

INCLUSIVENESS AND GROWTH IN THE EU: A SHIFT FROM PRO-POOR TO PRO-EMPLOYED AT RISK OF POVERTY APPROACH

DOI: <https://doi.org/10.36004/nier.es.2024.2-05>

JEL Classification: O15, J31, J32, O47, D63, E24

UDC: 338.1(4)

Rodica PISICA

PhD candidate, Academy of Economic Studies of Moldova

<https://orcid.org/0000-0003-1615-3805>

pisica.rodica@ase.md

Rodica CRUDU

PhD, associate professor, Academy of Economic Studies of Moldova

<https://orcid.org/0000-0002-6470-8601>

crudu.rodica@ase.md

Received 24 November 2024

Accepted for publication 05 December 2024

SUMMARY

The importance of inclusive growth is widely acknowledged by academia, policymakers, and the public, yet debates persist about whether current policies effectively ensure that growth benefits all. While a pro-poor approach has been vital, focusing on those employed at-risk-of-poverty is increasingly important. Low wages can demotivate workers, pushing them to rely on safety nets and reducing the pool of human capital, a key driver of economic growth. This research shifts the perspective from a pro-poor to a pro-employed at-risk-of-poverty approach by constructing a benefit-sharing and participation inclusiveness index for EU-27 countries from 2010 to 2021, addressing a gap in traditional indices. Unlike methods using the poverty headcount ratio, this index incorporates the in-work at-risk-of-poverty rate, emphasizing job quality. The index was constructed using Principal Component Analysis (PCA) and analyzed through an Ordinary Least Squares (OLS) regression model with fixed effects for both country and year, ensuring robust control for unobserved heterogeneity. Findings reveal the inclusiveness index as a significant determinant of Real GDP per capita, with a strong positive correlation between inclusiveness and economic growth. This relationship is particularly strong in more inclusive countries, where improvements in benefit-sharing and participation are closely linked to higher economic performance. However, exceptions among socio-economically developed countries suggest the need for country-specific policies. The results emphasize the need to address income inequality, reduce in-work poverty, and increase job opportunities to promote sustainable and equitable growth in the EU, ensuring that those contributing to economic growth receive fair benefits and achieve a decent living standard.

Keywords: *Inclusiveness index, Inequality, Growth, Benefit-sharing, Participation, Fixed Effects analysis*

INTRODUCTION

Achieving inclusiveness, acknowledged as a moving target, is a central goal of the European Union, which rests on the social model described as a “unique achievement” (EESC, 2018). Established in 2017, the European Pillar of Social Rights focuses on three main areas: equal opportunities and access to the labor market, fair working conditions, and social protection and inclusion (Mailand, 2024). It advocates for fair wages, social protection, and equal opportunities to prevent in-work poverty and ensure a decent standard of living for all, designed to address challenges from societal, technological, and economic developments (European Parliament, 2021). However, some of the concerns that can be encountered in the literature are that the tools used by the EU to establish social rights, including the European Pillar of Social Rights, are primarily guidelines and not legally binding. Even if recent EU actions have focused on combating poverty and social exclusion through the European Semester and the 2020 European Strategy, these measures are often seen as insufficient (Bilbao-Ubillos, 2023).

This is obvious from the persistent disparities in in-work poverty rates and income inequality within the EU, highlighting a growing divide that undermines the EU’s cohesion and economic stability. For instance, according to Eurostat data, the in-work at risk of poverty rates amounted to 8.3% across the EU in 2023, with higher rates in Romania (15%), Luxembourg (14.8%), Bulgaria (11.7%) and Spain (11.3%). These trends should be viewed in the context of the long-term objective for this indicator that is a value of 3.3 p.p. (Lafortune et al., 2024). These figures should raise concerns as they might bring about demotivation of people to work

and choose to rather make use of safety nets than to have a job. Persistent in-work poverty can exacerbate social inequalities and lead to social unrest. While, economically, in-work poverty impacts the spending of individuals decreasing the economic growth. In 2023, as many as eleven EU member states exceeded the EU average in terms of in-work at risk of poverty (Eurostat, 2024a).

The income inequality across the EU also remains a significant concern. In 2023 it stayed at 29.6% as measured by Gini, with eleven countries exceeding the EU average, while Bulgaria, Lithuania, and Latvia recorded the highest levels of income inequality in the EU, with Gini coefficients of 37.2%, 35.7%, and 34%, respectively (Eurostat, 2024b). Although recent data shows a decrease in inequality between countries, the internal disparities within nearly half of the EU nations have actually expanded over the last decade (Neef & Sodano, 2022).

With regard to the employment rates, the European Pillar of Social Rights Action Plan provided a specific goal set for 2030 to achieve a 78% employment rate among people aged 20–64 (EC, 2021). Even though as of 2023, the EU’s employment rate for this age group has reached 75.3%, 11 EU countries have employment rates between 70% and 78%, and three countries—Romania, Greece, and Italy—have rates below 70% (Eurostat, 2024c). As for the Employment to population ratio, 15+, total (%) (modeled ILO estimate), the average for the 27-EU member-states was about 54.4% in 2023. Seven countries ranked below the EU-average with 5 countries being at or exceeding just a bit the EU average (WB, 2024).

In addition to the European Pillar of Social Rights, the United Nations' Sustainable Development Goals also target goals that refer to "No poverty" (SDG 1), "Decent work and economic growth" (SDG 8) and "Reduced inequalities" (SDG 10) (UN, 2023). Moving towards achieving these goals is important not only for enhancing the living standards but also for ensuring that economic growth benefits all members of society, and even more so, those populations that are active on the labor market and directly contribute to the creation of these benefits.

