have voiced a concern about the austerity policies. Dafermos and Papatheodorou (2013) conducted a panel analysis to reveal factors affecting poverty in 14 EU countries in the period 1994-2008. The authors identified that economic growth as well as social protection spendings had a significant role in poverty and inequality reduction, so cuts in the government expenditures that would affect social security were not very much endorsed. The authors raised a problem of social cohesion in the EU due to austerity policies. Leventi et al. (2019) have evaluated some poverty policies help to improve poverty reduction in Belgium, Bulgaria, Estonia, Greece, Hungary, and Italy. The study shows that child benefits and social protection payments are more cost-effective poverty policies than tax benefits, so austerity policies have tremendous consequences for poverty. In 2018 child benefits were more effective in reducing poverty in Greece, Hungary, and Italy, whereas Belgium benefited more from the social payments. So, these countries should increase social spendings accordingly. Both instruments proved to be effective in Estonia, so the country should focus on two tools. Increasing income tax threshold had a minor effect on poverty in the given countries, however the authors believe that a decreased threshold would have an incomparably higher negative impact. However, the language of retrenchment and reduction of public spending for

disadvantaged groups switched to increasingly social policy-oriented in the following years.

By 2016 poverty was not covered in the EU goals explicitly enough, some recommendations were given to the countries where the problem was acute – mainly Eastern and Southern Europe, whereas the countries of Western and Northern Europe were advised to focus on social cohesion through education and employment programs for marginalized members of the society and bring down the income inequality through taxes (Zeitlin & Vanhercke, 2018). Initially, the countries were not happy with the entire process, because the commission would apply the same recommendations to all members without taking into account the national specifics. Later, Junker announced the aim to achieve Social Triple A' rating meaning that European Commission, EU member states and affiliate partners should work on designing set of social rights for all EU citizens, he also stressed that European Semester should also care about social policy and establish a dialogue with each member state to facilitate the process (Lecerf, 2016). As a result, in 2017 the European Council approved the European Pillar of Social Rights based on twenty principles to make the EU fair, inclusive, and full of opportunity (European Commission, 2017). The action plan was approved 4 years later at the Porto Social Summit.

Refugees predominantly from the MENA region have become the next challenge for the EU social model[9] in the period 2014-2016. The EU could not effectively handle this problem which resulted in increasing popularity in right-wing parties. Refugees created fiscal challenges for countries that allowed migrants to benefit from social programs which raised concerns in the public. Gál (2018) provides "solid empirical evidence" (p. 352) that refugees became a burden for EU welfare states in both short and medium terms. The author believes that the situation might improve in the long term, but it is unlikely that the result would be positive for the receiving countries. The fiscal consequence of the refugee crisis undeniably made poverty alleviation programs less effective.

[9] The objective of the model is to build an equal society which is based on five main principles: "fundamental social rights, social protection, social dialogue, social and employment regulation, state responsibility for full employment" (European Trade Union Confederation, 2006).

The EU cohesion was shocked by another political event – the UK's exit from the EU. Brexit has become a new reason for the weakening of European identity and the strengthening of regional separatism. The European Constitution was blocked in France and the Netherlands, and the European Union harshly criticized the policies of other countries such as Poland, Hungary, and Greece. Despite the anti-European integration sentiments of a certain part of society, in 2017, at the Rome EU summit, the heads of 27 European states signed the Rome Declaration on the Future of the Community without the UK. The leaders of the 27 countries pledged to follow four directions: a secure Europe; a prosperous and sustainable Europe; a social Europe and a stronger Europe on the world stage. In the same year the European Consensus on Development was adopted by the European Commission, the European Parliament, and Council of the European Union and the representatives of the governments of the Member States to improve the coordination of efforts to reach the Sustainable Development Goals, where the fight against poverty and social exclusion is the paramount concern (European Commission, 2017). This project is an attempt to make policies in the EU countries homogenous and minimize the deficiencies observed in previous years.

French Federation of Food Banks (Fédération Française des Banques Alimentaires) responsible for food aid programs in France reported a 25% increase in people who seek help in 2020 (EAPN France, 2021).

Finally, the COVID-19 pandemic that began in final year of the Europe 2020 Strategy showed that despite the countless attempts to strengthen the EU and welfare system was not resilient enough to face such shocks and poverty aggravated as a result, but some countries could quickly organize and coordinate the resources to restore the situation. For instance, France, Germany, Italy, Spain, and Sweden could do that in a year, so it would correct to say that there was a room for cross-countries differences (Menta, 2021). However, Burlina and Rodríguez-Pose (2023) claim that compared to the US the EU welfare system could better protect its citizens from adverse effects. Yet, this comparative advantage does not negate the need for the improvement and convergence of the EU social security system. The European instrument for temporary Support to mitigate Unemployment Risks in an Emergency (SURE) during the pandemic is a good example that should ideally become permanent for further integration.

