DIGITALES ARCHIV

Claveria, Oscar

Article

Redistribution and human development : evidence from Europe

Economics and Business Letters

Provided in Cooperation with:
University of Oviedo

This Version is available at:
http://hdl.handle.net/11159/654054

Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Mitglied der

Leibniz-Gemeinschaft

Redistribution and human development: evidence from Europe

Oscar Claveria[*] iD

AQR-IREA, University of Barcelona, Spain

Abstract

This study examines the relationship between human development and the redistributive effect of taxes and government transfers in 30 European countries over the period 1990–2021 by means of a fixed-effects panel model. Overall, the analysis suggests that greater redistribution is associated with an increase in average development. The coefficient for a one-period lag is also found to be positive and significant, suggesting that the effects of redistributive policies show some persistence. These results are robust to different periodicities and specifications. The analysis of the relationship between redistribution and the different dimensions of development separately – health, education and economy – highlights that the only significant and positive effect occurs with per capita income. When replicating the analysis at the regional level, this nexus is only found to be significant in the countries of northern Europe.

1. Introduction

The complexity of the relationship between inequality and development is reflected in the fact that the debate originated by the seminal work of Kuznets (1955) continues to be at the centre of the political agenda. Inequity in the distribution of income has changed over time. Since 1980, income inequality has shown a sustained increase in the United States and Europe (Piketty and Saez, 2014). The main tools that governments have to alleviate the negative effects of a growing concentration of income among a small fraction of the population are taxes and

---

[*] E-mail: oclaveria@ub.edu.

transfers. The objective of this study is to analyse the relationship between the redistributive impact of these measures and human development and its different dimensions.

While the relationship of inequality with economic growth (Castelló-Climent, 2010; Castells-Quintana and Royuela, 2017) or with financial development (Özdemir, 2019; Sotiropoulou, Giakoumatos and Georgopoulos, 2023) has been analysed in detail, the link between redistribution and development has been scarcely studied (Granger, Abramovsky and Pudussery, 2022). The reason for this gap in the literature is mainly due to the lack of homogeneous information regarding the actual impact of redistributive measures.

In the present study, we use the "pre-post" approach to compute the effective impact of public redistributive measures. The recent availability of historical series on the distribution of income after taxes – freely accessible from the World Income Database (WID.world) – has allowed us to estimate the impact of redistributive policies as the difference between market and net Gini coefficients. This, in turn, allows us to analyse the effect that redistribution has on human development and its different components.

The rest of the study is structured as follows. The next section reviews the literature. Section 3 describes the data that were used. Section 4 presents the methodology and discusses the results, and finally Section 5 draws some conclusions.

2. Literature review

Inequality in the distribution of income has implications in numerous areas, and society's growing awareness of its potential long-term negative effects is reflected in the large number of studies carried out. In the economic field, the debate has focused fundamentally on the relationship between inequality and development, mostly in the form of economic growth, but the nexus between redistribution and development has been understudied.

Despite the close relationship between inequality and redistribution (Borge and Rattsø, 2004; Claveria and Sorić, 2024), with the aim of synthesising both currents in the literature, we review the main studies focused on the link between development and each one of the variables independently.

2.1. Inequality and development

Although at a theoretical level there is a certain consensus regarding the transmission channels between inequality and development (Gründler and Scheuermeyer, 2018), at an empirical level it is more difficult to reconcile the different results obtained so far. Gründler and Scheuermeyer (2018) synthesised the transmission mechanisms into five categories: differential saving rates, credit market imperfections, endogenous fertility, socio-political unrest, and endogenous fiscal policy. However, at an applied level, the intertwined relationship between inequality and development, together with its different dimensions and ways of approximating both phenomena, means that the evidence collected so far regarding the effect of inequality on development is inconclusive.

The complex interdependencies between inequality and development are manifested in a literature with contrasting results. While Forbes (2000), Munielo-Gallo and Roca-Sagalés (2013), and Woo (2020) obtained a positive association between inequality and economic growth, other authors, including Alesina and Rodrik (1994), Easterly (2007), Herzer and Vollmer (2012), and Persson and Tabellini (1994), found evidence of an inverse relationship.