The overall goal of this research is to understand the extent to which the EU countries are able to ensure inclusiveness on the benefit-sharing and participation dimension with the focus on the disadvantaged employed individuals as well as to understand the relation between the pro-employed at-risk-of-poverty tailored inclusiveness index with growth. While there are researches that analyze the benefit sharing and participation dimension of inclusiveness from the pro-poor perspective, there seem to be no studies to address this dimension from the pro-employed at risk of poverty perspective, which would narrow and make it possible for the policy-makers to intervene with targeted policies

LITERATURE REVIEW

The literature on measuring inclusiveness and inclusive growth is rich and varied, utilizing a range of indices to assess different facets of economic and social development across global and regional contexts. Notably, the Human Development Index (HDI) and its variants—including the Inequality-Adjusted HDI, the Gender Inequality Index, and the Multidimensional Poverty Index—offer insights into broader human well-being by considering life expectancy, education, and income. Similarly, the Inclusive Development Index (IDI) developed by the World Economic Forum integrates these elements to evaluate economic performance inclusively (Prada & Sánchez-Fernández, 2019). A comprehensive analysis of existing inclusive development indices at the global level has been provided by Dörffel & Schuhmann (2022), who introduced a Multidimensional Inclusiveness Index (MDI) to address certain conceptual shortcomings.

Specialized indices like the Islamic Inclusive Growth Index (i-IGI) focus on specific economic systems, while others target financial inclusion and inclusive growth within particular regions or demographic groups (Ghazal & Zulkhibri, 2019). The Europe Sustainable Development Report 2023/24 introduces the Leave-No-One-Behind (LNOB) Index, which measures inequalities within European countries by focusing on key dimensions such as extreme poverty, material deprivation, income inequality, gender inequality, and access to quality services (Lafortune et al., 2024). Within the EU, Zielenkiewicz (2020) applied the IDI to examine disparities among member states. Giambona and Vassallo (2014) crafted a composite indicator that includes the risk-of-poverty after social transfers, material deprivation, and other factors to measure variations in social inclusion.

that encourage employment effort. In this research we attempt to address this gap.

This research addresses key questions about what the situation of the 27 EU countries is in terms of the benefit-sharing and participation dimension of inclusive growth from the pro-employed at-risk-of-poverty perspective and an answer is sought to whether the inclusiveness index is a correlation-based determinant of growth based on the EU-27 data. By exploring these questions, we aim to offer new insights into the interrelation between inclusiveness and economic performance in the EU, providing a basis for policy recommendations that encourage growth to be inclusive from the employed individuals' perspective.

The novelty of the research resides in the adjustment of the benefit sharing and participation inclusiveness index by Ramos *et al.* (2013) to shift from the pro-poor approach to the pro-employed at-risk-of-poverty perspective by replacing one of the variables and change the index construction method so as to make the interpretation of the inclusiveness index more intuitive. In addition, the relation between the computed index with growth is empirically analyzed which in our understanding has not been done using OLS with fixed effects.

Some attempts have been made to construct more targeted indices. This arises from the need for more targeted policies. For instance, Pisica's study (2024) compared inclusiveness in Moldova, Ukraine, and Georgia with EU-26 countries (2006–2019), using an index based on benefit-sharing proxied by Gini coefficient, poverty headcount ratio at \$6.85/day and participation expressed by employment-to-population ratio. The study found different progress among candidate states in aligning with EU standards and alluded that the inclusiveness index can predict GDP per capita, stressing the need for tailored policies to reduce inequality and foster growth. Thus, the tendency to incorporate more and more elements into the inclusiveness indices and achieve a multidimensional nature of inclusiveness indices makes it challenging to develop targeted policies for specific dimensions of inclusive growth, therefore, the need for more indices to reflect more specific dimensions arises. A number of studies collectively reveal the sophisticated relationship between in-work poverty, labour market dynamics, and economic indicators, pointing at the need for comprehensive policy initiatives. For instance, the increasing prevalence of precarious work in Europe shaped significantly by EU labour law has been highlighted in several studies where the authors explore the diverse rates of in-work poverty across EU countries, drawing attention to the various institutional, labour market, and social factors contributing to this phenomenon (Florczak & Otto, 2019).

The analysed literature points at the relevance of the in-work at-risk of poverty variable in the benefit-sharing and participation inclusiveness index, as this measure not only reflects income distribution but also employment quality.

DATA, METHODOLOGY AND RESEARCH RESULTS

Recognizing that inclusiveness and inclusive growth are comprehensive, multidimensional concepts, we disentangled the benefit-sharing and participation aspects of inclusive growth in line with Ramos et al. (2013). The channels via which benefit-sharing and participation could affect growth include enhancing aggregate demand through equitable income distribution and fostering social inclusion via broader employment opportunities and fair wages. Based on Ramos et al. (2013) and slightly adjusting the proxies to focus on pro-employed at risk of poverty, we construct the index for the EU countries.

The original index contained three equally-weighted components: poverty (poverty headcount ratio), income inequality (Gini coefficient), and employment participation (employment-to-population ratio). We use the in-work at-risk-of-poverty ratio for poverty and the Gini coefficient (equalized) as outcome measures, and maintain the employment-to-population ratio as a process-based estimate.

To address critiques regarding equally-weighted components (Meyer & Meyer, 2019), we use PCA to compute the index, assigning appropriate weights to each element. We invert the signs of the poverty and inequality elements for a more intuitive interpretation, where a higher score suggests better inclusiveness (more equitable benefit-sharing and participation).

The in-work at-risk-of-poverty rate (i.e. the share of persons who are employed and have an equalized disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median equalized disposable income after social transfers as defined in Eurostat) captures whether employment lifts people out of poverty, indicating how well economic activity benefits reach workers. The Gini coefficient shows income inequality, helping to understand how economic benefits are shared across the population. The employment-to-population ratio indicates active economic participation, showing the percentage of the working-age population employed. High employment ratios can suggest inclusivity but require context regarding working conditions and wages.