The literature shows that all the EU member states develop national strategies to fight poverty and social exclusion but at the same time at the EU level, there have always been institutions that help to consolidate the state's efforts in their fight against poverty. Convergence is not feasible yet because the countries have not been able to agree on questions like EU-wide minimal wage or basic income (Jenkins, 2020). Relative poverty has taken a hegemonic position on the EU poverty agenda, so there is little talk about absolute poverty. Because of this, many cases of extreme poverty/severe deprivation have been insufficiently disclosed and even overlooked. Absolute poverty seems to contradict the European image (Gaisbauer et al., 2019). One of the drawbacks of AROPE is that it does not say anything about the degree of deprivation which is one of the main criticisms disclosed in "Absolute poverty in Europe interdisciplinary perspectives on a hidden phenomenon" by Gaisbauer et al. (2019) - the collection of articles stressing the importance of in-depth research of different poverty situations. The series of events have challenged the poverty alleviation attempts in the EU, but the importance of the EU citizens' well-being takes a more important stance at the EU level.

4. DATA AND METHODOLOGY

Having studied the literature on poverty in the EU in detail, it is time to move on to the empirical part. This thesis assesses the impact of factors such as inequality, spending on social programs, government effectiveness, unemployment, and economic performance on poverty in the EU countries. Only countries that were official members of the union at the time of writing were selected for the analysis. The data sample includes data from 2005 to 2020 for 27 countries: Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden. Panel data will be used for the analysis, Andreß (2017) and Hsiao (2005) have identified the main advantages of panel analysis that include:

1. The possibility of studying the connections between the anamnesis of countries, the effects in the group, and the effects of time when changes occur in the population.

2. Sufficiently high evidentiary capacity with competent research because it is a combination of time series and cross-sectional data

3. A rich selection of tools for analysis

4. biases due to omitted variables can be controlled with panel data.

Despite the decisive advantages, the panel data approach has three main problems that may mislead the outcomes: (1) cross-section dependence, (2) complexity and excessive cost of data collection, and (3) unmodelled parameter heterogeneity (Andreß, 2017; Baltagi, 2021; Maddale, 1999). In this study, the second factor is not relevant, and parameter heterogeneity is solved by the usage of heterogeneous panel data models - fixed effects and random effects models.

The variables for this research have been chosen based on existing similar poverty studies (Osabohien et al., 2020; Ulu, 2018; Workneh, 2020). The dependent variable

is poverty, and the independent variables are social protection and inequality. Government effectiveness, unemployment, and economic performance are the control variables. It is possible to run a regression using dependent and independent variables only, but economic intuition suggests that it makes more sense to add additional variables for the purity of the analysis because control variables uncover "true" relationships (Bernerth & Aguinis, 2016). Table# provides a detailed overview of the variables and their proxies.

Poverty: AROPE (Persons at risk of poverty or social exclusion) is the most suitable proxy for poverty because it is a multidimensional rate developed by Eurostat to monitor the progress of the EU 2020 strategy. Before AROPE had been introduced as a poverty alleviation progress tracking measure, studies employed relative poverty rate which included people whose income was less than 60% of national median disposable income (Dafermos & Papatheodorou, 2013). The AROPE has been updated for the EU 2030 strategy but since this study is focused on the pre-2020 period the initial AROPE will be used in the analysis. It is measured as percentage of total population and estimated through the EU Survey on Income and Living Conditions (EU-SILC)[10].

Income inequality: it corresponds to the Gini coefficient of equivalized disposable income that is based on the EU-SILC. The Gini coefficient ranges from 0 to 100%, the lower Gini, the more equally income is distributed. Income inequality features in almost all poverty studies (Dafermos & Papatheodorou, 2013; Lakner et al., 2022). Piacentini (2014) found that it has significantly contributed to poverty in OECD countries which are also included in this analysis. However, as it was mentioned in Chapter 2, falling inequality might not cause a decline in poverty under certain circumstances. Thy results in the following chapter allow to see the relationship between poverty and income inequality.

Social protection*:* it is represented by expenditure on social protection benefits available at Eurostat and measured in euro per inhabitant at constant 2010 prices. Almost three billion euro were spent on social protection in 2021, where most of the amount went to "old age" meaning pension payments (Eurostat, 2023). Social protection covers the following divisions: "sickness/healthcare; invalidity and

[10] Further information on AROPE can be found in Section 3.

disability; old age; parental responsibilities; the loss of a spouse or parent; unemployment; housing; and social exclusion" (Eurostat, 2023). Social protection is one of the proven effective tools to reduce poverty (Dafermos & Papatheodorou, 2013; Fiszbein, 2014; Ulu, 2018; Vliet & Wang, 2015). It can be viewed as the main mechanism of income redistribution. In 2004 social insurance transfers helped 14% Americans to escape poverty (Ben-Shalom et al., 2014). However, errors occurring when targeting some groups can go against the principle of inclusion, Slater (2011) suggests that conditionality and control of transfer receipt is vital, so social protection spending does not always effectively bring down poverty. Including this measure allows to measure the effectiveness in the studied countries.