Castells-Quintana, Gradín and Royuela (2022) summarised the potential sources of this discrepancy in three fundamental reasons: (i) first, the time horizon of the analysis – short-term vs long-term effects (Easterly, 2007; Halter, Oechslin and Zweimüller, 2014) –, (ii) second, the existence of different types of inequality – that of opportunity vs. that of effort (see Marrero and Rodriguez, 2013) –, as well as the different dimensions of development beyond the strictly economic (i.e. health and education), and (iii) third, the confluence of a large number of intermediate factors that influence the relationship between the two variables, meaning that the increase in inequality can have both positive and negative effects on development. The authors grouped these transmission mechanisms into those that may have a positive effect, i.e. higher saving rates, imperfect capital markets, and growth-enhancing incentives, and those that may have a negative effect on development, namely socio-political instability, higher redistributive pressure, credit market imperfections, the relevance of the middle class in terms of aggregate demand, and the link between inequality and endogenous fertility rates.

To all this, it is worth adding some empirical regularities observed in the studies carried out to date. Firstly, a differentiated pattern is detected depending on the type of analysis: while cross-sectional studies, focused fundamentally on the short-term effect of inequality on development, tend to find a positive association between inequality and development, studies that incorporate dynamism into the analysis by means of time-series or panel models, generally tend to obtain an inverse relationship between both variables. Secondly, differences are also found depending on the geographical area analysed: while for developing countries, it is customary to obtain a fundamentally inverse relationship between inequality and growth, for advanced economies the sign of the association becomes positive (Barro, 2000; Ravallion, 2014). Finally, Voitchovsky (2005) showed how the shape of the income distribution conditions the results: in general, growth tends to be weakened by inequality at the bottom end of the distribution, but enhanced at the top end. See Baselgia and Foellmi (2022), De Dominicis, Florax and Groot (2008), Ferreira, Gisselquist and Tarp (2022) and Neves and Silva (2013) for thorough and comprehensive surveys on the effects of inequality on economic growth.

2.2. Redistribution and economic growth

From a theoretical point of view, the first attempts to analyse the complex relationship between redistribution and growth were based on the rational choice theory, and more specifically on the formal model of taxation by Meltzer and Richard (1981), which postulates that a more unequal income distribution would create a majority in favour of more redistribution. This theoretical framework has been generalised through successive contributions, thus allowing

alternative mechanisms to be integrated. For example, Alesina and Rodrik (1994) and Perotti (1996) extended the model by allowing two separate mechanisms: one from income inequality to redistributive policies (political mechanism), and the second from redistribution to economic growth (economic mechanism).

There is mixed evidence with respect to the political mechanism: some studies found that redistributive efforts tend to be greater in countries with higher income inequality (Berg et al., 2018; Milanovic, 2000), while others obtained evidence to the contrary (Benabou, 2000; De Mello and Tiongson, 2006). Focusing on countries from the Organisation for Economic Co-operation and Development (OECD), Joumard, Pisu and Bloch (2012) found that taxes and transfers reduced inequality in disposable income relative to market income, although the effect varied notably across OECD countries.

In the same vein, Acemoglu et al. (2015) questioned the theoretical premise that democracy is expected to increase redistribution and reduce inequality, showing that democracy itself does not lead to a uniform decline in post-tax inequality, but can result in changes in fiscal redistribution and economic structure that have ambiguous effects on inequality. Overall, in a review of the literature examining the link between income inequality and government spending, Anderson et al. (2017) found a moderate negative relationship between government spending and income inequality, and that the redistribution effect tends to be more effective in developed countries. The authors noted that in order to achieve a more equitable distribution of income, it is not enough just to increase the tax level and the magnitude of the transfers, but rather it is also necessary to place special emphasis on the progressivity of taxes and on the type and ultimate recipient of the transfers.

On the other hand, the economic mechanism focuses on the negative incentive effects of redistribution on physical or human capital accumulation and labour effort. It should be noted, however, that both the provision of public goods and the government's incentives for innovation would play a compensatory role for this latter mechanism (Lindert, 2004). As mentioned in the Introduction, the lack of available information to estimate the effective impact of redistributive policies has meant that the study of the economic mechanism has been somehow relegated.