We construct an inclusiveness index based on data from 2010 to 2021 retrieved from Eurostat and World Bank Database for the 27 EU member states, focusing on benefit-sharing and participation dimensions. The index is developed using Principal Component Analysis (PCA) to assign appropriate weights to the variables. We then apply an Ordinary Least Squares (OLS) regression with fixed country and time effects to analyze the relationship between the inclusiveness index and Real GDP per capita, using StataBE 18 software. This method allows us to control for unobserved heterogeneity across countries and over time. Descriptive analysis has been applied to draw conclusions based on the statistical data and the empirical analysis of the results.

The construction of the inclusiveness index follows a utilitarian approach to social welfare, focusing on maximizing total utility across the population (Baron, 1999). Our analysis seeks to validate that the inclusiveness index is a determinant of Real GDP per capita alongside other growth determinants. We aim to provide a nuanced view of economic disparities in the EU-27, analyzing short and medium-term perspectives.

A positive and statistically significant coefficient for the inclusiveness index would confirm that higher levels of inclusiveness are associated with higher Real GDP per capita, thus confirming that inclusiveness is related to growth (Hypothesis 1). Then we run the regression separately on the group of more and less inclusive countries classified according to the mean of the computed inclusiveness index. This helps get insights into the differences between the two group that we assume exist (Hypothesis 2). The OLS regression models that are conducted over different time horizons (short-term and medium-term) help observe the correlation of inclusiveness improvements with different growth spans we assume exist, indicating the association of inclusiveness with a sustainable growth (Hypothesis 3).

The limitations of this research stem from a limited number of observations as only a period of 12 years was analyzed for 27 EU countries, and the fact that the results of OLS regression with country and time fixed effects do not imply causality, which should be a step for further research.

The key empirical steps include the following: first we use the Principle Component Analysis (PCA) to compute the inclusiveness index based on three variables: GINI, Employment to Population Ratio (EPR), and In-work at Risk of Poverty (IWAP). The PCA with and without normalization gave the same results. Thus, the inclusiveness index is constructed based on the data without normalization.

We calculate the covariance matrix to see how the variables are related and where the data varies the most. From this matrix, we extract the eigenvalues and eigenvectors. As the first principal component (PC1) explains most of the variation, we calculate the index based on PC1. We calculate PC1 as a linear combination of the original variables, weighted by the coefficients from the eigenvectors. To construct an inclusiveness index where higher scores indicate more inclusivity, we invert the signs of the GINI and IWAP variables and recalculate the first principal component using the inverted variables. To validate the appropriateness of PCA for our data, we conduct Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy. Then we classify the countries into more and less inclusive using the mean of the inclusiveness index score.

Hausman test is run to understand whether the fixed effects model or the random effects model is more appropriate for the data. After this, the OLS is run where we analyze the correlation between the constructed inclusiveness index and economic growth expressed as GDP per capita, considering both country and year fixed

effects, controlled for proven determinants of growth. Then we run separate fixed effects (country and year) OLS regressions on groups of more and less inclusive EU member states. All OLS regressions are conducted for growth spans of 3, 5, and 7 years and as snapshot (at levels).

To construct the principal components, it is important to note that they are linear combinations of the original variables, weighted by the coefficients from the eigenvectors. The first principal component (PC1) is calculated as follows:

$$PC1=0.6274*GINI-0.4686*EPR+0.6219*IWAP \tag{1}$$

Where:

- GINI is the Gini coefficient
- EPR is the Employment-to-Population Ratio
- IWAP is In-Work at Risk of Poverty

Then, since we need to inverse the inclusiveness index to show that the increase of the score suggests more inclusivity, we inverse the sign of two variables (GINI and in-work at risk of poverty).

The inverted variables are calculated as follows:

$$GINI\ inv=100-GINI \tag{2}$$

$$IWAP\ inv=100-IWAP \tag{3}$$

Further, we run the PCA with the inverted variables to create the new composite indicator (composite_indicator_Comp1_new):

$$PC1'=0.6274 * GINI\ inv+0.4686 * EPR+0.6219 * IWAP\ inv \tag{4}$$

In addition, the Bartlett’s Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy are run in line with Herman (2014). The Bartlett’s Test of Sphericity with the results (Chi-square: 241.333, Degrees of freedom: 3 and p-value: 0.000) suggest that there is significant evidence of correlation among the variables, proving that PCA is appropriate for the data. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (KMO:

0.609) is above the 0.5 threshold which indicates the suitability of the data for factor analysis (PCA).

In order to classify the EU-27 countries into more and less inclusive ones we calculated the overall average mean score of the composite indicator across all the listed countries using StataBE 18 software. The mean is approximately 126.07. Based on this average, the countries have been divided into two categories, as shown in **Table 1** below:

Table 1
More inclusive vs. Less inclusive EU-27 countries (2010-2021)

More Inclusive Category (Mean score above 126.07):	Less Inclusive Category (Mean score at or below 126.07):
Czech Republic (CZ): 133.69	Greece (IE): 115.57
Netherlands (NL): 133.68	Romania (RO): 116.34
Finland (FI): 132.25	Italy (IT): 118.00
Denmark (DK): 131.50	Spain (ES): 118.19
Slovenia (SI): 131.41	Bulgaria (BG): 119.33
Slovakia (SK): 131.38	Portugal (PT): 122.27

More Inclusive Category (Mean score above 126.07):	Less Inclusive Category (Mean score at or below 126.07):
Sweden (SE): 131.25	Lithuania (LT): 122.36
Austria (AT): 130.02	Latvia (LV): 122.49
Ireland (IE): 129.40	Croatia (HR): 123.74
Belgium (BE): 129.25	Poland (PL): 124.81
Malta (MT): 128.33	France (FR): 125.57
Germany (DE): 127.92	Luxembourg (LU): 125.76
Cyprus (CY): 126.97	Estonia (EE): 125.84
Hungary (HU): 126.58	

Source: Own calculation using Stata18 software with Eurostat and World Bank data

To check the robustness of the classification of EU countries in terms of inclusiveness, we compared our inclusiveness classifications with the socio-economic development classification provided by Laskowska (2021). Given that Laskowska provided the classification for only twenty-six EU countries, we included the 27th EU member state (Croatia) in the ranking as it appeared

in the original source where EU countries were assessed according to their socio-economic development (Fura & Wang, 2017).