Government effectiveness: it is one of six dimensions that comprise WGI measure developed by Daniel Kaufmann and Aart Kraay. Government effectiveness reflects a system of state institutions that at optimal cost provides good quality public services, civil service, formulates and implements well-designed and effective policies, and shows credibility of commitment to them. In other words, the effectiveness is assessed based on the ability of the relevant state institutions to influence long-term economic growth in order to sustainably improve the well-being of its citizens. Government effectiveness is an index where the highest value is 2.5 representing almost perfect government effectiveness, -2.5 is the lowest possible value under WGI methodology. Many studies show the importance of quality governance in combating poverty (Bosco & Poggi, 2020; Thirtle & Piesse, 2007). Nyamboga et al. (2014) show that despite Kenyan government increased social spendings, this was ineffective in alleviating poverty due to corruption, ineffective welfare programs, and institutional gaps. A similar study analyzing Sub-Saharan Africa in the period 1996-2016 finds that government effectiveness is the key element in poverty reduction (Aloui, 2019). Coccia (2021) conducted a study of 191 countries, which showed that government effectiveness did not only reduce poverty but also negatively affected inequality and improved socioeconomic conditions and led to economic growth. Granger causality carried out for this research allows us to see if this also holds for EU countries. The results are discussed in the following chapter.

Unemployment: it is expressed as a percentage of the number of unemployed to the number of the labor force. The data is obtained from the World Bank. Chapter 2

described the importance of labor markets and job opportunities in poverty eradication, this variable is also included in the EU poverty studies (Dafermos & Papatheodorou, 2013; Vliet & Wang, 2015).

Economic performance: it is represented by GDP per capita measured in constant 2015 US dollars so that the value is real rather than nominal. It is a common control variable that can be found in poverty studies (Dafermos & Papatheodorou, 2013; Vliet & Wang, 2015). Table 2 provides the summary of the data used in this analysis.

Table 2: Summary of data

Data	Abbreviation	Scale	Source
AROPE	AROPE	Ratio	Eurostat
Gini Coefficient	GINI	0-100	Eurostat
Expenditures on Social Protection	SP	Euro	Eurostat
Government Effectiveness	Gov	-2.5 – +2.5	WGI
Unemployment	U	Ratio	World Bank
GDP per capita	GDP_{pc}	Euro	World Bank

Source: Compiled by the authors

The descriptive statistics of the original input variables can be found in Table 3. Original input variables means that the statistics are calculated based on the data that have not undergone any transformation or differencing. Number of observations for each variable is different because AROPE, expenditure on social protection, and the Gini coefficient for Bulgaria, Croatia, and Romania are missing in the initial years of the studied period. The panel data is short because the number of countries is more than the number of periods N=27 and T=15. The data is almost strongly balanced with some missing observations for AROPE, social protection, and the Gini coefficient in Bulgaria, Croatia, and Romania. The mean value of dependent variable AROPE was nearly 23.9%. The minimum level of AROPE was recorded in Czechia in 2020 (11.9%), whereas the maximum was in Bulgaria in 2006 (61.3%). The

standard deviation shows that Gini coefficient data is more clustered around the mean compared to other variables. The lowest Gini coefficient was in Slovakia in 2018 and 2020, whereas the highest in Bulgaria in 2019. The lowest expenditure on social protection per person was in Bulgaria in 2005 – 566.82 euro. By 2020 this number increased to almost 1400 euro, but Bulgaria still had the lowest expenditure among the EU members in the same year. The highest GDP per capita in the studied period was 112418 euro which was recorded in Luxembourg in 2007. Luxembourg is the only country in this sample which GDP per capita always was a six-digit number, always over 100.000 euros. Despite having strikingly high GDP per capita its AROPE level was slightly higher than in the Netherlands or Denmark even though these countries tended to have half of GDP per capita of Luxembourg. The lowest GDP per capita was in Bulgaria in 2005.

Table 3: Descriptive statistics of the original input variables

Variable	N	Mean	SD	Min	Max
Dependent Variable					
AROPE	424	23.951	7.859	11.9	61.3
Independent Variables					
GINI	424	29.75	3.94	20.9	40.8
SP	429	6267.56	4583.5	566.82	20710
Control Variables					
GDP_{pc}	432	30059.57	21086.9	5231	112418
Gov	432	1.087	0.589	-0.372	2.35
U	432	8.55	4.3	2.01	27.5

Government was the least effective in Romania in 2008 in the given sample, whereas the most effective was Denmark in 2007 where after this year the government effectiveness only declined. The mean unemployment was 8.55 in the sample with the highest in Greece in 2013 and the lowest in Czechia in 2013.