Making use of fiscal policy instruments to proxy redistribution – such as marginal tax rates or social spending – some pioneering studies found a positive but tenuous association with economic growth (e.g. Alesina and Rodrik, 1994; Perotti, 1996). More recently, using panel data of 21 high-income OECD countries Munielo-Gallo and Roca-Sagalés (2013) found that distributive expenditures and direct taxes produced significant reductions in economic growth. Similarly, using data for 130 countries, Woo (2020) obtained evidence that redistribution involved a significant trade-off between equity and long-term growth, which varied with the initial level of market income inequality, and the size of redistribution itself.

To the best of our knowledge, this is the first study to evaluate the effective impact of redistributive measures on development, measured through the human development index (HDI) with the aim of covering not only the economic dimension but also those related to education and health. These two factors have proved to be intrinsically linked to inequality

(Castells-Quintana, Royuela and Thiel, 2019; Easterly, 2007; Martinez, 2016; Permanyer and Smits, 2020; Pickett and Wilson, 2015; Suárez and López, 2023).

3. Data

On the one hand, in order to obtain a homogeneous measure of redistribution, we proceeded to calculate the difference between inequality in primary or market income (i.e., before taxes and government transfers, except pensions and unemployment insurance among adults) and inequality in disposable income (i.e., after taxes and transfers), both measured through the Gini index, obtained from the WID.world dataset. (see Chancel et al. (2022) for a detailed description of the data). This approach to compute the effective impact of public redistributive measures is known as "pre-post", and has been used in public policy research (Lupu and Pontusson, 2011).

On the other hand, development was proxied by the HDI, which is a composite indicator of life expectancy, education and income per capita that allows analysis of the interactions between redistribution and development beyond a strictly economic sense. Using time series for the period between 1990 and 2021, we constructed a panel for the 30 European countries for which there was available information. Figure 1 provides a graphical analysis of the distribution of both variables, at the beginning and at the end of the sample, both at the aggregate level and by region. The third row of Figure 1 includes box plots of the growth rates observed during the sample period, while Table 1 presents the average annual growth of both variables during the sample period.

Table 1 shows that the average growth of redistribution is more uneven among countries than that of development. Specifically, with the exception of Poland, eastern European countries show negative average rates during the sample period. In contrast, some southern European countries such as Italy and Croatia display higher redistributive rates. This asymmetry between regions is corroborated in the last box plot of Figure 1, which illustrates the total growth rates observed during the sample period. When the results are broken down by region, the greatest effectiveness of redistributive policies is observed in northern European countries, in contrast to the eastern and southern regions. The highest growth rates in inequality reduction are observed in Ireland, Italy, and Poland, contrasting with those in Hungary, Moldova, Switzerland, and Luxembourg.

Table 1. Average growth – HDI and redistribution in European countries (1990–2021)

Countries	HDI	Redistribution	Countries	HDI	Redistribution
Austria	0.427%	-0.204%	Latvia	0.633%	1.739%
Belgium	0.460%	1.095%	Luxembourg	0.500%	-0.284%
Bulgaria	0.377%	0.096%	Moldova	0.348%	-0.833%
Croatia	0.769%	2.085%	Netherlands	0.384%	0.235%
Czechia	0.604%	-0.214%	Norway	0.401%	0.734%
Denmark	0.526%	0.371%	Poland	0.645%	2.699%
Estonia	0.622%	1.533%	Portugal	0.607%	0.767%
Finland	0.564%	1.099%	Romania	0.482%	9.104%
France	0.450%	1.028%	Serbia	0.343%	13.401%
Germany	0.497%	0.875%	Slovakia	0.437%	-11.999%
Greece	0.497%	2.156%	Slovenia	0.553%	0.704%
Hungary	0.578%	-0.349%	Spain	0.561%	0.044%
Iceland	0.559%	2.223%	Sweden	0.464%	0.768%
Ireland	0.653%	1.210%	Switzerland	0.439%	29.871%
Italy	0.462%	7.083%	United Kingdom	0.563%	0.648%

Note: Redistribution is computed as the difference of the Gini index before and after taxes and transfers.