The comparison revealed a general trend where countries with higher socio-economic development also tended to be classified as more inclusive based on our inclusiveness index.

The descriptive statistics of the data for the OLS reveals significant variability across the EU-27 countries (Table 2).

Table 2

Descriptive statistics of the data, its general characteristics, distribution, and variability

Variable	Obs.	Mean	Std. dev.	Min	Max
L. Real GDP per capita (log)	297	25507.51	16745.92	5080	84750
GINI	324	29.80062	3.867312	20.9	40.8
In-work at risk of poverty	324	8.121914	3.199755	2.7	19.8
Employment to population ratio	324	53.11204	5.186987	37.72	62.59
Population by education attainment	324	74.64907	10.77261	32.7	89.2
Trade to GDP ratio	324	131.2103	69.04465	51.19729	388.1204
Inflation	324	1.52198	1.46769	- 2.096998	6.091417
Fixed investments to GDP	324	21.00973	4.188615	10.68721	54.30437
Government consumption to GDP	324	19.99576	3.181292	12.01403	27.36585
Fixed broadband subscriptions to high-speed access to the public Internet	324	5244133	7839921	125889	3.69e+07
Inclusiveness index (benefit-sharing and participation)	324	126.0704	5.452259	112.5259	135.5005
Crisis dummy	324	.1666667	3732545	0	1

Variable	Obs.	Mean	Std. dev.	Min	Max
Real GDP per capita (log) 3-year change	243	.0539541	.0676222	-.1919956	.2940426
Real GDP per capita (log) 5-year change	189	.1028322	.0939629	-.17589	.4406185
Real GDP per capita (log) 7-year change	135	.1439651	.1210147	-.1635408	.5875654
Initial growth_3 year (Real GDP per capita)	243	9.933086	.6381378	8.533067	11.34746
Initial growth_5 year (Real GDP per capita)	189	9.909118	.6447566	8.533067	11.34746
Initial growth_7 year (Real GDP per capita)	135	9.890936	.6506998	8.533067	11.3332
Inclusiveness dummy	324	.4845679	.5005348	0	1

Source: Own calculation using Stata18 software based on Eurostat and World Bank data (2010-2021)

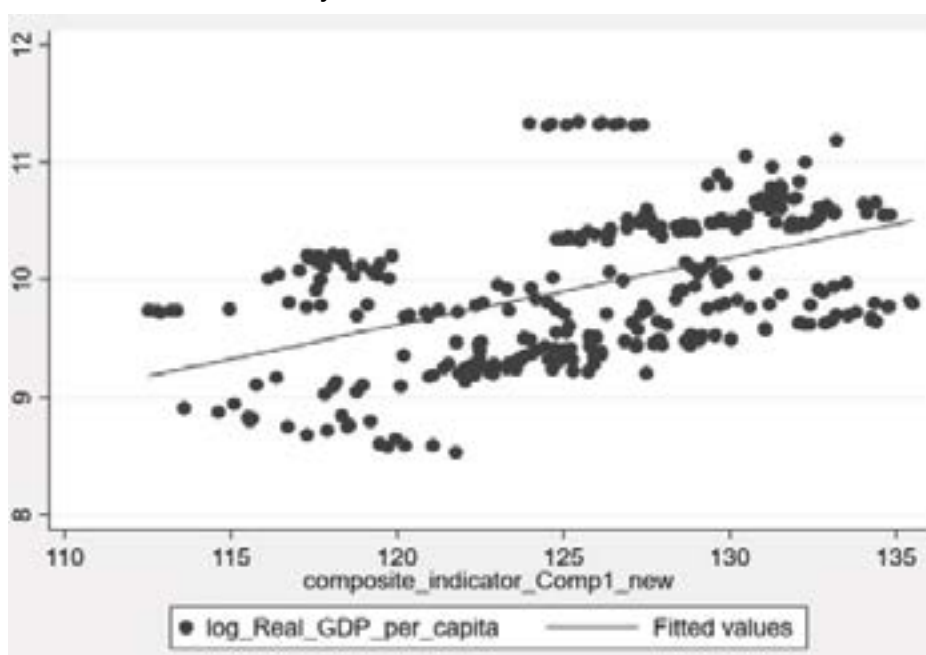
In order to understand whether the fixed effects model or the random effects model is more appropriate for the data, the Hausman test is run. The test statistic is 79.92 with 8 degrees of freedom. The p-value is 0.0000, which is highly significant. The Null Hypothesis (H0) suggests the difference in coefficients is not systematic (i.e., the random effects model is appropriate). While the Alternative Hypothesis (Ha) suggests that the difference in coefficients is systematic (i.e., the fixed effects model is appropriate). Given the p-value of 0.0000, we reject the null hypothesis. This implies that the difference in

coefficients is systematic, and thus the fixed effects model is more appropriate for the data than the random effects model. Therefore, we use the fixed effects model for the analysis as it is more consistent given the systematic differences in coefficients identified by the Hausman test.