This thesis includes the following means of analysis:

- **Panel data pairwise correlation** shows how correlated the six variables are and if it is significant. Correlation determines whether there is a statistically significant relationship between variables, but does not prove a causal relationship
- **The Granger causality test** allows to find out whether the variables are good to forecast poverty indicator. This study follows an approach developed by Dumitrescu and Hurlin using the STATA command xtgranger (Lopez & Weber; 2017).
- **Panel Data Regression** helps to identify causal relationships. The regression coefficients describe the relationship between poverty as dependent variable and income inequality, expenditure on social protection and GDP per capita as independent variables. Pooled regression, fixed effects and random effects model are the main panel regression types. In order to identify the most suitable one, the models are subjected to Breusch and Pagan Lagrangian multiplier test (pooled regression vs. fixed effects) and Hausman test (random vs. fixed Effects).

Panel data processing is conducted using Stata 17, which is a frequently used and therefore reliable program for solving statistical problems in various fields. From a statistical point of view, it is also possible to make a forecast about the further development of the relationship between the variables, but the current economic situation reduces the quality and relevance of such analysis due to the prominent level of uncertainty. The main limitation of the described methodology can be focusing only on the aforementioned variables because this way the analysis isolates some aspects that impact poverty, maybe other factors are more decisive. However, the grounds for standing up for such a methodology exist, there are 2 core independent and 3 control variables that are mainly used in poverty studies which makes this methodology quite comprehensive.

5. RESULTS OF THE ANALYSIS

Statistical analysis requires the data to be stationary. A unit root test helps to ensure that, and it is a preliminary stage for cointegration analysis. Table 4 provides the results of the five-unit root tests – Levin-Lin-Chu, Harris-Tzavalis, augmented Dickey-Fuller Fisher type test, Breitung, and Hadri LM.

Table 4: Unit root tests for the input variables

Index	Levin–Lin–Chu	Harris/Tzavalis	Fisher-type (ADF)	Breitung	Hadri LM
AROPE	-0918	-0.67	5.36***	1.338	26.37***
LnAROPE	-2.8***	-2.71***	3.56***	-2.97***	29.32***
GINI	-4.52***	-3.04***	1.88**	-3.16***	19.50***
SP	2.877	4.068	-4.11	8.98	33.57***
LnSP	-2.27***	-0.09	-0.84	0.7*	24.26***
GDP_{pc}	-3.58***	3.64	-0.335	2.45	31.05***
$LnGDP_{pc}$	-3.96***	-0.58	-0.62	-5.67***	36.27***
Gov	-1.11	-3.17***	1.63*	-2.23**	22.6***
LnGov	-2.75***	-1.3**	1.48*	-2.35***	22.53***
U	-7.58***	0.181	-1.083	-0.36	15.67***
LnU	-7.36***	-1.6**	-1.92	-1.65**	26.3***

*Note: * Denotes that the null hypothesis is rejected at 0.01 level; ** denotes that the null hypothesis is rejected at 0.05 level; *** denotes that the null hypothesis is rejected at 0.1 level. The null hypothesis is accepted for all other values.*

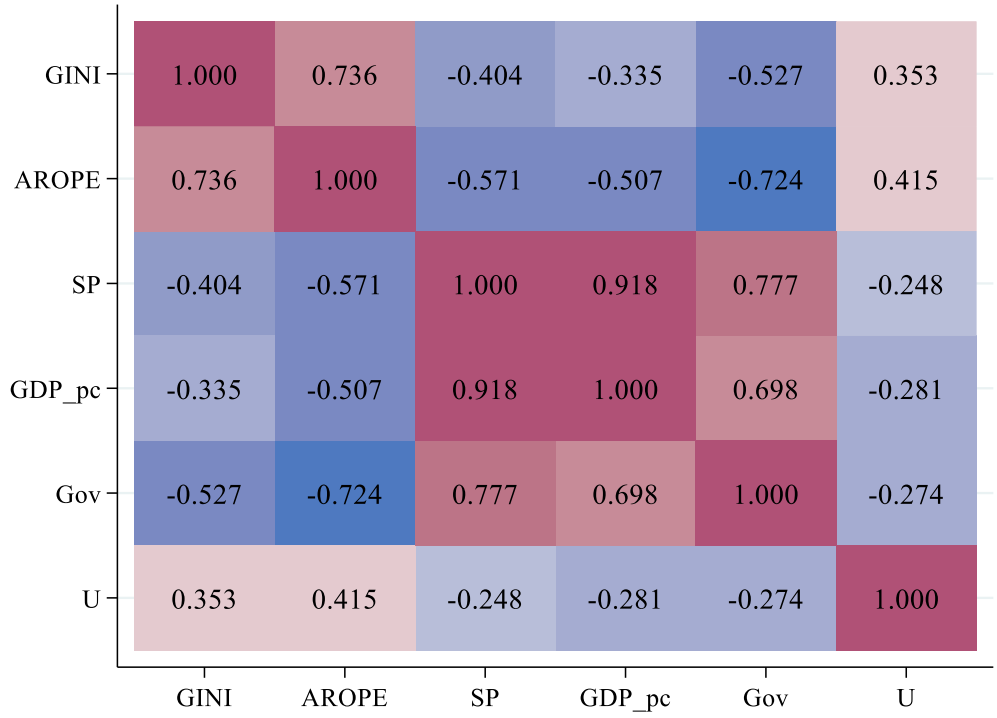
The necessity for conducting several tests is to increase confidence in the results of the tests (Amano & Van Norden, 1992). As unit root tests require strongly balanced panel data – Bulgaria, Romania, Croatia are dropped out due to missing values. The