4. Empirical analysis

The relationship between redistribution and human development over time is examined using a fixed-effects (FE) panel model, which can be specified as follows:

$$y_{i,t} = \beta_0 + \beta_1 X_{i,t} + \beta_2 X_{i,t-1} + \alpha_i + \delta_t + \varepsilon_{it}, \tag{1}$$

where y_{it} is the dependent variable (HDI and each of its components) for country *i* in year *t*, for *i*=1,…,*N* and time *t*. The explanatory variable X_{it} is redistribution for country *i* in year *t*, which is also included with a one-period lag to evaluate the persistence of redistributive measures. Unobserved time-invariant country-specific characteristics are collected in α_i, which is a set of *N*-1 dummy variables multiplied by their respective regression coefficients to account for country-fixed effects. We also added *T*-1 dummy variables to account for time-fixed effects, noted in Eq. 1 as δ_t. This makes it possible to control for time-varying differences in human development common to all countries (e.g. the pandemic). The models were estimated using heteroscedasticity- and autocorrelation-consistent (HAC) standard errors. As is commonly done in the literature, given the persistency of the series and with the aim of controlling for the business cycle, the time dimension *t* is first defined in three-year intervals.

Results are presented in Table 2.

Figure 1. Box plots of HDI and redistribution (1990–2021)
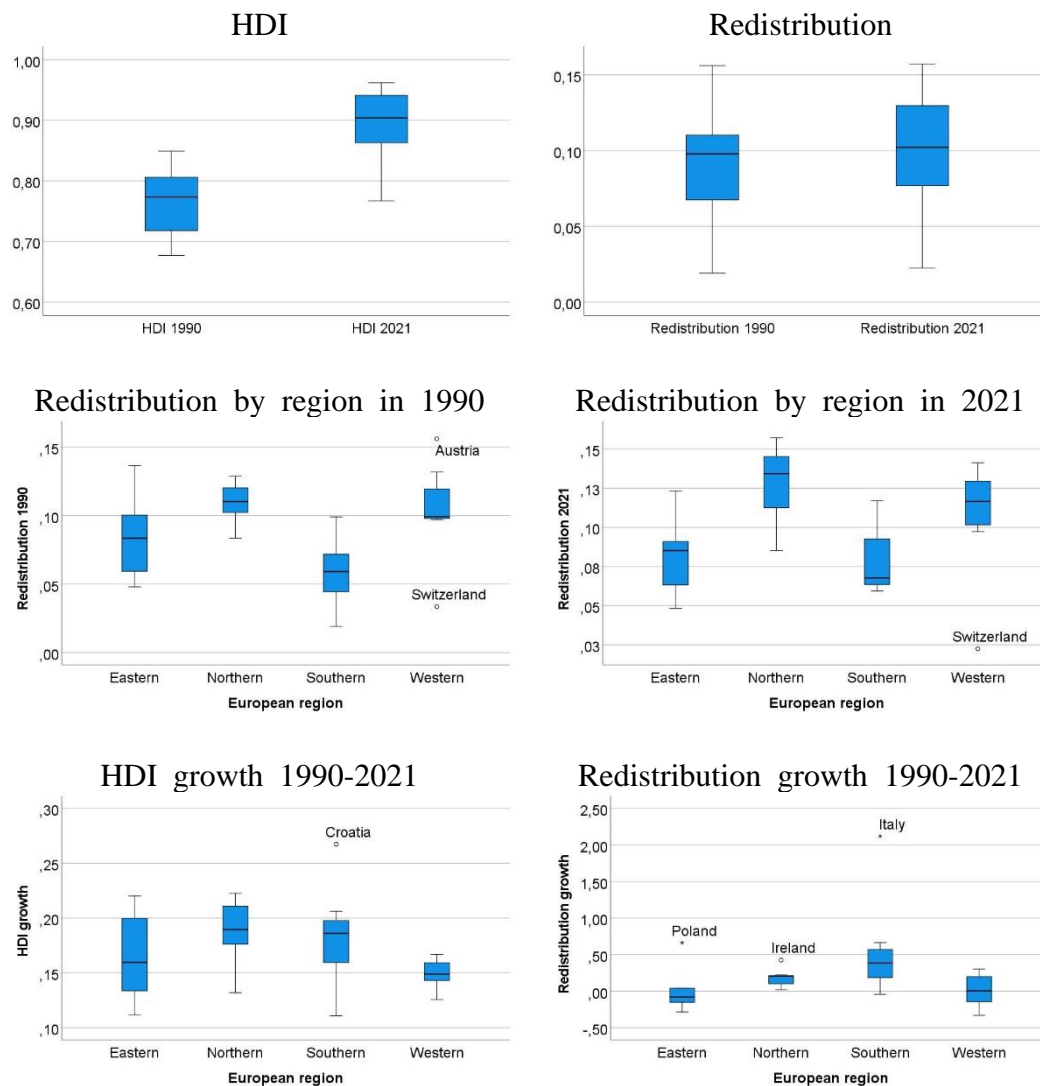
Note: Redistribution is computed as the difference of the Gini index before and after taxes and transfers.