As a starting point of our analysis we are looking at the correlation between the Real GDP per capita (log) and the inclusiveness index (composite_indicator_Comp1_new) (Figure 1).

Figure 1

Correlation between the Real GDP per capita (log) and the inclusiveness index (composite_indicator_Comp1_new) EU-27 member states for 2010-2021



Source: Own processing in Stata18 using Eurostat and World Bank data.

As seen in the scatter plot, the output of a simple OLS shows that the inclusiveness index is positively associated with the Real GDP per capita. The relationship is statistically significant ($p < 0.001$) and is linear between these two indicators.

Given the above results, as a next step we proceed to considering how the inclusiveness index associates with Real GDP per capita. We consider the relatedness on short and medium term (3, 5, 7-year periods) and as a snapshot (at levels). As we suspect that the correlation between the Real GDP per capita change and levels and the built-up inclusiveness index might differ depending on whether the analysis is carried out on the group of more inclusive countries and less inclusive ones, we are running the OLS with country and time fixed effects for each of the two groups separately.

To run the OLS regression with fixed country and time effects to analyze if the inclusiveness index is significantly correlated with the GDP per capita (log) and if the inclusiveness index is a determinant of growth along with other proven determinants of growth we include the following variables: on the left-hand side

the dependent variable is Real GDP per capita (log) and on the right-hand side we use the lagged real GDP per capita that refers to initial income, the population by educational attainment level which is population by educational attainment level upper secondary, post-secondary non-tertiary and tertiary education (levels 3-8) (total, aged 15-64), openness which is the sum of exports and imports of goods and services measured as a share of GDP, inflation ratio which is consumer price index annual percentage change. Fixed investment is the gross fixed capital formation (% of GDP) formerly gross domestic fixed investment (unlike Barro & Sala-i-Martin (2004), in this analysis we are including fixed government investment to GDP ratio in line with Anand et al. (2013), the government consumption as share of GDP (General government final consumption expenditure (% of GDP)) and the fixed broadband subscriptions to high-speed access to the public Internet as a more nuanced measure of access to the ICT. Several studies have shown a correlation between the fixed broadband and the GDP (see Minges, 2015; Khandelwal & Agarwal, 2020). We also include a crisis dummy to control for the COVID-19 pandemic period.

The general formula for the Ordinary Least Squares (OLS) regression model with country and time fixed effects is the following:

$$Y_{it} = \beta_0 + \sum_{x=1}^n \beta_x \times \text{Var}_{xit} + \mu_i + \lambda_t + \epsilon_{it} \quad (5)$$

Where:

Y_{it} - dependent variable, representing various measures of growth for country i at time t

β_0 - intercept

n

$\sum_{x=1}^n \beta_x \times \text{Var}_{xit}$ - represents the sum of the products of the

coefficients β_x and their corresponding variables Var_{xit}

μ_i - represents the fixed effects for each country

λ_t - represents the fixed effects for each time period

ϵ_{it} - is the error term

Overall, the results prove that:

1. The composite indicator is significant across all time frames, indicating its strong influence on GDP per capita in the EU-27 (Table 3). This suggests that income distribution, poverty risk (in-work), and employment status computed as an index are crucial determinants of economic growth and lower inequality, reduced in-work and higher employment are associated with higher GDP per capita.

Table 3*Determinants of Real GDP per capita (log) change and levels (EU-27)*

Variable	3-year change (b/se)	5-year change (b/se)	7-year change (b/se)	Levels (b/se)
composite_indicator	0.0141583*** (0.0035065)	0.0143465*** (0.0033698)	0.0182264*** (0.0027691)	0.0030832 (0.0024269)
Pop-by_education_avt	0.0017791 (0.0015759)	0.0048446*** (0.0015091)	0.0051239** (0.0020568)	0.016023** (0.0006551)
Trade%GDP	0.0008148 ** (0.0003523)	0.0000812 (0.000475)	0.0008643 (0.0008518)	0.0008611** (0.0003114)
Infl	0.0072376** (0.0029527)	0.0173573*** (0.0030709)	0.0130609*** (0.0040558)	0.0048029*** (0.0011502)
Fixed investment (~)	-0.0002343 (0.0010107)	0.0008326 (0.0009002)	-0.0009964 (0.0012508)	-0.0030037*** (0.0009077)
Gov_Consump(%GDP)	-0.0224461*** (0.0055341)	-0.0108797** (0.0051592)	-0.0096013 (0.0083675)	-0.0158806*** (0.003256)
ICT(FBS)	3.15e-09 (2.86e- 09)	-4.89e-09 (4.50e-09)	-7.17e-09 (6.14e- 09)	2.48e-09 (1.59e-09)
Crisis_dummy	-0.008844 (0.0171691)	-0.0082373 (0.0089429)	0.0096897 (0.0153049)	0.009211 (0.0093746)
initial_3growth_base	-0.2591594*** (0.0756342)			
initial_5growth_base		-0.4867816*** (0.0761869)		
initial_7growth_base			-0.5121642*** (0.0966403)	
L.log_Real_GDP_per				0.8729311*** (0.0507361)
Constant	1.024865 (0.7924083)	2.936252*** (0.6822139)	2.610869*** (0.8331436)	1.017191** (0.4354398)
Observations	243	189	135	297
Significance levels		* p<0.10	** p<0.05	*** p<0.01

Source: Own processing using Stata18 software based on Eurostat and World Bank data (2010-2021)

Notes: Both country- and time-effects are included. *, **, and *** denote significance at the, respectively, 10 percent, 5 percent, and 1 percent level. Robust t-statistics are in parentheses. The dependent variable is Real GDP per capita (log) 3,5,7-year change and levels. The composite_indicato~w is the computed inclusivity indicator that represents the benefit sharing and participation, Pop-by_education_a~t stands for the population by educational attainment level which is the highest level of education successfully completed by the individuals of a given population (total, aged 15-64). Trade%GDP stands for trade openness. Inflation is consumer price index annual percentage change. Fixed Investment is the gross fixed capital formation (% of GDP) formerly gross domestic fixed investment, followed by Gov_Consump(%GDP) which denotes General government final consumption expenditure (% of GDP)). ICTFBS is the fixed broadband subscriptions to high-speed access to the public Internet. The Crisis_dummy controls for the years 2020-21 (COVID-19 pandemic), initial_growth_3, initial_growth_5, initial_growth_7 refer to initial income for 3,5 and 7 periods respectively and the Llog_Real_GDP_per~a controls for the initial income for the levels analysis model.