assumption has to be made that these countries would not greatly impact the outcomes of the tests. The stationarity of the Gini coefficient is confirmed by five commonly used unit root tests, however, the same cannot be said about the other variables. Therefore, AROPE, unemployment, government effectiveness, GDP per capita, and expenditure on social protection are subjected to logarithmic transformation to avoid misleading regression results. The log-transformed variables show a higher level of stationarity; thus, the validity of the panel data model is not biased. As a result, the estimation model has to take the following form:

$$LnAROPE_{it} = \beta_0 + \beta_1 LnSP_{it} + \beta_2 LnGDP_{pc_{it}} + \beta_3 GINI_{it} + \beta_4 LnGov_{it} + \beta_5 LnU_{it} + \varepsilon_{it}$$

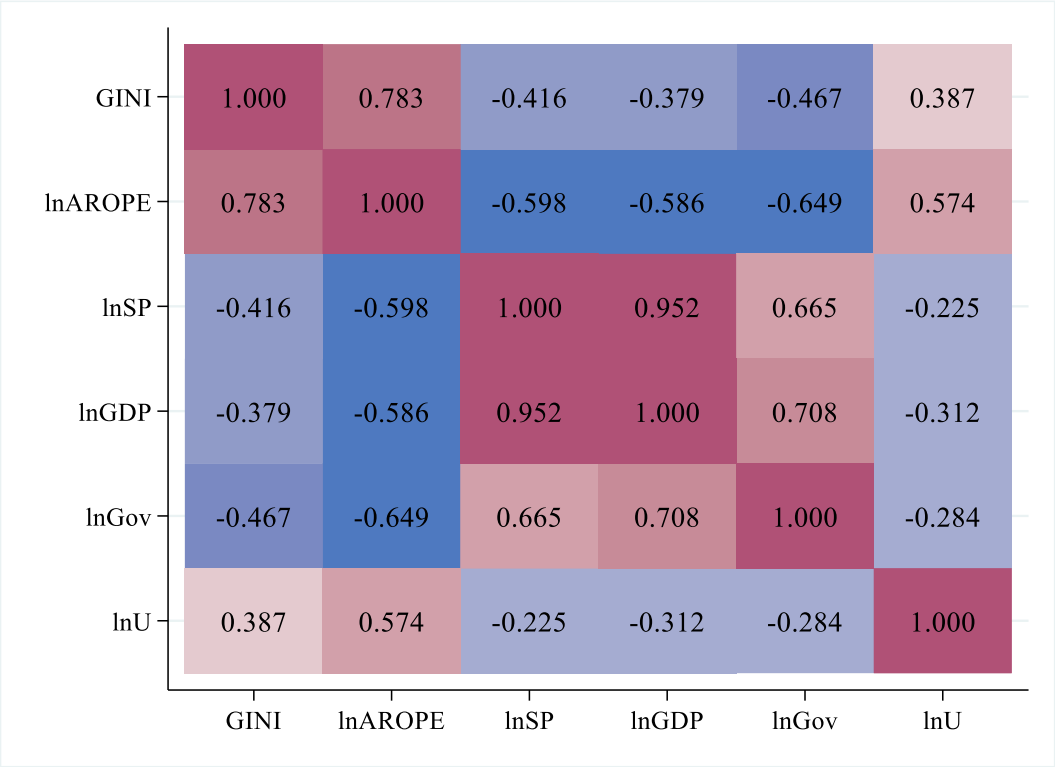
Figure 9 depicts the heatmap or correlogram for pairwise correlation of the original input variables and Figure 10 depicts the heatmap using the transformed variables. Such graphical data representation allows to visualize complex data based on the