Table 2. Panel regression results – Redistribution and human development and its components

	(1)	(2)	(3)	(4)	(5)
Dependent variable	HDI	Life expectancy index	Expected years of schooling	Mean years of schooling	GNI per capita
Redistribution(*t*)	1.242***	0.033	-0.855	-0.616	9.426***
	(0.092)	(0.050)	(2.664)	(2.251)	(0.735)
Redistribution(*t-1*)	0.668***	0.023	0.217	-0.478	6.239***
	(0.066)	(0.054)	(2.541)	(2.655)	(0.508)
Constant	0.678***	0.100***	16.032***	11.560***	1.708***
	(0.015)	(0.010)	(0.482)	(0.497)	(0.117)
LSDV R-squared	0.695	0.141	0.591	0.673	0.595
Cross-sectional unit	30	30	30	30	30
Observations	270	270	270	270	270

Notes: Robust (HAC) standard errors between brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. GNI denotes Gross National Income and it is included in the model in logs.

Table 2 reports the results of the estimations of Eq. 1 for HDI and each of its components. Column (1) shows the estimated coefficients for the specification that considers the HDI as the dependent variable, while columns (2) to (5) respectively report the estimated FE models for the rest of the components of the HDI: the life expectancy index, which captures the health dimension; the expected and the mean years of schooling that are used to proxy the education dimension; and Gross National Income (GNI) per capita. Results in column (1) suggest that increases in redistribution are associated with an increase in the average level of development. This finding is in keeping with Karakotsios et al. (2020), who found evidence of the redistributive role of taxes in a panel of 58 countries. The specified model includes a one-period lag of redistribution, and its coefficient is also positive and significant, although it takes a lower value. These results support the idea that the impact of redistributive policies has some persistence over time.

When re-estimating Eq. 1 for the different components of the HDI, we obtained a positive association between redistribution and the health and economic dimension of the index and a negative but non-significant association between redistribution and the education components of the index, captured by the expected and the mean years of schooling. Castells-Quintana, Royuela and Thiel (2019) found a negative association between inequality and education. However, the only significant coefficient is the one obtained for the specification in which per capita income is used as the endogenous variable. Alesina and Rodrik (1994) and Perotti (1996)

also found a positive association between redistribution and economic growth, while Ostry et al. (2014) and Thewissen (2014) found little evidence of a significant growth effect of redistribution.

With the aim of delving into this last finding and evaluating the robustness of the results to different periodicities and specifications, next we carry out two robustness checks using annual data. First, we replicate the analysis using different specifications. As pointed out by Castells-Quintana, Royuela and Thiel (2019), FE estimates focus on the variation within countries over time, so results can be interpreted as being related to the short run. By contrast, Ordinary Least Squares (OLS) captures a long-run association. Therefore, in Table 3, we compare the results obtained with different models. Column (1) shows the estimates of Eq. 1 obtained using an FE panel model, column (2) presents the result of adding country-specific time trends, and column (3) contains OLS estimates from a pooled regression with country and time dummies. Finally, column (4) reports the estimates obtained with a dynamic panel model, using the system generalised method of moments (GMM-SYS) to guarantee the consistency of the estimates due to the inclusion of the lagged dependent variable. In all cases, the estimated coefficients are positive and mainly significant.