2. The inclusiveness index is consistently significant across all models in the case of more inclusive countries (Table 4), indicating that in more inclusive states, income inequality, in-work at poverty risk, and employment significantly associate with GDP per capita change and levels. The positive coefficients suggest that higher inclusiveness leads to better economic outcomes.

Table 4

Determinants of Real GDP per capita (log) change and levels (more inclusive EU countries)

Variable	3-year change (b/se)	5-year change (b/se)	7-year change (b/se)	Levels (b/se)
composite_indicator	0.0219199*** (0.0027087)	0.0221776*** (0.0064028)	0.0173587*** (0.0051139)	0.0135313*** (0.0032994)
Pop-by_education_ave	0.0014822 (0.0015071)	0.0057823 *** (0.0016721)	0.0111908 (0.0065348)	0.0027517* (0.0015272)
Trade%GDP	0.0010878 (0.0006674)	0.0000958 (0.0005529)	0.001161 (0.001304)	0.0009044** (0.0003905)
Infl	0.0042806 (0.0033872)	0.0144464*** (0.0043933)	0.0158084** (0.0062746)	0.0044558** (0.0016195)
Fixed investment (~)	-0.0003272 (0.00163)	0.0003388 (0.000819)	-0.0022104 (0.0014286)	-0.0019286 (0.0013991)
Gov_Consump(%GDP)	-0.0277632*** (0.0059808)	-0.0143725** (0.0049344)	-0.018198 (0.104953)	-0.0206299*** (0.0038856)
ICT(FBS)	5.13e-09** (1.86e-09)	9.54e-10 (2.54e-09)	1.44e -08 8.56e-09	7.23e-09*** (1.42e-09)
Crisis dummy	0.0174548 (0.0173732)	-0.0027758 (0.0119552)	0.192031 (0.0247155)	0.0213263* (0.0113698)
initial_3growth_base	-0.4856005*** (0.0700571)			
initial_5growth_base		-0.5348713*** (0.1301274)		
initial_7growth_base			-1.022524*** (0.1875016)	
L.log_Real_GDP_per				0.5818968*** (0.1008674)
Constant	2.442705*** (0.6126324)	2.471607 (1.644246)	7.571625*** (1.930821)	2.632434*** (0.6236995)
Observations	118	92	66	144
Significance levels	* p<0.10	** p<0.05	*** p<0.01	

Source: Own processing using Stata18 software based on Eurostat and World Bank data (2010-2021)

Notes: Both country- and time-effects are included. *, **, and *** denote significance at the, respectively, 10 percent, 5 percent, and 1 percent levels. Robust t-statistics are in parentheses. The dependent variable is Real GDP per capita (log) 3, 5, 7-year change and levels. The composite_indicator is the computed inclusivity indicator that represents the benefit sharing and participation, Pop-by_education_ave stands for the population by educational attainment level upper secondary, post-secondary non-tertiary and tertiary education (levels 3-8) (total, aged 15-64). Trade%GDP stands for trade openness. Inflation is consumer price index annual percentage change. Fixed investment is the gross fixed capital formation (% of GDP) formerly gross domestic fixed investment, followed by Gov_Consump(%GDP) which denotes General government final consumption expenditure (% of GDP). ICTFBS is the fixed broadband subscriptions to high-speed access to the public Internet. The Crisis_dummy controls for the years 2020-21 (COVID-19 pandemic), initial_growth_3, initial_growth_5, initial_growth_7 refer to initial income for 3, 5, and 7 periods respectively and the L.log_Real_GDP_per controls for the initial income for the levels analysis model.

3. The inclusiveness index in the countries from the less inclusive category shows significant results in longer-term changes but is negatively and statistically insignificantly correlated at levels (Table 5). This suggests that improvements in inclusiveness positively associate with GDP growth over time in the less inclusive EU member states and an immediate result is unlikely.

Table 5

Determinants of Real GDP per capita (log) change and levels (less inclusive EU countries)

Variable	3-year change (b/se)	5-year change (b/se)	7-year change (b/se)	Levels (b/se)
composite_indicator	0.008669** (0.0033272)	0.0097717*** (0.0025732)	0.0158012*** (0.003885)	-0.0016496 (0.0022237)
Pop-by.education_avt	0.005431* (0.0026323)	0.0043454* (0.0023429)	0.0082403* (0.0039038)	0.0036342** (0.0014263)
Trade%GDP	0.0008373 (0.005824)	0.003195 (0.0008888)	0.0007323 (0.0010728)	0.0009026 (0.005114)
Infl	0.060809 (0.0035422)	0.0172781*** (0.0041261)	0.0121957*** (0.0039455)	0.0055277*** (0.0013149)
Fixed investment (~)	-0.0037329 (0.04713)	0.0032924 (0.0032823)	0.023671 (0.0045515)	-0.026539 (0.028972)
Gov_Consump(%GDP)	-0.013148 (0.0108573)	-0.0039127 (0.0086358)	-0.0075506 (0.0107572)	-0.014005* (0.0068526)
ICT(FBS)	2.98e-09 (5.72e-09)	-5.65e-09 (8.10e-09)	-1.38e-08 (9.70e-09)	-1.71e-09 (2.51e-09)
Crisis_dummy	-0.0426349 (0.0267516)	-0.0234643 (0.0154041)	-0.0092035 (0.0160863)	-0.0034863 (0.0189575)
initial_3growth_base	-0.1036766 (0.0906834)			
initial_5growth_base		-0.445549*** (0.0509927)		
initial_7growth_base			-0.3767756*** (0.0922287)	
Llog_Real_GDP_per				0.9694651*** (0.0359497)
Constant	-0.1974256 (1.049591)	2.852891*** (0.5936531)	1.270292 (0.8394868)	0.4618437 (0.4881986)
Observations	125	97	69	153