Figure 9: The heat map for pairwise correlation of the original input variables



magnitude of the correlation before and after the transformation. All pairwise correlations are significant at 5 percent significance level and the figures show that the log transformation did not affect the bivariate correlation so much. Therefore, for the sake of simplicity the focus is moved on Figure 9 with the original input variables. The strongest positive relationship is between Gini coefficient and AROPE

Figure 10: The heat map for pairwise correlation of the transformed input variables



– nearly 74%. On the contrary, the strongest negative association is between AROPE and government effectiveness, making up about 72 percent. As a result, the data shows that during the studied year, a declining government effectiveness coincided with increasing AROPE. GDP per capita and expenditure on social protection per capita have a negative relationship with AROPE and show a relatively moderate correlation, 50 and 57 percent, respectively. There is a low positive association between AROPE and unemployment in the studied period, accounting for 41.5%. Interestingly, both figures demonstrate that GDP per capita is strongly correlated with the expenditure on social protection and governance and show a relatively moderate correlation, 50 and 57 percent, respectively. There is a low positive association between AROPE and unemployment in the studied period, accounting for 41.5%. Interestingly, both figures demonstrate that GDP per capita is strongly correlated with the expenditure on social protection and governance. On the other hand, unemployment has a very weak association with all other independent variables. In order to explain the nature of the relationships, it is necessary to perform the Granger causality test. The main requirement of the Granger causality test by Dumitrescu and Hurlin (2012) is stationary data, which is satisfied according

Table 5: Ouput of the Granger causality test (1)

Null Hypothesis	Z-bar	Lag
lnAROPE does not Granger cause GINI	3.643***	1
lnAROPE does not Granger cause lnSP	4.953***	1
lnAROPE does not Granger cause $LnGDP_{pc}$	2.983**	1
lnAROPE does not Granger cause LnGov	3.991***	3
lnAROPE does not Granger cause lnU	0.109	2
GINI does not Granger cause lnAROPE	-1.234	1
GINI does not Granger cause LnSP	7.03***	2
GINI does not Granger cause $LnGDP_{pc}$	-1.055	1
GINI does not Granger cause lnGov	5.352***	1
GINI does not Granger cause LnU	0.775	2
LnSP does not Granger cause LnAROPE	1.933*	1
LnSP does not Granger cause GINI	7.409***	1
LnSP does not Granger cause $LnGDP_{pc}$	4.266***	1
LnSP does not Granger cause LnGov	8.056***	1
LnSP does not Granger cause LnU	2.267**	2

*Note: * Denotes that the null hypothesis is rejected at 0.01 level; ** denotes that the null hypothesis is rejected at 0.05 level; *** denotes that the null hypothesis is rejected at 0.1 level. The null hypothesis is accepted for all other values.*

to the unit root test results. Table 5 and Table 6 show the results of the test, where the first table shows the results for the core independent (the Gini coefficient and expenditure on social protection) and independent variable (AROPE) and the other one is for the remaining variables. The null hypothesis of the Dumitrescu and Hurlin Granger causality test is that one variable does not cause the other one, whereas the alternative hypothesis is that the causality is valid for some countries, but not necessarily for all of them. Table 5 and Table 6 show different lags for the variables, the test itself picks the most optimal lag. One can see that there are five cases of nonexistent Granger causality. First, AROPE does not Granger cause unemployment, however the reverse causation is identified in this sample. Second, the Gini

Table 6: Output of the Granger causality test (2)

Null Hypothesis	Z-bar	Lag
$LnGDP_{pc}$ does not Granger cause LnAROPE	9.89***	1
$LnGDP_{pc}$ does not Granger cause GINI	8.535***	1
$LnGDP_{pc}$ does not Granger cause LnSP	13.165***	2
$LnGDP_{pc}$ does not Granger cause LnGov	6.283***	1
$LnGDP_{pc}$ does not Granger cause lnU	1.88*	3
LnGov does not Granger cause lnAROPE	9***	1
LnGov does not Granger cause GINI	2.995***	1
LnGov does not Granger cause LnSP	0.839	1
LnGov does not Granger cause $LnGDP_{pc}$	2.785***	1
LnGov does not Granger cause LnU	1.929*	2
LnU does not Granger cause LnAROPE	3.48***	3
LnU does not Granger cause GINI	7.193***	1
LnU does not Granger cause LnSP	22.837***	1
LnU does not Granger cause $LnGDP_{pc}$	0.86	1
LnU does not Granger cause LnGov	4.454***	1