Table 3. Regression results – Redistribution and human development – Different specifications

Model	(1) Fixed effects	(2) Fixed effects	(3) Pooled OLS	(4) Dynamic panel (GMM-SYS)
Dependent variable	HDI	HDI	HDI	HDI
Redistribution(t)	1.003***	0.013	1.020***	1.063***
	(0.032)	(0.045)	(0.151)	(0.026)
Redistribution(t-1)	0.296***	0.083**	1.028***	0.001
	(0.025)	(0.035)	(0.147)	(0.040)
HDI(t-1)	–	–	–	0.395***
	–	–	–	(0.035)
Constant	0.712***	0.875***	0.692***	0.397***
	(0.009)	(0.008)	(0.033)	(0.029)
LSDV R-squared	0.588	0.972	0.677	–
Cross-sectional units	30	30	30	30
Observations	930	930	930	930

Notes: Robust (HAC) standard errors between brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Next, we re-estimate Eq. 1 using GNI per capita as the dependent variable and replicating the analysis for each European region independently. This allows us to shed some light on the redistribution-income link at a regional level and to circumvent the potential issues that may arise from the use of a bounded dependent variable. The 30 countries are grouped into four different regions, following the UN classification: northern Europe (Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Norway, Sweden, and UK); southern Europe (Croatia, Greece, Italy, Portugal, Serbia, Slovenia, and Spain); eastern Europe (Bulgaria, Czechia, Hungary, Moldova, Poland, Romania, and Slovakia); and western Europe (Austria, Belgium, France, Germany, Luxemburg, the Netherlands, and Switzerland).

Table 4 reports the results of the estimations of Eq. 1 using the logarithm of GNI per capita as the dependent variable and employing annual data from 1990 to 2021. Each column shows the estimated FE coefficients for each region. There are similarities in the results obtained across regions regarding the sign of the coefficients, which is found to be positive in all cases, both for contemporary and lagged redistribution. However, only the contemporary impact o f redistribution on income per capita in northern Europe is found to be statistically signif icant. This finding is consistent with the conclusion reached by Anderson et al. (2017) in their review of the literature on the redistribution effect, which tends to be more effective in developed countries.

Table 4. Panel regression results – Redistribution and income – By region

Region	Northern Europe	Southern Europe	Eastern Europe	Western Europe
Dependent variable	Income	Income	Income	Income
Redistribution(t)	2.031**	0.433	0.487	0.328
	(1.078)	(1.785)	(0.829)	(0.494)
Redistribution(t-1)	0.177	0.503	0.900	0.271
	(0.069)	(1.076)	(0.990)	(0.575)
Constant	3.418***	3.051***	2.882***	3.641***
	(0.182)	(0.176)	(0.143)	(0.061)
LSDV R-squared	0.913	0.865	0.805	0.973
Cross-sectional units	9	7	7	7
Observations	279	217	217	217

Notes: Robust (HAC) standard errors between brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Income is measured as the logarithm of Gross National Income per capita.

These regional differences in the effect of redistribution on income somehow connect with recent research by Baek, Noh and Ahn (2023), who found that regional factors have heterogeneous effects on income inequality fluctuations across countries, and that they account more significantly for the future variance of income inequality than for global factors. Analogously, Özdemir (2019) obtained opposite results for high-income and middle-income countries when analysing the nexus between financial development and income inequality.

5. Conclusion

This study evaluates the relationship between the redistributive effect of taxes and transfers and human development and its different components in European countries. Despite a general increase in the redistributive role of governments in recent decades, we observe great differences across regions in the evolution of redistribution, especially between northern Europe and the rest of the countries.

Overall, we found that increased redistribution was associated with increased human development. The contemporary and the lagged impact are found to be positive and significant, suggesting some persistence in the effects of redistribution. Results are robust to different periodicities and specifications. However, when evaluating the role of the different dimensions – health, education and economy – we only found a significant and positive association between redistribution and per capita income.

These findings suggest that the effect of redistributive efforts takes longer to translate into greater human development than into increases in per capita income. This is reflected in the significant and positive coefficient found in all specifications for the one-period lag of the redistribution variable.

When evaluating the relationship between redistribution and income at the regional level, we obtained positive coefficients in all regions, although the association between the redistributive effect of taxes and transfers and per capita income was only found to be significant in northern Europe.