Source: Own processing using Stata18 software based on Eurostat and World Bank data (2010-2021)

Notes: Both country- and time-effects are included. *, **, and *** denote significance at the, respectively, 10 percent, 5 percent, and 1 percent levels. Robust t-statistics are in parentheses. The dependent variable is Real GDP per capita (log) 3, 5, 7-year change and levels. The composite_indicator is the computed inclusivity indicator that represents the benefit sharing and participation, Pop-by_education_avt stands for the population by educational attainment level upper secondary, post-secondary non-tertiary and tertiary education (levels 3-8) (total, aged 15-64). Trade%GDP stands for trade openness. Inflation is consumer price index annual percentage change. Fixed investment is the gross fixed capital formation (% of GDP) formerly gross domestic fixed investment, followed by Gov_Consump(%GDP) which denotes General government final consumption expenditure (% of GDP). ICTFBS is the fixed broadband subscriptions to high-speed access to the public Internet. The Crisis_dummy controls for the years 2020-21 (COVID-19 pandemic), initial_growth_3, initial_growth_5, initial_growth_7 refer to initial income for 3, 5, and 7 periods respectively and the L.log_Real_GDP_per controls for the initial income for the levels analysis model.

Generally speaking, the inclusiveness index is a significant predictor of GDP per capita growth over different periods, and the initial level of GDP per capita plays a crucial role in determining subsequent growth rates. The consistent patterns across various specifications hint at confidence in the robustness of the models.

CONCLUSION

The aim of the research was to explore the relationship between inclusiveness and growth within the EU-27 countries shifting the focus from the pro-poor to the pro-employed at risk of poverty perspective. To this end a new inclusiveness index was developed focusing on benefit-sharing and participation dimensions where the benefit-sharing is represented by income inequality and the in-work at risk of poverty and the participation is represented by employment ratio. Then, the correlation between the computed inclusiveness index and economic growth was analyzed, controlling for established determinants of growth in the case of the 27 EU countries as well as per groups of inclusiveness.

Thus, with regard to the set hypotheses, the following can be inferred. In the case of the first hypothesis the findings show that the developed inclusiveness index is positively associated with the logarithm of Real GDP per capita, thus validating hypothesis (H1). This shows that regions with higher inclusiveness scores usually enjoy greater economic prosperity.

The findings also reveal that more socio-economically developed EU countries tend to exhibit higher levels of

inclusiveness, thus proving hypothesis (H2). However, there are exceptions.

We can consider hypothesis (H3) also valid given that the computed inclusiveness index has emerged as a significant correlation-based determinant of Real GDP per capita over both short and medium-term periods showing sustainability of fostering inclusive growth, strengthened by the noticed growth convergence trends.

At a large scale the findings suggest that enhancing inclusiveness by reducing economic disparities can be an effective strategy for sustainable economic growth. Increasing the employment ratio is important but it should come along with decent wages for the employees and by reducing income inequality. Disparities persist, requiring tailored interventions.

Future research directions could explore establishing causality to further understand the causal effect of inclusiveness index and economic growth, possibly on a larger set of data. This would potentially strengthen the argument for adopting inclusive policies as a tool to foster economic prosperity across the EU.

REFERENCES

- Anand, R., Mishra, M. S., & Peiris, M. S. J. (2013). *Inclusive growth: Measurement and determinants*. International Monetary Fund. <https://doi.org/10.5089/9781484323212.001>
- Baron, J. (1999). Utility maximization as a solution: Promise, difficulties, and impediments. *American Behavioral Scientist*, 42(8), 1301-1321. <https://doi.org/10.1177/00027649921954877>
- Barro, R., & Sala-i-Martin, X. (2004). *Economic growth*. Second edition. http://ndl.ethernet.edu.et/bitstream/123456789/15298/1/29%20.%20Robert_J._Barro%2C.pdf
- Bilbao-Ubillos, J. (2023). The Social Dimension of the European Union: A Means to lock out Social Competition?. *Social Indicators Research*, 165(1), 267-281. <https://doi.org/10.1007/s11205-022-03012-6>
- Dörffel, C., & Schuhmann, S. (2022). What is inclusive development? Introducing the multidimensional inclusiveness index. *Social Indicators Research*, 162(3), 1117-1148. <https://doi.org/10.1007/s11205-021-02860-y>
- European Commission (EC). (2021). *The European Pillar of Social Rights Action Plan*. Publication no. KE-09-21-008-EN-N. Publications Office of the European Union. https://app.overton.io/document.php?policy_document_id=europa-a51c9d6f16d457b7f8e0c19dc1a19b44
- European Economic & Social Committee (EESC). (2018). *The European social model: Can we still afford it in this globalised world?* QE-03-18-396-EN-N. <https://www.eesc.europa.eu/sites/default/files/files/qe-03-18-396-en-n.pdf>
- European Parliament. (2021). *Questions and answers: the European pillar of social rights action plan*. Brussels. https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_821
- Eurostat. (2024a). *EU statistics on income and living conditions (EU-SILC) methodology - in-work poverty*. [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_statistics_on_income_and_living_conditions_\(EU-SILC\)_methodology_-_in-work_poverty#Description](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_statistics_on_income_and_living_conditions_(EU-SILC)_methodology_-_in-work_poverty#Description)
- Eurostat. (2024b). *Gini coefficient of equivalised disposable income*. <https://ec.europa.eu/eurostat/databrowser/view/tessi190/default/table>
- Eurostat. (2024c). *Employment - annual statistics. Employment of men and women by age groups*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Employment_-_annual_statistics#Employment_of_men_and_women_by_age_groups