*Note: * Denotes that the null hypothesis is rejected at 0.01 level; ** denotes that the null hypothesis is rejected at 0.05 level; *** denotes that the null hypothesis is rejected at 0.1 level. The null hypothesis is accepted for all other values.*

coefficient does not cause AROPE, unemployment or GDP per capita but the opposite is the case. This means that the causality runs from AROPE, unemployment, and GDP per capita to the Gini coefficient. On the other hand, expenditure on social protection and AROPE mutually influence each other. Interestingly that the causality runs from expenditure on social protection to government effectiveness but not the other way. This can be explained by the fact that government effectiveness In order to understand whether it is the right decision to include variables in the main model, an analysis of five models was carried out, in which, starting from the second, variables included in this study are gradually added. Breusch and Pagan Lagrangian multiplier test for random effects shows that pooled

estimation (a basic OLS regression) is not applicable for this dataset for all models because there are no panel effects. Indeed, the null hypothesis is that there is no significant difference across the countries so using a simple OLS regression would not take into account the undeniable heterogeneity in the EU countries. The results of the Hausman test suggest opting for the fixed-effect model in all five cases. A fixed effect is used when an individual characteristic like geographical location might distort the regression result. So, it can also help to compensate for any omitted discreet variable. Unobserved individual characteristics of the countries are taken into account with the fixed-effects model. Modified Wald test for groupwise heteroskedasticity in fixed effect regression model identifies the presence of heteroscedasticity in the models, therefore the robust fixed-effect model estimation is applied for all cases. The first model consists of an independent variable Gini coefficient and a dependent AROPE, but F-statistics shows that overall, the model does not provide a better fit (see Table 7). Also, R^2 within is incredibly low which means the model does not catch the relationship within the countries. Once expenditure on social protection is added the model becomes significant at all significance levels and with every additional variable R^2 within and between only increases which indicates that when all five independent variables are added the model shows the highest significance. The focus, therefore, has to be moved to the output of the fifth model. In the fifth model, only the coefficient of the log of government effectiveness is insignificant which means that there is no evidence to claim that government effectiveness had an impact on AROPE in the EU in the studied period. This is counterintuitive because improving living conditions should be the key proof of government effectiveness. Yet, the result does not confirm this hypothesis. Next, the Gini coefficient has a positive significant relationship with AROPE and when Gini increases by one unit ceteris paribus, on average AROPE goes up by 2.4%. This relationship is expected and follows the economic intuition. When income inequality decreases, median income starts to increase which positively affects poverty reduction as one of AROPE components is the poverty line (60% of median income). Unemployment has a similar association to AROPE. As it increases by 1% all else unchanged, AROPE increases by 0.11% on average. Thus, it has a hampering effect on poverty as wages are the main source of income for most people. On the other hand, when expenditures on social protection increase by 1%,

Table 7: Panel Data regression results: Fixed-effect model

Model	1	2	3	4	5
Constant	2.341***	7.188***	10.971***	10.109***	7.486***
	(6.55)	(6.19)	(7.19)	(6.86)	(5.52)
GINI	0.026	0.022**	0.0197***	0.027***	0.024***
	(1.61)	(2.19)	(2.19)	(4.14)	(3.77)
LnSP		-0.559***	-0.191*	-0.112	-0.23**
		(-4.46)	(-1.76)	(-1.17)	(-2.18)
$LnGDP_{pc}$			-0.673***	-0.673***	-0.33**
			(-5.33)	(-4.94)	(-2.51)
LnGov				-0.011	-0.012
				(-0.36)	(-0.42)
LnU					0.114***
					(3.49)
Breusch and Pagan LM	934.37***	812.05***	833.59***	660.93***	830.01***
Hausman Test	22.14***	251.26***	162.13***	14.32***	90.5***
R^2 within	0.098	0.422	0.581	0.586	0.637
R^2 between	0.735	0.616	0.58	0.604	0.657
R^2 overall	0.61	0.555	0.525	0.478	0.552
F	2.59	15.16***	19.56***	17.41***	17.44***
Obs	424	424	424	404	404
Groups	27	27	27	27	27

*Note: * Denotes that the null hypothesis is rejected at 0.01 level; ** denotes that the null hypothesis is rejected at 0.05 level; *** denotes that the null hypothesis is rejected at 0.1 level. The null hypothesis is accepted for all other values.*

AROPE tends to fall by 0.23%. This causal effect has already been mentioned several times before and now the finding contributes to supporting this idea. Similarly, a 1% rise in GDP per capita causes a decline in AROPE which makes up 0.33% other things held constant. Values for the three R^2 of this model may also be compared. For example, if within R^2 and overall R^2 are close, this is evidence for individual effects being not so important etc. Clearly, overall R^2 is larger so the individual effects do matter. Cantillon et al. (2003) conducted an analysis similar to the one carried out for this research but using the mid 90's data. The study also shows a strong link between low wages, welfare programs, and poverty. However, on the other hand, the authors claim that increasing the amount of expenditure on social protection is not an effective strategy for all EU countries despite the fact that in some cases the use of this instrument seems valid. The analysis of the marginal effect of these payments in the UK in the 90s revealed a falling efficiency. Also, the

research showed that increasing job opportunities does not always lead to decreasing poverty if the working-age population increases and if it is followed by a rise in wage inequality.