The results obtained suggest the existence of a certain positive association between redistribution and development, despite the fact that the impact of increases in redistribution is fundamentally manifested in a rise in average disposable income. These findings are of special interest for the design of fiscal policies. In this regard, improvements in the selection of recipients of state transfers as well as in fighting tax evasion are key to ensuring that redistributive efforts have a greater reflection in promoting economic and human development.

Finally, we want to point out that the obtained results might have been influenced by biases derived both from the measurement of redistribution and from the fact that other factors affecting human development have not been considered. As time series related to disposable income after taxes become available for additional countries, the objective is to extend the analysis to the rest of the world.

References

Acemoglu, D., Naidu, S., Restrepo, P. and Robinson, J.A. (2015) *Democracy, redistribution, and inequality*, in Atkinson, A.B. and Bourguignon, F. (eds.), Handbook of Income Distribution*, 1885–1966, Elsevier.

Alesina, A. and Rodrik, D. (1994) Distributive politics and economic growth, *The Quarterly Journal of Economics*, 109(2), 465–490.

Barro, R.J. (2000) Inequality and growth in a panel of countries, *Journal of Economic Growth*, 5(1), 5–32.

Anderson, E., D'Orey, M.A.J., Duvendack, M. and Esposito, L. (2017) Does government spending affect income inequality? A meta-regression analysis, *Journal of Economic Surveys*, 31(4), 961–987.

Baek, I., Noh, S. and Ahn, J. (2023) Does income inequality move together across the world? *Applied Economics Letters,* forthcoming.

Baselgia, E. and Foellmi, R. (2022) *Inequality and growth: A review on a great open debate in economics*, WIDER Working Paper 2022/5, Helsinki: UNU-WIDER.

Benabou, R. (2000) Unequal societies: income distribution and the social contract, *American Economic Review*, 90(1), 96–129.

Berg, A., Ostry, J. D., Tsangarides, C. G. and Yakhshilikov, Y. (2018) Redistribution, inequality, and growth: New evidence, *Journal of Economic Growth*, 23, 259–305.

Borge, L.-E. and Rattsø., J. (2004) Income distribution and tax structure: Empirical test of the Meltzer–Richard hypothesis? *European Economic Review*, 48(4), 805–826.

Castelló-Climent, A. (2010) Inequality and growth in advanced economies: An empirical investigation, *The Journal of Economic Inequality*, 8(3), 293–321.

Castells-Quintana, D., Gradín, C. and Royuela, V. (2022) *Inequality and human development. The role of different parts of the income distribution,* WIDER Working Paper 2022/96, UNU WIDER.

Castells-Quintana, D. and Royuela, V. (2017) Tracking positive and negative effects of inequality on long-run growth, *Empirical Economics*, 53(4), 1349–1378.

Castells-Quintana, D., Royuela, V. and Thiel, F. (2019) Inequality and sustainable development: Insights from an analysis of the Human Development Index, *Sustainable Development*, 27(3), 448–460.

Chancel, L., Piketty, T., Saez, E. and Zucman, G. (2022) *World Inequality Report 2022,*

Harvard University Press.

Claveria, O. and Sorić, P. (2024) Labour market uncertainty after the irruption of COVID-19, *Empirical Economics*, 64(4), 1897–1945.

De Dominicis, L., Florax, R. and Groot, H. (2008) A meta-analysis on the relationship between income inequality and economic growth, *Scottish Journal of Political Economy*, 55(5), 654–682.

de Mello, L. and Tiongson, E. (2006) Income inequality and redistributive government spending, *Public Finance Review*, 34(3), 282–305.

Easterly, W. (2007) Inequality does cause underdevelopment: Insights from a new instrument, *Journal of Development Economics*, 84(2), 755–776.

Ferreira, I. A., Gisselquist, R. M. and Tarp, F. (2022) On the impact of inequality on growth, human development, and governance, *International Studies Review*, 24(1), 1–28.

Forbes, K. J. (2000) A reassessment of the relationship between inequality and growth, *American Economic Review*, 94(4), 869–87.

Granger, H., Abramovsky, L. and Pudussery, J. (2022) *Fiscal policy and income inequality: The role of taxes and social spending,* ODI Report. London: ODI.