- Florczak, I., & Otto, M. (2019). Precarious work and labour regulation in the EU: current reality and perspectives. In: J. Kenner, I. Florczak, & M. Otto, *Precarious Work* (pp. 2-21). <https://doi.org/10.4337/9781788973267.00008>
- Fura, B., & Wang, Q. (2017). The level of socioeconomic development of EU countries and the state of ISO 14001 certification. *Quality & Quantity*, 51, 103-119. <https://doi.org/10.1007/s11135-015-0297-7>
- Ghazal, R., & Zulkhibri, M. (2019). Islamic Inclusive Growth Index (i-IGI): Measurement and Determinants. In: S. A. Salman (ed.), *Towards a Maqāsid al-Sharī`ah Index of Socio-Economic Development: Theory and Application* (pp. 285-309). https://doi.org/10.1007/978-3-030-12793-0_10
- Giambona, F., & Vassallo, E. (2014). Composite indicator of social inclusion for European countries. *Social indicators research*, 116(1), 269-293. <https://doi.org/10.1007/s11205-013-0274-2>
- Herman, E. (2014). Working poverty in the European Union and its main determinants: An empirical analysis. *Engineering Economics*, 25(4), 427-436. <https://doi.org/10.5755/jo1.ee.25.4.6339>
- Khandelwal, S., & Agarwal, S. (2020). *Application of Fixed Broadband Subscriptions Impact On Economic Growth*. <https://assets.researchsquare.com/files/rs-60231/v1/4ed174f9-2d48-43ab-9695-10b95c916aaa.pdf?c=1631854134>
- Lafortune, G., Fuller, L., Kloke-Lesch, A., Koundouri, P., & Riccaboni, A. (2024). *European elections, Europe's future and the sustainable development goals*. Europe Sustainable Development Report 2023/24. SDSN and SDSN Europe. Paris, SDSN, Dublin: Dublin University Press. <https://doi.org/10.25546/104407>
- Laskowska, P. (2021, May 30-31). Determinants of Income Inequality In 26 European Union Countries. In: *Innovation Management and information Technology impact on Global Economy in the Era of Pandemic*: conference 37th International Business Information Management Association conference (IBIMA). Cordoba, Spain. ISBN: 978-0-9998551-6-4, ISSN: 2767-9640.
- Mailand, M. (2024). Driving the EU working conditions directive: social partner reactivity and the limits to commission entrepreneurship. *Comparative European Politics*, 22, 865-885. <https://doi.org/10.1057/s41295-024-00392-6>
- Meyer, D. F., & Meyer, N. (2019). Assessment of Inclusive Growth performance: A comparative analysis of the BRICS countries. *Acta Universitatis Danubius. Œconomica*, 15(4), 191-207. <https://journals.univ-danubius.ro/index.php/oeconomica/article/download/5723/5005>
- Minges, M. (2015). *Exploring the relationship between broadband and economic growth*. <https://documents1.worldbank.org/curated/es/178701467988875888/pdf/102955-WP-Box394845B-PUBLIC-WDR16-BP-Exploring-the-Relationship-between-Broadband-and-Economic-Growth-Minges.pdf>
- Neef, T., & Sodano, A. (2022). *Inequality trends in Europe*. World Inequality Lab - Issue Brief 2022/04. World Inequality Lab. <https://wid.world>
- Pisica, R. (2024). A comparative analysis of inclusiveness and its implications for economic development: how Moldova, Georgia and Ukraine align with eu member states in benefit-sharing and participation. In: A-M. Bercu, I. Bilan, & C-M. Apostoaie (Eds.), *Enhancing EU Workforces: Advancing Skills in the Administrative Area for Europe's Future*: Proceedings of the international conference EU-PAIR (pp. 195-225). Iași: Editura Universității Alexandru Ioan Cuza. https://eu-pair.uaic.ro/wp-content/uploads/2024/11/volum-online_EUPAIR_27.11.2024.pdf
- Prada, A., & Sánchez-Fernández, P. (2019). Transforming economic growth into inclusive development: An international analysis. *Social Indicators Research*, 145, 437-457. <https://doi.org/10.1007/s11205-019-02096-x>,
- Ramos, R. A., Ranieri, R., & Lammens, J. W. (2013). *Mapping inclusive growth*. Working Paper, 105, March. International Policy Centre for Inclusive Growth (IPC-IG). <https://ipcig.org/sites/default/files/pub/en/IPCWorkingPaper105.pdf>
- United Nations (UN), Department of Economic and Social Affairs (2023). *Sustainable Development*. <https://sdgs.un.org/goals>
- World Bank Database (WB). (2024). *World Development Indicators*. <https://databank.worldbank.org/source/world-development-indicators/Series/SL.EMP.TOTL.SP.ZS>
- Zielenkiewicz, M. (2020). Diversity in the European Union in terms of inclusive development. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, 64(6), 196-209. <https://doi.org/10.15611/pn.2020.6.15>