The results show that the Gini coefficient or in other words income inequality has a profound effect on AROPE in the EU. It supports the Post-Keynesian/Post-Kaleckian view on poverty eradication through income equality channels (Pressman, 2014). Advocates of this school of thought claim that government is responsible for the redistribution through progressive taxation, keeping employment low, and increasing spending on areas increasing the quality of life, e.g., education, healthcare, and social protection. Such reforms/policies will have a positive impact on the effective demand and employment (Brown, 2004; Goda et al., 2017).

6. CONCLUSION AND POLICY RECOMMENDATION

Poverty measurement instruments have gone through the series of transformations. While extreme poverty remains an acute problem in some countries, more and more preference is given to multidimensional indices. AROPE is a multidimensional index that has been designed to monitor poverty alleviation during The Europe 2020 strategy. Following the series of moderations this index still carries a high importance for the Europe 2030 Strategy. Overall, AROPE dynamics at the EU level showed a decreasing trend but the EU failed to decrease the rates of poverty and/or social exclusion to the initial target. The change was strikingly minimal despite the efforts made to reach it e.g., Social OMC, Social Triple A's initiative, European Pillars of Social Rights. However, one positive change has been identified - the rhetoric shifted from promoting growth and job creation to inclusive growth and the rising importance of social dimension. Several significant events - the EU enlargement, the 2008 Financial Crisis and Eurozone Crisis, the refugee crisis, Brexit, and the COVID-19 pandemic, challenged the Europe 2020 strategy and, perhaps, could hinder the effectiveness of policies implemented. A cross-country comparison showed that the EU member states had very different experiences in poverty alleviation in the period 2005-2020. Some countries like Slovakia seem to be not affected by any of the events as AROPE was gradually declining up to 2020. On the other hand, in Greece AROPE started to increase only after the implementation of the austerity policies following the Eurozone crisis. Composition of people at risk of poverty or social exclusion has revealed that the most vulnerable groups were people aged 16-24, unemployed, females, single adults with dependent children, people with low levels of educational attainment, inhabitants of rural areas, and people who live in rented accommodation. Therefore, when designing poverty alleviation policies policymakers should pay particular attention to these groups.

A crucial problem with Europe 2020 is that there was more focus on relative poverty rather than absolute one. While relative poverty is important for measuring social inclusion, the cases of extreme poverty should be given more emphasis because there

are still people in the EU who cannot afford basic needs and, therefore, should have a preferential access to social protection. The moral of the story: make use of both poverty lines. Also, AROPE does not include the extent of poor health or educational disadvantage, the number of people living in inadequate housing and poor environmental conditions, and the extent to which people have inadequate access to public services and many other dimensions are missing but it nevertheless provides more insight to poverty rather than an income-based approach. One suggestion can be to devise a separate index or make use of existing ones like multidimensional poverty index designed by the Oxford University Initiative on Poverty and Human Development that would fill the missing elements like empowerment, physical safety, and/or psychological wellbeing.

This study includes different transmission channels like unemployment, expenditure on social protection, government effectiveness, and GDP per capita but income inequality has the strongest contribution to poverty reduction. The model explains All channels have an influence on poverty in the EU, only government effectiveness does not provide any explanation for rising/declining poverty. Since income inequality has the strongest impact the policymakers should embrace the Post-Keynesian/Post-Kaleckian view on poverty where income equality channel is the determining factor.

The fifth target under the Europe 2020 was reducing the number people at risk of poverty and social exclusion. All the setbacks and failures during the Lisbon Agenda or Europe 2020 should not discourage the EU members, on the contrary these goals must be pushed to the next years taking into account the wealth of experience and empirical analyses the previous strategies provided. The key takeaway of this research is that the EU must build a system resilient to various shocks so that the EU citizens' well-being is protected. The second suggestion is related to binding policy coordination with a system of sanctions so that platforms like OMC are effective in converging social policy within the EU. Thirdly, revising the poverty index for understanding different degrees and dimensions of poverty. Last but not least, it is important in the EU context to increase redistribution following the policy recommendations found in Post-Keynesian/Post-Kaleckian school of thought.

The future research can focus on each identified transmission channel separately and explain how it impacts poverty as well as case studies for each EU member state to understand the rise of inequality in the EU and its role in poverty aggravation because the study shows that individual characteristics are crucial (see Table 7).

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