Gründler, K. and Scheuermeyer, P. (2018) Growth effects of inequality and redistribution: What are the transmission channels? *Journal of Macroeconomics*, 55, 293–313.

Halter, D., Oechslin, M. and Zweimüller, J. (2014) Inequality and growth: The neglected time dimension, *Journal of Economic Growth*, 19(1), 81–104.

Herzer, D. and Vollmer, S. (2012) Inequality and growth: Evidence from panel cointegration, *Journal of Economic Inequality*, 10(4), 489–503.

Joumard, I., Pisu, M. and Bloch, D. (2012) Tackling income inequality: The role of taxes and transfers, *OECD Journal: Economic Studies*, 2012(1), 37–70.

Karakotsios, A., Katrakilidis, C., Dimitriadis, D. and Christoforidis, T. (2020) Examining the relationship between income inequality, taxation and economic freedom: A panel cointegration approach, *Economics and Business Letters*, 9(3), 206–215.

Kuznets, S. (1955) Economic growth and income inequality, *American Economic Review*, 45(1), 1–28.

Lindert, P. (2004) Social spending and economic growth, *Challenge*, 47(4), 6–16.

Lupu, N. and Pontusson, J. (2011) The structure of inequality and the politics of redistribution, *American Political Science Review*, 105(2), 316–336.

Marrero, G. A. and Rodriguez, J. G. (2013) Inequality of opportunity and growth, *Journal of Development Economics*, 104, 107–122.

Martinez, R. (2016) Inequality decomposition and human development, *Journal of Human Development and Capabilities*, 17(3), 415–425.

Meltzer, A. H. and Richard, S. F. (1981). A rational theory of the size of government, *Journal of Political Economy*, 89(5), 914–927.

Milanovic, B. (2000) The median-voter hypothesis, income inequality, and income redistribution: An empirical test with the required data, *European Journal of Political*

Economy, 16(3), 367–410.

Munielo-Gallo, L. and Roca-Sagalés, O. (2013) Joint determinants of fiscal policy, income inequality and economic growth, *Economic Modelling*, 30, 814–824.

Neves, P. C. and Silva, S. M. (2013) Survey article: Inequality and growth, *Journal of Development Studies*, 50, 1–21.

Ostry, J., Berg, A. and Tsangarides, C. (2014) *Redistribution, inequality and growth,* IMF Staff Discussion Note (SDN/14/02), Washington, DC: IMF.

Özdemir, O. (2019) Rethinking the financial Kuznets curve in the framework of income inequality: Empirical evidence on advanced and developing economies, *Economics and Business Letters*, 8(4), 176–190.

Permanyer, I. and Smits, J. (2020) Inequality and human development across the globe, *Population and Development Review*, 46(3), 583–601.

Perotti, R. (1996) Growth, income distribution, and democracy: What the data say, *Journal of Economic Growth*, 1(2), 149–187.

Persson, T. and Tabellini, G. (1994) Is inequality harmful for growth? *The American Economic Review*, 84(3), 600–621.

Pickett, K. and Wilkinson, R. (2015) Income inequality and health: A causal review, *Social Science & Medicine*, 128, 316–326.

Piketty, T. and Saez, E. (2014) Inequality in the long run, *Science* 344(6186), 838–843.

Ravallion, M. (2014). Inequality in the developing world, *Science*, 344(6186), 851–855.

Sotiropoulou, T., Giakoumatos, S. and Georgopoulos, A. (2023) Financial development, economic growth, and income inequality: A Toda-Yamamoto panel causality test, *Economics and Business Letters*, 12(2), 172–185.

Suárez, A. and López, A.J. (2023) The role of family background and education in shaping inequalities. Evidence from the Spanish regions, *Social Policy and Society*. forthcoming.

Thewissen, S. (2014) Is it the income distribution or redistribution that affects growth? *Socio-Economic Review*, 12(3), 545–571.

Voitchovsky, S. (2005) Does the profile of income inequality matter for economic growth? *Journal of Economic Growth*, 10(3), 273–296.

Woo, J. (2020) Inequality, redistribution and growth: New evidence on the trade-off between equality and efficiency, *Empirical Economics*, 58, 2667–2707.